

# COMMANDER AND COMMAND SURGEON

## Introduction.

This book is written by medical professionals for their colleagues, and my responding to the Surgeon General's request for these opening words may involve temerity. But I am an old soldier now, tending vineyards and cattle in the Blue Ridge Mountains, and I am disinclined to qualm.

What I have written here draws upon twenty one years of service in the infantry, and fourteen years as a general officer. My purpose is to share some observations on war and its imperatives, and the consequences of these for medicine in the Army, which the reader might not encounter elsewhere. I ask your indulgence if I seem discursive; my subjects are as amorphous as they are momentous.

The very first Army Field Manual I studied, a small, dun-colored handbook on basic fieldcraft, its format reflecting the austerities of World War II, impressed upon me the urgencies of field sanitation and first aid. I do not remember hearing much about such matters, or about other aspects of military medicine at West Point, but I recall vividly what I learned, at first hand, during the Korean War. I still have among my keepsakes a fading snapshot of Major General Lyman Lemnitzer, then commanding the Seventh Infantry Division, bending over cots in a Mobile Army Surgical Hospital near Kumwha in the spring of 1952 on which lay myself and soldiers of my company wounded in a night assault on a Chinese outpost. In my grateful memory, the doctors and nurses of that MASH, and -- more dimly-remembered -- our battalion surgeon and the Medical Corpsmen of 1st Battalion, 32d Infantry, were altogether different in dedication and professionalism from the actor-travesties replayed incessantly on commercial television in recent years.

Not until Vietnam, however, did I truly understand the central contribution made by the Medical Branch to military plans and operations. In the autumn of 1966, while in command of 1st Battalion, 26th Infantry, I received reports that columns of North Vietnamese bearing long metal tubes were crossing from Cambodia to the Song Be (river), north of An Loc, in Binh Dinh Province -- enemy units bearing impedimenta long-after identified as the 122mm. rockets used in the Tet Offensive of 1968, and thereafter for the bombardment of Saigon. I ordered two rifle companies to undertake long range patrols deep into the jungles to confirm or deny the intelligence, and to capture some of the mysterious materiel. The companies marched off lightly armed, bearing five days of rations

in socks around their neck, with only a poncho-on-belt for shelter; they came back within a week, literally decimated and demoralized. They had been defeated not by Viet Cong or North Vietnamese, but by a strain of malaria against which our normal prophylaxis proved impotent. The casualties were particularly onerous in that the disease affected mainly the older men --those in their late twenties and beyond-- who constituted the battalion's reservoir of experience. One line company was rendered ineffective from the loss of virtually all its noncommissioned officers, and I had to redistribute leaders throughout the battalion as a whole before that company was ready to return to operations. Thereafter, in my tactical planning I always consulted my medic.

When I returned to Vietnam in 1970 to take command of the 1st Brigade, 101st Airborne Division, I found a different force from that I had known in 1966 and 1967. The older enlisted soldiers were no longer in the line companies, their positions filled by acutely inexperienced "Shake and Bake" NCOs, as green as the draftee privates inducted from the same year group, or the lieutenant of like age leading their platoon. Drugs, other indiscipline, and "rear area" malingering preoccupied battalion and higher commanders. If I was in any sense better prepared than some colleagues to cope with such problems, it was because I had learned how to use to full advantage support from the Army Medical Service. I had learned from doctors much about husbanding the soldier's budget of courage. I had been well-instructed on the debilitating effects of cannabis and heroin, and on the dangers of alcohol; I turned the full weight of my office against substance abuse. I frowned on wearing the armored vest unfastened, for I knew well the vulnerability of the human chest, and I was intolerant of such fads as soldiering shirtless, or cutting trousers off at the knees, because I had learned that exposed skin invited infections and illness. I concerned myself with preventing medical profiles as much as battle casualties, for a sick-listed soldier threw upon his comrades his share of the burden of stalking the elusive foe through the tall grasses of the Ashau Valley, and in the sodden jungles and cloud-veiled mountains west of Hue. I demanded of line officers and doctors alike constant attention to the strength of the line, for it was not the whole morning report strength of any rifle company that counted, but rather the proportion of men assigned who were forward, able to stand the watches of the night, to man the ambushes, or to patrol with their platoon. That experience taught me to respect even more the Army Medical Service, and its men and women.

When I became USCINCSO in 1983, I found that the post of Command Surgeon in USSOUTHCOM has been abolished years before. Yet among the strategic issues which I confronted were a number wholly or mainly medical. Therefore, I restored the position of Command Surgeon on the joint staff of that unified command, and designated it to be filled by a senior colonel of the Army Medical Corps. One example of the Command's need was

persuading foreign leaders who were considering offering facilities for use by U.S. forces that our government could provide the medical resources to guard against our troops' introducing "that new American venereal disease" --as they then termed Human Immunodeficiency Virus (HIV) and the related disease, AIDS. Another example was training foreign friends to reduce unacceptably high mortality rates among wounded in action. A third was responding to requests for aid in reducing incidence of common childhood diseases and certain tropical maladies. The United States, its Southern Command, and thousands upon thousands of people in Latin America have reason to be thankful for the superb response of the medical services of the U.S. Army, Navy and Air Forces to such challenges. So, surely, do I for the USSOUTHCOM Command Surgeon who planned and coordinated their efforts.

Like the relationship any commander has with his Chief of Staff, that with his Command Surgeon ought to be close and privileged. The medical officer who occupies the position of Command Surgeon on any general staff should be, first and foremost, the Commander's Surgeon, and only then surgeon for the command. Not all officers of the line understand that simple proposition, and too often a newly assigned Command Surgeon has a tough time establishing rapport and ease of access with the commander. My hope is that this book will help AMEDS personnel better to understand the problems, responsibilities, and outlook of line commanders, and by providing professional common ground, assist in forming that Commander-Surgeon team I have found so professionally necessary, and so personally rewarding.

General Paul F. Gorman, United States Army (Retired), enlisted in the U.S. Navy during World War II, and entered U.S.M.A. in 1946, from whence he was commissioned in 1950. He served in the Korean War (1952-1953) and in Viet Nam (1966-1967, 1970-1971). His decorations include the Distinguished Service Cross, the Silver Star, the Distinguished Flying Cross, and the Purple Heart. Born in 1927, he was graduated from Harvard (MPA, 1954), the Marine Corps Schools, the Army's Command and General Staff College, and the National War College. He taught in the Department of Social Sciences at West Point, and directed the Army's professional schools as Deputy Chief of Staff for Training, USATRADO (1973-1977). General Gorman left the Army in 1985 after 40 years of military service, having commanded at all echelons of the Army from platoon through division. He had been the Planner for the Joint Chiefs of Staff, Assistant to two Chairmen of the JCS, a National Intelligence Officer, and a member of the delegation during the U.S./Vietnam Talks in Paris. In his final assignment, he was Commander-in-Chief, United States Southern Command, responsible for all U.S. military activities in Latin America. Since retiring, he has served with three White House Commissions: the Packard Commission on Defense Management, the Commission on Organized Crime, and the Commission on Integrated Long-Term Strategy. He lectures from time to time at service colleges on military training, long-range planning, future materiel development, and foreign policy issues.

## WAR AND ITS IMPERATIVES

### Violence for Political Purposes

**Ends.** In some primitive cultures, men organized to cause death and destruction among others for the sake of doing so, the mayhem responsive to societal myths, or cultural or religious presumptions. In all periods of history, some men have waged war because its violence answers personal, deeply-seated, possibly atavistic impulses. But in the American military tradition, other motivations have dominated. Today, most of Americans who profess the military art do so, at least in part, because of their commitment to the ideals which our polity embodies. Some are attracted by the challenges or the amenities of military service; few are immune altogether to martial romanticism; many admire and would emulate famous Americans who led American forces in war. But virtually all accept that decisions to resort to war, and decisions on objectives for U.S. forces in prosecuting war, will be made by elected civilian officials, as prescribed by the Constitution each swears to uphold and defend.

On the record, we Americans are a bellicose people. Our national heraldry is replete with symbols of peace, but the American Eagle is accurately depicted clutching the arrows of military prowess as well as an olive branch. We won independence by warfare, and since 1783, every generation of Americans has undergone an effusion of blood in battle as the President and the Congress of the time employed armed force to preserve the nature of our government, or to define its extent. Sometimes popular passions aroused by war have obscured perceptions of true national interest. In 1863 --in one of the bloodiest years in our history, the year of Chancellorsville, Gettysburg, Vicksburg, and Chattanooga-- the War Department published General Order Number 100 to admonish that:<sup>1</sup>

Modern wars are not internecine wars, in which the killing of the enemy is the object. The destruction of the enemy in modern war, and indeed, modern war itself, are means to obtain the object of the belligerent which lies beyond the war.

General Order Number 100 expressed a view of war consistent with that of the often-quoted military theoretician, Carl von Clausewitz, who regarded war fundamentally as a

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<sup>1</sup>Addresses by General Harold K. Johnson, Chief of Staff, United States Army, bound typescript, Washington, D.C., Vol. I, 27 July 1964 to 23 July 1965, p. 127. General Order 100 was published in April, 1863.

political act. But Clausewitz also taught that warfare produced a triangle of tensions, not all of which were rational:<sup>2</sup>

As a total phenomenon its dominant tendencies always make war a remarkable trinity –composed of primordial violence, hatred, and enmity, which are to be regarded as a blind natural force; of the play of chance and probability within which the creative spirit is free to roam; and of its element of subordination, as an instrument of policy, which makes it subject to reason alone.

The United States has not learned well from its martial experiences. Its wars, at least at their outset, were not managed as well as they might have been. Mainly, the shortcomings were conceptual, the consequence of failure to heed the ancient admonition, carved in stone on Pennsylvania Avenue, "*Si vis pacem, bellum parate.*"<sup>3</sup> And if Americans at the outset of a war take up arms and field forces with fervor, they have invariably at war's end cast aside armaments and demobilized with reckless haste. Each succeeding generation of Americans has failed to provide what would be needed in force structure, manpower, or materiel to meet future defense requirements. As a consequence, past American wars have been more deadly and destructive than they should have been.

But perhaps we are maturing. As we enter the third century of our nationhood, we Americans must realize that we are no longer a frontier country, nor an aspirant world power, but the strongest nation in the world. Today our armed forces are equipped with armaments more mighty than all the instruments of war ever built by mankind, with a reach which can devastate within minutes any portion of the surface of the globe. Such strength fixes upon our civic leaders in Washington, and upon the military commanders they direct, responsibilities of unprecedented gravity. Chief among these are to underwrite peace through strength: so to anticipate the consequences of any future belligerency that the patent readiness of U.S. forces credibly conveys to any would-be aggressor a U.S. capacity for counteraction which would vitiate any prospect for his gain.

In the broadest sense, the U.S. Army's contribution to national purposes in conflict is defined in law (Title 10, U.S. Code, Section 3062) as follows:

[The army] shall be organized and equipped primarily for prompt and sustained combat incident to operations on land...[and]...is responsible for the preparation of land forces necessary for the prosecution of war...

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<sup>2</sup> von Clausewitz, Carl, On War, edited and translated by Paret, P., Howard, M., and Brodie, B., Princeton, 1976, p. 89.

<sup>3</sup>"If you wish for peace, prepare for war." The motto of the Army War College, "Prudens Futuri", conveys similar advice.

In 1988, Secretary of the Army Marsh and Chief of Staff of the Army, General Carl Vuono, in their annual report to the Congress on the posture of the Army, stated the Army's strategic missions in these terms:<sup>4</sup>

- Deter and, if necessary, defeat a Warsaw Pact attack on NATO and maintain its territorial integrity and security.
- Deny Soviet control of the Persian Gulf and associated oil resources.
- Defend U.S. vital interests in the Pacific.
- Support allies in Asia, Latin America, and Africa.
- Maintain a strategic reserve capable of countering threats in the western hemisphere.
- Respond to other threats to U.S. interests anywhere in the world.

More recently General Vuono, acknowledging the strategic implications of upheavals in Eastern Europe and political dynamism within the Union of Soviet Socialist Republics, has reminded the nation that the Army remains a "strategic force anywhere in the world, anytime". The Army's strategic roles include these:<sup>5</sup>

- Provide forward deployed ground forces -- heavy, light, and special operations -- for deterrence, sustained land combat, and conflict termination in areas of vital interest, such as NATO and Northeast Asia.
- Maintain contingency forces with capabilities for immediate combat worldwide, across the spectrum of conflict.
- Maintain reinforcing forces in CONUS to support forward deployed and contingency forces.
- Provide peacetime support to friends and allies through peacekeeping, security assistance, and Army-to-Army contacts.
- Provide support to U.S. civilian authorities in activities such as interdiction of illicit drug traffic and disaster relief.

Many Americans believe that the end of the "Cold War" is at hand, and that a period of peace lies ahead. But the Army has held that "the mix of forces -- forward deployed, contingency and reinforcing -- must be continually tailored to evolving U.S. strategic requirements...Our challenge for the future will be to ensure that deterrence, stability, and ongoing arms control negotiations are not prejudiced by any premature reduction of forward deployed forces or capabilities. Rapidly deployable contingency forces represent a realistic counter to any aggressor's threat in undeveloped areas or regions where political conditions mitigate against forward deployment. Reinforcing forces, located in the United States, provide the strategic reserve for both forward deployed and contingency forces, and

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<sup>4</sup>Institute of Land Warfare, Association of the United States Army, Profile of the Army, Arlington, VA, 1989, p. 8.

<sup>5</sup>Headquarters, Department of the Army, (DACS-DMC), ARMY FOCUS, November, 1989. Quotations are from the front and back covers.

further strengthen our resolve to protect our national interests anywhere in the world. Our NATO allies, as well as vast regions of the Americas, the Pacific, Africa, Asia, and the Middle East, are now advancing politically, economically, and militarily. Our success should not, however, blind us to the basic elements which have made this strategy work. Rather than discarding these strategic constants, we must adapt them to the demands of the future, which will present traditional challenges as well as new threats and unprecedented opportunities."<sup>6</sup>

In short, the "where?", "when?", and "what for?" for any future conflict will be determined by the President and the Congress. The Army's job is to ready land forces to meet their strategic purposes.

**Means.** Such readiness entails an actual capacity to wage war, which in turn requires anticipating the kind of conflict our forces may enter. Ever since the advent of nuclear weapons, U.S. military planners have had to confront the anomaly that the more likely wars are not the most menacing. Since nuclear weapons were first used (1945), all wars in which U.S. armed forces were involved, directly or indirectly, have taken place in the Third World, and have often posed threats against which existing U.S. force structure and strategy were proved inapt. Yet, over those years readiness for warfare close to the nuclear threshold has been the principal preoccupation of the U.S. General Purpose Forces, with the result that these have not always been well prepared to meet ambiguous challenges to U.S. interests from adversaries who, out of need or choice, avoid confronting us with forces comparable to our own, and instead pursue their objectives with criminals, terrorists, subversives, or guerrillas. In Southeast Asia, for example, the North Vietnamese and Viet Cong fended off an awesome array of U.S. General Purpose Forces with a subtle, strategically decisive mix of conventional and unconventional forces.

**Force Planning.** This has led military planners to speak of a "spectrum of conflict", drawing distinctions among possible future conflicts for the purpose of preparing forces with appropriate manning, equipment and training. For instance, in 1964 the Chief of Staff of the Army, General Harold K. Johnson, told the Association of the United States Army that:<sup>7</sup>

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<sup>6</sup>*Ibid.*, p. 5.

<sup>7</sup>H.K. Johnson, *op.cit.*, p. 21. These sorts of distinctions have been widely accepted among contemporary strategists. Raymond Aron, for example, wrote that mankind's two choices were "to preserve peace by the threat of an increasingly horrible war, or to distinguish as much as possible between the different types of war, in order to limit violence. I have no doubt that the second is right, and the first fatal." *Cf.*, Aron, R., On War, New York, 1958, p. 117.

...On the one hand we have a clear requirement for maintaining large field formations deployed to crucial world areas, arrayed against the possibility of sustained combat in major war. The organization, equipment and logistics and structure of necessity are heavy, complex, and understandably draw deeply on our resources. On the other hand, we have equally clear requirements for light, mobile, highly versatile forces which permit us strong reflexes essential to prompt action in those situations where aggression is a combination of political, social, and military factors and the conflict itself may never be formally identified as a war.

A few months later, the same Chief of Staff defined the Army's mission as readiness for three forms of conflict, differentiating these in terms of the kinds of weapons and forces employed:<sup>8</sup>

First, nuclear or high-intensity warfare, which involves the application of modern technology in maneuver, firepower ... intelligence and command.

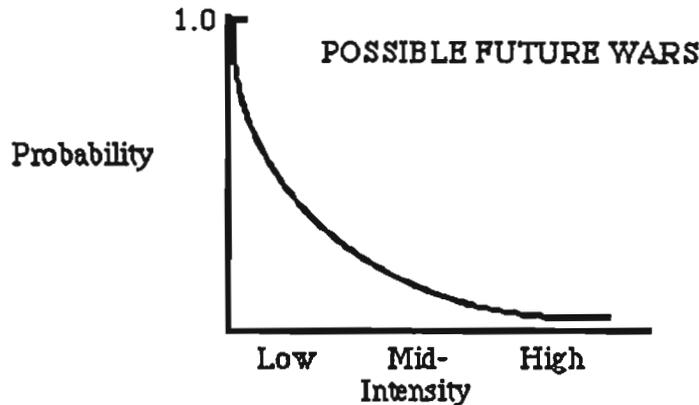
Second, conventional war or mid-intensity warfare, which involves a capability to fight successfully for limited objectives under policy limitations as to the extent of destructive power that can be employed or the extent of the geographical area that might be involved.

Third, ... low intensity warfare, which involves actions to establish, regain, and maintain control of land areas threatened by guerrilla action, revolution, subversion or other tactics aimed at internal takeover. This mission may require direct employment of United States combat forces alongside allied forces or it may require United States advice and combat support for allied forces...

The label "low intensity" is still in use, although it remains much misunderstood. Properly employed, the term usefully calls attention to a distinction which all Americans ought to continue to make between conflict involving the full range of weapons and kinds of forces at the disposal of the United States, and conflicts in which our political leaders would deliberately restrain U.S. forces, limit their weaponry, and circumscribe their operations geographically, quantitatively, and qualitatively. American strategists have come to realize the ability to wage such limited war is central to the strategy the United States has been pursuing --with stunning success it turns out-- for the past forty years, and that the most dangerous kinds of possible wars --those intense conflicts involving the use of our most powerful forces, including those armed with nuclear weapons-- are not the most probable. Hence, I have found it useful for teaching purposes to use this construct:

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<sup>8</sup>Johnson, *ibid.*, p. 65.



As Soviet hegemony disintegrates, it seems prudent for the U.S. Army to devote more attention to low intensity conflict. Some overseas friends and allies have misinterpreted that terminology as belittling conflict which in their perception was intolerably intense, and at home some Americans have construed it to be synonymous with special operations, or worse, "Ramboism". The role of U.S. forces in low intensity conflict, most contemporary U.S. strategists agree, is mainly to help others help themselves: intelligence support, security assistance, and combat service support. Low intensity requirements include therefore structure, equipment and training often incompatible with special operations. The medical dimensions of low intensity conflict include a political premium likely for limiting friendly -- especially American -- casualties, for providing for discriminate use of force, and for limiting injuries and disease among non-combatants. Its relatively slow pace frequently will admit of military medical support for military forces in the civil sector. The reality of low intensity conflict is that strategically important contributions can be made on behalf of the United States by U.S. military doctors, nurses, and medical service corpsmen, by warehousemen and public affairs specialists, by mechanics, well diggers and road builders, as well as by tactical trainers and shooters. Moreover, a recent White House Commission, convened during 1987 and 1988 to advise on national strategy over the next several decades, concluded that, for the foreseeable future, in low intensity conflict:<sup>9</sup>

**U.S. forces will not in general be combatants.** A combat role for U.S. forces in Third World conflict has to be viewed as an exceptional event. Some exceptions will doubtless occur, as in 1983 in Grenada and in 1986 in Libya, and it would be self-defeating for the United States to declare a "no use" doctrine for its forces in the Third World. But our forces' principal role there will be to augment

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<sup>9</sup>Discriminate Deterrence, Report of the Commission on Integrated Long-Term Strategy, Washington, D.C., January, 1988, p. 16.

U.S. security assistance programs. Mainly that means providing military training, technical training, and intelligence and logistical support.

Weapons and Men. Forces for waging war are structured around weapons and personnel. General Harold K. Johnson taught me a memorable professional lesson on how to think about both. The occasion arose in the early '60s, when he was the Deputy Chief of Staff for Operations, and I, together with two other officers of the Army Staff, were briefing him on the results of a study of a proposed new rifle, the small caliber Stoner design which we call today the M-16. The DCSOPS listened patiently as we toiled through data on comparative muzzle velocities, trajectories, range, penetrating power, and wound ballistics. Then he walked over to the table where we had arrayed past, current, and prospective future rifles, and picked up the Stoner. "What is this for?", he asked. None of us knew how to answer. He persisted, asking us one by one to tell him in our own words what we personally thought such a weapon could do for the Army and the nation. One of us said that any rifle was for killing, and that this one was demonstrably more efficient than others. Another added the idea that the new weapon's flat trajectory made aiming easier, and its fire therefore more precise and discriminate. The third fell back on the mission of the Infantry, saying that the rifle was the principal means for closing with and destroying the enemy, and this lighter, more versatile weapon would enable U.S. infantry to do its job better.

General Johnson granted a modicum of worth for each opinion, but pointed out that the Army Staff ought to be able to relate this, or any other Army weapon, to a larger purpose than killing or destruction. "Wars," he reminded us, "are fought either to impose control or to resist the imposition of control. Neither we nor our allies are aggressive. The object beyond any war the United States is likely to fight is peace under the rule of law, and toward that end, land forces may be directed to establish a degree of control over territory under enemy domination. To assert control in such circumstances, land forces must move. Therefore, this [again he held up the rifle] would be strategically important because it enables movement and control. You should calculate any weapon's effectiveness not in terms of its capacity to kill or to destroy, but in terms of its contribution to fire and movement, or maneuver, and ultimately, the Army's ability to control lands and people."<sup>10</sup>

General Johnson went on to remind us that no weapon was any better than the man who employs it. He told us about Sergeant Summers of the 502d Parachute Infantry, 82d

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<sup>10</sup>I have no record of that meeting, and for the sake of the yarn I have taken liberties in using quotation marks. But note that the "quotes" accurately reflect General Johnson's ideas on the subject as he subsequently expressed them in his speeches. *Cf.*, H.K. Johnson, *op. cit.*, pp.6-12.

Airborne Division, on D-Day in Europe. One of the key objectives for those paratroopers was to silence a German coast defense battery covering Utah Beach, and Summers' battalion had been assigned to assault its concrete bunkers. But the air drop went badly, and the battalion was strewn over a large area. In the event, Summers, acting alone, attacked, seized the objective, and established American control over the enemy emplacement. He single-handedly killed some 80 defenders in the process. But what is important about the story is Sergeant Summers, not his weapons, or their lethality. All the technological advantage of the United States, all the force-projection prowess of the U.S. Army and the Army Air Force, all the tactical genius of the commanders of the 82d Airborne, counted for naught in that fateful hour; the only factors that weighed on the scale of battle were the courage and resourcefulness of one NCO.

Over the years, because of the Pentagon's insatiable appetite for cost-effectiveness analyses, comparing weapons has become much more complicated than when we laid our rifles on the table in the DCSOPS' office. Often I have had to teach young officers ensnared in some intricate, mathematically based study a corollary to the lesson of Sergeant Summers: the effectiveness of any weapon depends crucially on the skill, intelligence, resolution, and stamina of him who mans it, but no matter how effective the weapon, or how resourceful and adroit its crew, only rarely -- and Sergeant Summers' heroism, and luck, was rare indeed -- can these offset botched leadership. In the last analysis, the worth of any weapon will depend on all the humans who influence its use in battle, including and especially commanders. Hence, I have resorted to this teaching aid:

$$E = f(W, P, T)$$

where:

**E** is effectiveness in combat

**f** means "is a function of"

**W**, the inherent capability of the materiel

**P**, the proficiency of soldiers who man it

**T**, the tactic or technique of their employment

The **T** factor has all too often been eliminated or assumed away in analyses because it eludes quantification. But it seems self evident that even excellent weapons (high **W**) in the hands of very willing and able crews (high **P**) can be rendered impotent by inept tactics or bobbled logistics (low **T**) -- or as was the case in the D-Day landings in Normandy, by a

missed drop-zone. They who must provide for the effectiveness of the Army in fighting future battles, and winning them, must strive to optimize each factor.

The trouble with my paradigm is that it is altogether too neat. Military forces -- particularly ground forces-- are blunt instruments. The nature of land battle is confusion, and often battle outcome, no matter how well equipped and carefully prepared the force, is dictated by chance or mishap. Accounts of virtually every modern battle I have experienced or studied validate von Clausewitz' observations that " everything in war is simple, but the simplest thing is difficult...Friction is the only concept that more or less corresponds to the factors that distinguish real war from war on paper...The military machine... is basically very simple...But we should bear in mind that none of its components is in one piece: each part is composed of individuals, every one of whom retains his potential of friction...A battalion is made up of individuals, the least important of whom may chance to delay things or somehow make them go wrong. The dangers inseparable from war and the physical exertions that war demands can aggravate the problem to such an extent that they must be ranked among [friction's] principal causes."<sup>11</sup>

Modern wars, of whatever intensity, are won by aggregations of manpower and materiel, with myriad points of such "friction". Each of the armed services of the United States organizes for warfare by providing for a hierarchy of functional units and subunits, for unit cohesion, for joint operations with forces of other services, and for unifying concepts or doctrine. Each service member swears an oath to obey the lawful orders of those appointed over him. Because lofty ideals have figured less importantly in inspiring Americans to fight in past wars than concern for their immediate companions, much effort is focused on fostering unit loyalty. Military doctrine provides the conceptual guidelines for training for war, and fighting. And the United States expects unified battle action of its forces, whatever their service. But each of these deserve separate discussion:

Military Hierarchy<sup>12</sup>. Individuals new to military service sometimes find the labyrinths of military structure confining, even stultifying. Each service organizes differently, but all set up pyramiding tiers of command, so that a commander or leader at one echelon takes orders from one commander at the next higher echelon, and in turn, directs a number of subordinates. Charted out, these arrangements often appear

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<sup>11</sup>von Clausewitz, *op.cit.*, p. 119.

<sup>12</sup>This section draws upon S.L.A.Marshall's monograph The Armed Forces Officer, published under that title by the Department of Defense in 1950, and issued to officers commissioned that year. Among my books are three copies, one of which is in hard cover, labeled Department of the Army Pamphlet No. 600-2, on the flyleaf of which there is penned "...I really did write this stem to stern...SLAM".

dismayingly complex. But usually these arrangements stemmed from concerns for assuring responsive action by large formations in intense battle.

Also common to all our services is belief that a commander at any echelon is responsible for all that his organization does or fails to do. The leadership of the commander, his or her ability to evoke effective action from subordinates is held to be central to operational success or failure. Command is recognized as the highest calling within the military, and the higher the command, the greater the responsibilities borne by the commander.

I was taught the following as a Second Lieutenant, and I trust similar precepts still guide American forces:<sup>13</sup>

There have been great and distinguished leaders in our military services at all levels who had no particular gifts for administration, and little for organizing the detail of decisive action either within battle or without. They excelled because of a superior ability to utilize the brains and command the loyalty of well-chosen subordinates....

All military achievement develops out of unity of action. The laurel goes to the man whose powers can most surely be directed toward the end purposes of organization. The winning of battles is the product of the winning of men...

In the military services...character is at all times at least as vital as intellect, and the main rewards go to him who can make other men feel toughened as well as elevated.

*Quiet resolution.*

*The hardihood to take risks.*

*The will to take full responsibility for decision.*

*The readiness to share its rewards with subordinates.*

*An equal readiness to take the blame when things go adversely.*

*The nerve to survive storm and disappointment and to face toward each day with the scoresheet wiped clean, neither dwelling on one's successes nor accepting discouragement from one's failures.*

In these things lie a great part of the essence of leadership, for they are the constituents of that kind of moral courage which has enabled one man to draw many others to him in any age.

Obviously, not all U.S. commanders measure up. But all are expected to try to do so.

For followers, observance of the customs and proprieties of subordination, and the protocols of the "chain of command", however trivial or onerous these may seem from time to time, are more tolerable when understood and accepted as enabling commanders to succeed. Cicero observed that:<sup>14</sup>

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<sup>13</sup>*Ibid.*, pp.87-88.

<sup>14</sup> *Ibid.*, p. 118.

Neither the physician nor the general can ever, however praiseworthy either may be in the theory of his art, perform anything highly worthwhile without experience in the rules laid down for the observation of all small duties.

The Baron de Jomini, whose commentaries on Napoleonic warfare are considered a military classic, identified twelve conditions for creating the perfect army, among which were these:<sup>15</sup>

5. A strict but not humiliating discipline, and a spirit of subordination and punctuality, based on conviction rather than on the formalities of service;...
8. An armament superior, if possible, to that of the enemy, both as to defensive and offensive arms;
9. A general staff capable of applying these elements, and having an organization calculated to advance the theoretical and practical education of its officers;
10. A good system for the commissariat, hospitals, and general administration;
11. A good system of assignment to command, and of directing the principal operations of war;....

Unit Cohesion. Soldiers form strong bonds with those who share their stressful experiences. Each of the U.S. armed services encourages the development of unit cohesion in anticipation of battle in a way best suited to its equipment and its mission, but each aims at developing and maintaining distinctive unit identities, and strong interpersonal attachments among unit members. We are in this respect little different from armed forces throughout history. Back in the seventeenth century, in the interests of promoting consciousness of group, Marshall Maurice de Saxe required French formations to march in step --a discipline forgotten since the time of the Roman legions in Gaul--, and in the eighteenth century, Baron von Steuben resorted to dismounted drill to revive the will to fight among Washington's dispirited troops at Valley Forge. Both de Saxe and von Steuben believed that if men were required to think about moving in unison, they would be moved to think in unison. De Saxe also started the numbering of regiments, and the carrying of unit battle colors, all to enhance *esprit de corps*. Von Steuben wrote the first regulations for hierarchical organization within the American Army, and as Washington's Inspector General, enforced them.

Extensive interviews of American and British soldiers after World War II have established that soldiers of the line were then motivated to fight far less by national war

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<sup>15</sup> Jomini, Antoine Henri, Baron de, The Art of War, translated by Mendell, Capt. G.H., and Craighill, Lt. W.P., USMA, 1862, reprinted for the West Point Military Library by the Greenwood Press, Westport, CT.

aims, the nature of the enemy, their prewar training, or even personal patriotism, than by their fellowship with comrades in arms:<sup>16</sup>

A British doctor, Lieutenant Colonel T.F. Main, wrote: 'The sense of separation from home, from its security and comforting permanence, and its familiar reassurance of one's personal status, is a permanent stress. A camaraderie is the only human recompense for a threatening sense of impotence in the face of death and the waywardness of elemental forces and the decisions of the mighty who use soldiers like pawns.' The Second Army psychiatrist, in Normandy was even more to the point. In July 1944 he averred: 'The emotional ties among the men and between the men and their officers...is the single most potent factor in preventing breakdown.' Other observers were equally emphatic about the vital role of such ties within the platoons and squads. An American general, S.L.A. Marshall, who devoted himself to a study of the ordinary soldiers' reactions to modern combat was quite unequivocal on this point: 'I hold it to be one of the simplest truths of war that the thing which enables an infantry soldier to keep going with his weapons is the near presence or presumed presence of a comrade...He is sustained by his fellows primarily and by his weapons secondarily.'...Bill Mauldin got to the heart of the matter in ...referring to the large number of soldiers who went straight back into the line once they had been discharged from hospital, making no attempt to take convalescent leave. What motivated them was not loyalty to the unit as such. 'A lot of guys don't even know the name of their regimental commander. They went back because their companies were very short-handed, and they were sure that if somebody else in their own squad or section were in their own shoes, and if the situation were reversed, those friends would come back to make the load lighter on them.'

Doctrine and Training. As in other human activities, military organizations function effectively not because of manning charts or manuals of procedure, but because of ideas or concepts broadly shared among the members. Some such consensus pertains to identity, to group understanding of who and what the organization is; in military parlance, when pride and enthusiasm enters into that understanding, the organization is said to have *esprit de corps*. Some such pertains to function, to group understanding of how the organization accomplishes its purposes; in military terms, this focus is referred to as *doctrine*. The Joint Chiefs of Staff Dictionary of Military and Associated Terms<sup>17</sup> defines doctrine as:

Fundamental principles by which the military forces or elements thereof guide their actions in support of national objectives. It is authoritative, but requires judgement in application...

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<sup>16</sup>Ellis, J., The Sharp End: The Fighting Man in World War II, New York, 1980, pp.340 ff.

<sup>17</sup>JCS Pub 1, 1 June 1987.

The organizational separatism which have caused Congress to be critical of efforts by our military services to provide for unified operations in future conflict are evident from other definitions in the same publication:

**joint doctrine**--Fundamental principles that guide the employment of forces of two or more Services of the same nation in coordinated action toward a common objective. It is ratified by all four Services and may be promulgated by the Joint Chiefs of Staff...

**multi-service doctrine**--Fundamental principles that guide the employment of forces of two or three Services of the same nation in coordinated action toward a common objective. It is ratified by two or three services, and is normally promulgated in joint Service publications that identify the participating services, e.g., Army-Navy doctrine...

The reference to "principle" leads to the observation that doctrine is what is taught, the notions embodied in training for operations in war. An armed force which is well indoctrinated has a set of unifying ideas, a consensus on what to do even amid difficulty which reduces the friction of war, harmonizes the undertakings of various arms, branches and services, and develops the full potential of its members and their units for effectiveness in combat.

The European nation which has had the most fully elaborated, and most universally acclaimed, military doctrine has been Germany.<sup>18</sup> Early in the nineteenth century Napoleon repeatedly thrashed the Prussian and the various other German armies, but those defeats prompted Germans to intense scrutiny of the nature of war -- Clausewitz' writings are but one example from the period; Scharnhorst and Gneisenau lead the inquiry -- and of principles appropriate for future war. The unification of Germany in the latter half of the century enabled the Prussian General Staff to apply resultant organizational forms and concepts to all the German armed forces. One particularly effective doctrinal precept, pioneered by Scharnhorst, and strongly supported by General von Moltke, was *Auftragstaktik*, or mission-centrism. Moltke is said to have personally inserted this paragraph into a new manual for the Kaiser's senior tactical commanders:

A favorable situation will never be exploited if commanders wait for orders. The highest commander and the youngest soldier must always be conscious of the fact that omission and inactivity are worse than resorting to the wrong expedient.

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<sup>18</sup>For what follows I am indebted to Dupuy, T.N., A Genius for War: The German Army and General Staff, 1807-1945.

Moltke intended this to mean that every German soldier was expected to assess and to exploit any tactical situation, relentlessly pressing to achieve what his commander intended. If necessary, he was to act without orders from his superior, and even to act in contravention of that superior's orders if these appeared inappropriate to the circumstance. Moltke frequently told of a young major who, when severely reprimanded by Prince Frederick Charles for a tactical blunder, responded that he had been doing exactly what he had been ordered to do, and reminded the Prince that for a Prussian officer, any order from a superior carried the force of an order from the King himself. The Prince promptly retorted: "His Majesty made you a major because he believed you would know when not to obey his orders."

This powerful doctrine of individual responsibility for the success of the entire organization, much admired within the military profession, guided the German Army through World War II. The 1936 Field Service Regulation on Troop Leading, published by the Army General Staff after Adolf Hitler was in power and the remilitarization of German was well underway, contains this version:<sup>19</sup>

From the youngest soldier on up, the employment of every spiritual and bodily power is demanded to the utmost. Only in such conduct is the full power of accomplishment of the troops achieved. So do men develop and maintain their courage and powers of decision in hours of stress, and carry forward with them to greater deeds their weaker comrades.

The first demand in war is decisive action. Everyone, the highest commander and the most junior soldier, must be aware that omissions and neglects incriminate him more severely than the mistake of choice of means.

The United States Army has long recognized the tactical importance of the innate capacity of Americans for ingenuity and initiative, and from the days of von Steuben, its doctrine has enjoined eliciting this strength of its soldiers. Von Steuben wrote about his American troops to a Prussian colleague that "You say to your soldier 'Do this!' and he doeth it; but I am obliged to say, 'This is the reason that you ought to do that' and he does it." It therefore may be said that, with von Steuben's aid, the U.S. Army early discerned how important it is for commanders to make their intent known to subordinates, and for these to act upon that intent according to the circumstance. When I was commissioned in 1950 the doctrine of the U.S. Army on "mission tactics" included these admonishments:<sup>20</sup>

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<sup>19</sup>Truppen Führung, typescript, in English, labeled "Report No. 14,507, 3-18-36/imdr", The Command and General Staff School Press, Fort Leavenworth, Kansas, 1936, par. 15.

<sup>20</sup>Marshall, S.L.A., *op.cit.*, Chapter Fourteen, "The Mission," pp.133-134, 137.

Within military organization, to refuse an order is unthinkable, though to muster a case showing why some other order would serve in its place is not undutiful in an individual subordinate, any more than in a staff. By the same rule, insistence that an order be carried out undeviatingly, simply because it has been given, does not in itself win respect for the authority uttering it. To change or rescind is justified only when reestimate of all of the available facts indicates that some other order will serve the general purpose more efficiently...To know how to command obedience is a very different thing from making men obey. Obedience is not the product of fear, but of understanding, and understanding is based on knowledge...To grasp the spirit of orders is no less important than to accept them cheerfully, and to keep faith with the contract. But the letter of an instruction does not relieve him who receives it from the obligation to exercise common sense.

The author of the foregoing was Brigadier General S.L.A. Marshall, a veteran of both World Wars, Korea and Viet Nam, a military historian and battle analyst who developed methods for getting at the truth of particular engagements through painstaking interviews of survivors. Marshall's book Men Against Fire <sup>21</sup> remains one of the most authoritative treatments of the problems facing men locked in combat with other men, and deserves to be studied by anyone who would lead or support such soldiers. His contributions to the effectiveness of American infantry were of central importance to U.S. Army doctrine and training methods. It was "SLAM" Marshall who observed that during World War II as few as one out of four American riflemen ever fired his weapon in combat. As a direct result of that assertion -- then and since a statistic much disputed -- changes were made in Army doctrine and training technique to emphasize effective small-arms fire. (Just a few years later, in Korea, Marshall reported that both in night defense and daylight attack, firers in the infantry line were better than one out of two). Here is an example of the principles which SLAM advocated for military training:<sup>22</sup>

What we need to aim for is greater freedom of professional thought by all ranks and a philosophy of command which is consistent with this general purpose...freedom to think boldly for the common good, for as Kant has said, "What one learns the most fixedly and remembers the best is what one learns more or less by oneself."

To square training with the reality of war, it becomes a necessary part of the young officer's mental equipment for training to instill in him the full realization that in combat many things can and will go wrong without its being anyone's fault in particular.

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<sup>21</sup>Marshall, S.L.A., Men Against Fire. The Problem of Battle Command in Future War, New York, 1947, 1964. Marshall noted that his research had brought him into touch with experts on battle tactics in the best foreign armies, including both allies and enemies, and opined that "while we have been laggard in the Army of the United States in developing an historical process which embraced the battle line and contended directly against its fog, we have still done better than any other army in this particular."

<sup>22</sup>*ibid.*, pp. 115-116.

War is aimed at destruction. The fire and general purpose of the enemy are directed against one's own personnel, materiel, and communications, with the object of keeping one's own design from coming into play. Small plans miscarry because the wrong man happens to be hit at the critical moment or the guns which were counted on are knocked out of action.

The problem of command in battle is ever to establish a safe margin that will allow for such misadventure. But this much is certain --that there is no system of safeguards known to man which can fully eliminate the consequences of accident and mischance in battle. Hence the only final protection is the resiliency and courage of the commander and his subordinates. It therefore follows that the far object of a training system is to prepare the combat officer mentally so that he can cope with the unusual and the unexpected as if it were the altogether normal and give him poise in a situation in which all else is in disequilibrium. But how to do it? I would say that the beginning lies in a system of schooling which puts emphasis on teaching soldiers how to think rather than what to think even though such a revolutionary idea would put the army somewhat ahead of our civilian education.

I can personally attest that Marshall's observations and prescriptions were among the conceptual underpinnings of the U.S. Army's TRAINFIRE (its basic rifle marksmanship course), MILES (its engagement simulation devices which use laser bursts to simulate direct fire for free-play, two-sided "battles"), and the National Training Center at Fort Irwin (which uses MILES, and incorporates a system of instrumentation to record fire and maneuver for enriched after-action reviews, to enhance learning).

Joint Operations. Thirty years ago, in April 1958, President Eisenhower, in a message to Congress advocating reorganization of the Defense Department, called for the armed forces to be ready to fight wholly unified:<sup>23</sup>

Separate ground, sea, and air warfare is gone forever. If ever again we should be involved in war, we will fight it in all elements, with all services, as one single concentrated effort. Peacetime preparatory and organizational activity must conform to this fact. Strategic and tactical planning must be completely unified, combat forces organized into unified commands, each equipped with the most efficient weapons that science can develop, singly led and prepared to fight as one, regardless of service. The accomplishment of this result is the basic function of the Secretary of Defense, advised and assisted by the Joint Chiefs of Staff and operating under the supervision of the Commander in Chief.

The nation is still searching for Eisenhower's desiderata. The aborted hostage-rescue mission in Iran, among other shortcomings of interoperability among the services, caused Congress to pass the Defense Reorganization Act of 1986, and Congress remains

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<sup>23</sup> Congressional Record, 85th Congress, 2d Session, 104, pt. 5:6259ff.

restive over progress toward unification.<sup>24</sup> I have held that one important reason for this seeming intransigence is simply that the services are quite different one from another, and are unlikely to be unified by fiat, at least not soon. In fact, most of my contemporaries have serious doubts about attempts to eliminate such differences, having been taught that:<sup>25</sup>

Toward services other than his own, any officer is expected to have both a comradely feeling and an imaginative interest...But the fact remains that the services are not alike, that no wit of man can make them alike, and that the retention by each of its separate character, customs, and confidence is essential to the conserving of our national military power. Unification has not altered this basic proposition. The first requirement of a unified establishment is moral soundness in each of the integral parts, without which there can be no soundness at all. And on the question of fundamental loyalty, the officer who loves every other service just as much as his own will have just as much active virtue as the man who loves other women as much as his own wife.

The differences among the services are so profound as to warrant the label "cultural", for each service has a distinctive set of ideas, suppositions, traditions, customs, forms of speech, dress, prejudices and obstinacies, ingrained over generations, as well as very different operational equipment, missions, methods, and outlooks. Any young officer can detect the cultural separators, but the operational distinctions are often less evident. I have devised the following chart to explain the latter, which compares four senior line commanders, one from each of the services: a Navy vice admiral, who would usually command a numbered fleet; a lieutenant general of the Air Force, who would be commander of a numbered air force; a lieutenant general of Marines, who would command a Marine Amphibious Force(MAF); and a Lieutenant general of the Army, who would be a corps commander.

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<sup>24</sup>A useful collection of essays on these issues is The Defense Reform Debate, Clark,A., *et al, ed.*, Baltimore, 1984. *Cf.*, my essay therein, pp. 287 *ff.*

<sup>25</sup> The Armed Forces Officer, *op. cit.*, pp. 12-13. See also my remarks at USAFA, 21 April, 1986, "Joint Service: Plans and Operations", published as the Eighth Ira C. Eaker Distinguished Lecture on National Defense Policy, U.S. Air Force Academy, 1986.

## FOUR COMMANDERS COMPARED

	* * *	***	***	* * *
	USN	USAF	USMC	USA
<b>Number subordinate movable elements</b>	$10^1-10^2$	$10^2-10^3$	$10^3-10^4$	$10^4-10^5$
<b>Deployment independence</b>	maximum-----minimum			
<b>Dependence on allies</b>	minimum-----maximum			
<b>Operational latitude</b>	greatest-----least			
<b>Operational mobility</b>	highest-----lowest			
<b>Tactical command control</b>	centralized-----decentralized			
<b>Communications</b>	assured-----tenuous			
<b>Tactical mobility</b>	ease-----difficulty			
<b>Subordinate leaders' ranks</b>	senior-----junior			
<b>Information: -on own forces</b>	precise, realtime-----vague, lagging			
<b>-on enemy</b>	strategic - -----strategic + tactical+ -----tactical -			
<b>Doctrine</b>	f(materiel)-----f(behaviors)			
<b>Basing: -proximity -functioning</b>	rearward-----forward factory complex-----cottage industry			
<b>Planning: -preparation</b>	+++	+	++	++
<b>-deployment</b>	+	+++	+++	++
<b>-employment</b>	+	+	++	+++

Each of these three-star commanders would have under his command a number of **movable elements** which would differ by an order of magnitude. By **movable elements** I mean ships, aircraft or flights of aircraft, squads, platoons, sections or detachments -- the smallest groupings of men and material moving responsive to a single leader on the scene. The navy fleet might consist of fifty to one hundred ships and aircraft, all moving according to the admiral's orders. The air commander might dispose, during peak operational periods, of upwards of a thousand single aircraft or flights. The Marine general might be directing as many as ten thousand moving parts, once the MAF had executed an amphibious assault and its elements were fighting ashore. The Army corps commander, who would direct not only combatant elements, but a slice of the logistic infrastructure of the theater of war as well, might have as many as one hundred thousand **movable elements** within his zone of responsibility.

The chart is laid out for generalized comparisons across the four commanders with respect to the categories listed down the left hand side. Some comment on each is in order:

**Deployment independence.** The Navy and the Air Force can each provide their own transportation to the theater of operations, although the Air Force will not be able to operate long without sea transported fuel and munitions. The Marine Corps and the Army are dependent on others to get them to battle, and to sustain them once there.

**Dependence on allies.** One main dependency of the United States is for bases overseas to support the deployment and logistical support of its forces. Another is for facilities to store forward deployed equipment and supplies, and to house and train forward deployed forces.

**Operational latitude.** By and large a naval fleet commander would have decisive authority to use his forces as he deemed best over a vast ocean area. An air force commander would have to concert his campaign with his land force counterpart, and both would usually be operating under a theater commander. A MAF commander would be responsive to fleet commander or a theater commander, and would have to coordinate his operations with any air force or land force commander in the theater. The army commander would have the least freedom of action, constrained in particular by his relative lack of mobility, and by responsibilities for building and protecting the land lines of communications which would enable sustained combat on land.

**Tactical Command Control and Communications.** The redundant, secure communications within the fleet, clearly superior to those available to the other forces, taken together with **Tactical Mobility**, would enable the fleet commander to exercise, should he chose to do so, direct control of every subordinate moveable entity with the expectation that each had the capability instantly to respond to his orders. The air force

commander probably would have a radar display of most of his air space, and responsive communications with the subordinates being tracked thereon. Both could choose to centralize their battles. Both would be aided by the fact that their movable subordinate elements would all be commanded by officers, the naval force with highest average rank. In contrast the MAF and the army corps would be forced to operate in a much more decentralized fashion. **Information on own forces** would be much better in the naval and air forces than either the MAF or the corps, where subordinate elements would be dispersed amid the clutter of the surface of the earth, many led by relatively inexperienced and junior personnel with only vague sensings of where they were and what was happening around them. Decentralization would entail time delays in reporting, compounding the commander's problem of sensing what was happening to his own forces.

**Information on enemy** would depend on whether the threat came from long or short distances, or as I have put it, whether it stems from an enemy strategic or tactical operation. The naval force might have little warning of a land-based, long-range bomber force eventuating in a cruise missile attack from an unexpected quarter. But threats materializing within tactical range of the naval force, given the multiplicity of sensors aboard its ships and aircraft, should be more discernible. Conversely, while the corps and MAF commanders would be more likely to get early warning of a threat force approaching them from deep within the enemy rear, that enemy force might nonetheless be able to achieve tactical surprise.

**Doctrine** for a naval or air force commander is mainly guidance on how to fight the weapon systems within the force, a function of the desired performance of its materiel. In the MAF, and more so in the corps, doctrine deals mainly with how people conduct their business, a function of preferred behavior.

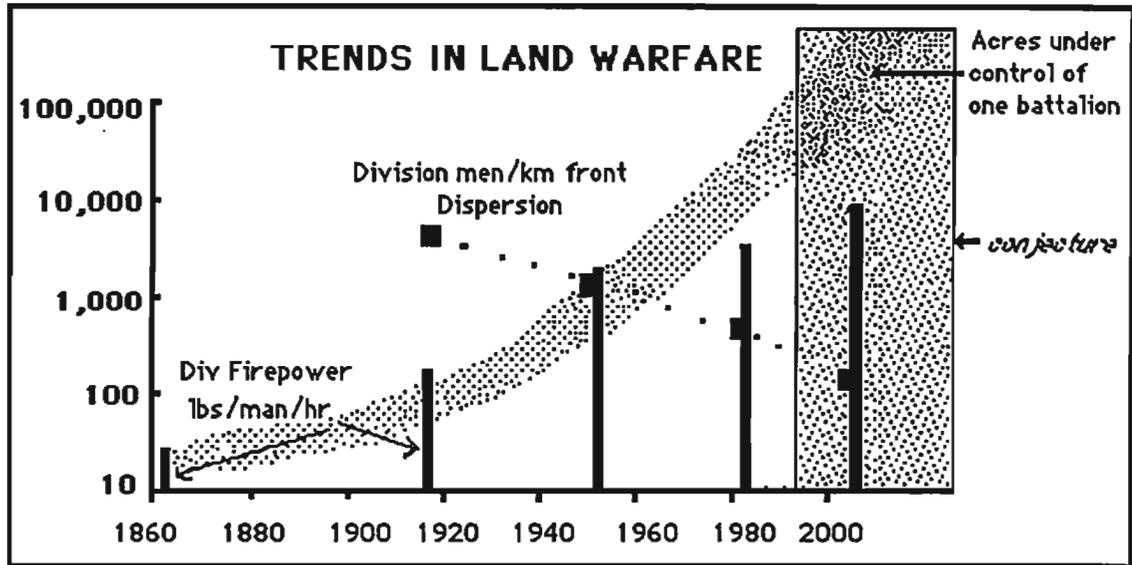
**Basing** would be quite different among the four services. Naval bases are preferably well removed from the theater of operations, and both the naval and the air force operate their bases like large industrial undertakings. Conversely, both the MAF and the corps would seek to push their combat service support elements as far forward as possible, so that in their dispersed, particularized configurations, these would be more akin to a cottage industry than a factory complex.

Finally, the section on **Planning** is intended to convey my estimate of how advance planning figures in the calculus of the four commanders, and what sort of planning matters to each most. The + symbols indicate my guess on relative emphasis. The naval commander would concern himself a great deal in advance of sailing on the numbers and types of ships and aircraft he would have within his force, and how they were manned and supplied. He would want to insure a modicum of shore-based training, especially for his

senior subordinates. But by and large, he would not spend much time planning either deployment or employment of his force, since he could be confident that once to sea, underway training could weld tactical teams, and that he could respond to changes in the tactical situation as they occurred, adapting his force to the threat as required. The air force commander would probably concern himself mainly with plans to deploy his force, but like his naval counterpart, he could be confident that his highly flexible air units could respond as he required them to meet threats as they materialized. Both the commanders of the MAF and the Army corps would be much more concerned with precisely where they were going, and what they would be expected to do once there -- with planning to accommodate weather, terrain, enemy, observation, fields of fire, cover and concealment, attitude of the population, etc., etc. For the MAF, the amphibious assault would dictate especially thorough planning for deployment. And for the Army corps, employment planning for the land campaign, with its attendant logistic infrastructure, including arrangements for medical care and evacuation, would be extensive and detailed.

### **Trends in Land Warfare**

Since the middle of the Nineteenth Century, as firepower has increased, there has been a clearly discernible tendency to disperse, or spread tactical units more thinly over terrain to make them harder to find and to hit. Casualty experience has remained relatively constant over the years. Nonetheless, land forces have become increasingly efficient, unit for unit, in controlling territory. This seeming anomaly is readily explained by improvements in communications, command and control means, in intelligence, in mobility, and in armor protection.



The chart is a summary and extrapolation from data originally developed to explain to Congress why the Army required large amounts of land upon which to train for war, used first during the mid '70s in a successful effort to gain support for establishing the National Training Center at Fort Irwin, California.<sup>26</sup> I have added data points for the 1980s drawn from my experience in command of the Eight Infantry Division in Germany, and conjectural projections into the next century based on weapon systems, sensors, and mobility, communications, and processor-assisted decisional aids now in development.

The medical implications of these trends requires more careful analysis. Most battle casualties in Twentieth Century wars have been concentrated, not surprisingly, in infantry

<sup>26</sup>Cf., Department of the Army, Training Circular 25-1, Training Land, 4 August 1978, pp.4-11. A useful summary of changes in methods and means for waging war over the centuries of recorded history is Macksey, Kenneth, The History of Land Warfare, New York, 1974. *N.B.*, graphics on the end papers. Macksey held that there were definite limits on trends evident as he wrote, and that, for mid- and high intensity warfare, "somewhere about 1980 a point will be reached when it will no longer be possible for battlefield movement to take place without an opponent being instantly aware of it and without an almost immediate and whole destructive engagement. In essence, the advantage of surprise may be almost impossible to acquire by the methods of the past and the defensive will again become supreme." The reader may wish to compare my chart with that of Dupuy, Col. T.N., Numbers, Predictions, and War, MacDonald and Jane's, London, 1979, p. 7, in which the author plots lethality (killing capacity per hour) increasing from 400 B.C. to the present by six orders of magnitude, while dispersion (square meters per man in combat) increases by four orders of magnitude. Dupuy notes that the technological change which had the greatest influence on modern ground warfare occurred between 1850 and 1860, when the introduction of conoidal bullets enabled infantry to deliver accurate, lethal fire for hundreds of meters, vice tens.

units. In World War II, infantry constituted only about 10% of the total strength of the United States Army, but sustained 70% of its battle casualties.<sup>27</sup> In the fighting of the U.S. Fifth Army in Italy in January, 1944, of a total 180,000 troops assigned, only about 50,000 were assigned to infantry regiments; but the infantry accounted for 92% of the killed, wounded, and missing. In the U.S. 77th Division, during all its battles in the Pacific, 86.9% of soldiers killed in action were assigned to its three infantry regiments. Of course, soldiers of other branches also fought forward, such as those in armor and field artillery. In Tunisia, 80.2% of battle casualties were inflicted on infantry, armor, and field artillery units. In the campaigns across northwest Europe in 1944 and 1945, infantry, armor, and field artillery units sustained 81% of battle casualties; infantry, which comprised only 20.5% of the total, suffered 66.7% of battle casualties. In the following table, data on wounded in action are presented from two theaters, expressed as incidence per 1,000 men in theater:<sup>28</sup>

	Wounded per 1000 Assigned to Theater	
	<u>Southwest Pacific</u>	<u>Italy</u>
Infantry	145.9	274.8
Armor	48.5	69.2
Artillery	24.1	72.0
Other branches	15.4	17.9

But it is important to understand that, as a percentage of the whole, those who fight on foot have become, increasingly over the years, a minority. In the Civil War, a Union division consisted 85% of riflemen; 115 years later, in a U.S. infantry division in Germany, less than 5% of strength might be truly "riflemen". The U.S. 8th Infantry Division, which participated in World War I and World War II, and has been forward deployed in Germany since the '50s, has undergone profound changes in organization and equipment over those years. But perhaps the most significant change has been the drastic decrease in the percentage of the division strength devoted to infantry. In the following table, the fraction of the division assigned to infantry units is related to the "frontage" typically assigned to the division along the forward edge of the battle area (FEBA), and to

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<sup>27</sup>Ellis, *op. cit.*, p. 158.

<sup>28</sup>*Ibid.*

the "throw-weight" of all the division's arms, expressed in pounds or projectiles which could be fired per hour, per man assigned to the division:<sup>29</sup>

<b>U.S. Army Eighth Infantry Division</b>			
	<u>% Fight on foot</u>	<u>Men/Km FEBA</u>	<u>Throw-weight in lbs/man/hr</u>
<b>1918</b>	60	6000	160
<b>1944-45</b>	30	2200	320
<b>1977</b>	15	550	3200

From World War I to World War II, the Eighth's "division slice" of manpower required to control each kilometer of FEBA declined nearly two-thirds, and from World War II to the late '70s, it decreased another three-fourths. Conventional firepower available within the division, as measured by throw-weight doubled from 1918 to 1945, and then increased ten times between 1945 and 1977. The 8th Division of the latter years defended terrain northeast of Frankfurt with less than 10% of the manpower per kilometer a World War I predecessor might have used in the Meuse-Argonne campaign of World War I.

Much of the weapons modernization U.S. Army formations in Germany have undergone reflects deep concern for the threat from masses of Soviet and Warsaw Pact armor. Over the past several decades both NATO and the Warsaw Pact have substantially armored the ground forces facing each other in Central Europe, not only adding to inventories of heavily armored main battle tanks, but fielding "infantry fighting vehicles" to move foot soldiers about the battlefield, and self-propelled armored field artillery. Measure and counter-measure against armored vehicles became the center of force planning, doctrine, and training. In 1956, the area northeast of Frankfurt was the responsibility of the U.S. 4th Infantry Division, a force which moved in trucks, towed its artillery, disposed of a little over one hundred tanks. The following table compares the 4th in 1956 with the 8th in 1977 in terms of organic, antitank (AT), direct fire weapons --tanks, and antitank guided missiles (ATGM):<sup>30</sup>

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<sup>29</sup>U.S. Army, 8th Infantry Division (Mechanized), Infantry for Battle in Europe, 1978, Bad Kreuznach, Federal Republic of Germany, 15 February 1978, pp. 8-9.

<sup>30</sup>*ibid.*

1956	U.S. 4th Infantry Divisions	251 AT Weapons
	9 M41 tanks	81 57mm recoilless rifles
	105 M48 tanks	56 106mm recoilless rifles
1977	U.S. 8th Infantry Division	1,017 AT weapons
	329 M60A1 tanks	224 TOW ATGM
	54 M60A2 tanks	368 DRAGON ATGM
	42 attack helicopters (TOW ATGM)	

For each kilometer of assigned FEBA, the 8th Division of 1977 had 27 direct-fire tank-killers, compared with 7 or so for the 4th Division in 1956. More importantly, the effective range, accuracy, and penetrating power of these weapons had been dramatically advanced. Moreover, not only was the artillery of the Eighth Division in 1977 wholly armored and self-propelled, its range and destructiveness had been substantially enhanced.

What does this mean for a Command Surgeon trying to provide against casualties in warfare? Israel's wars have provided perhaps the best insights into mid-intensity battle. For example, there is some evidence in battle records from the wars of 1967 and 1973 that, as was the case in warfare in bygone eras, a modern victor is likely to incur a lower rate of casualties (percentage engaged killed or wounded) than the loser -- data show Arab losses at double to triple Israeli rates.<sup>31</sup> Overall, Israeli losses are reported to have been about 2 to 3% of its force per day of combat., figures comparable to that of the experience of the United States Army in World War I (2% per division per day), but twice its experience in World War II and Korea (~1% per division per day). Israeli losses were especially high among tank commanders, injuries to the head, face and eyes, occasioned by their exposure in the open hatch to projectile "splash" and armor spalling.<sup>32</sup> As for less intense warfare, diversities of terrain, weather, and threat confound generalizations, but it should be noted that casualties among U.S. combat troops in Vietnam were incurred at about 20% per year, roughly comparable to U.S. experience among the same population in the Civil War (23.2%), World War I (25.5%), World War II (21.3%), and Korea (17.3%).

The distinguished British military historian, John Keegan, calls attention to the fact that modern forces are accident-prone. Accidental death and injury has always attended battle, but contemporary capacity and willingness to strew lethal weapons about the

<sup>31</sup>Dupuy, *ibid.*, pp. 11, 14-15.

<sup>32</sup>Insight on the Middle East War, Sunday *TIMES* Insight Team, London, 1973. pp. 144, 218 *ff.*

battlefield causes fratricide of new and alarming proportions. He deplores the lack of reliable statistics, but believes that "it is probably the mechanization of armies which has done the most to increase the accident figures: young men are regarded by insurance companies as the worst class of risk, and wars put thousands of young men in charge of powerful vehicles on unsupervised roads fraught with hazards...the evidence is unarguably demonstrative of a very high level of accidental death ...and of a considerable and rising proportion of such accidents being suffered in and as a result of battle itself."<sup>33</sup>

Keegan also reports that psychiatric casualties formed a significant percentage of the battle casualties recorded for World War II, and quotes a senior British army psychiatrist to the effect that, depending on the battle, as much as 30% of all casualties may be psychiatric.<sup>34</sup> Battle-induced stress was evident among all ranks, riflemen through generals. In fact, Keegan asserts that the true terrain on which modern battle is fought is the minds of the combatants: "The study of battle is therefore always the study of fear and usually of courage; always of leadership, usually of obedience; always of compulsion, sometimes of insubordination; always of anxiety, sometimes of elation or catharsis; always of uncertainty and doubt, misinformation, and misapprehension, usually also of faith and sometimes of vision; always of violence, sometimes also of cruelty, self-sacrifice, compassion; above all, it is always a study of solidarity and usually also of disintegration -- for it is towards the disintegration of human groups that battle is directed."<sup>35</sup> He notes that since the American Civil War, battles have grown longer, and more sprawling, that the number and insidiousness of their mortal threats have increased, and that there is a propensity towards "hopelessness" among participants induced by the sheer scale and pace of violence.

Keegan held that the very prospect of mid-or high intensity warfare clashes with what seems to be a developing world-wide consensus on the value of each human as an individual, and all the thrust of modern communications media toward "up close and personal." Twentieth Century warfare became impersonalized: in modern battle men contend with machines; the battlefield is empty, the enemy rarely seen except as a cadaver or as a prisoner. Though world opinion is ever more conscious of "human rights", and supportive of extending humane treatment even to wild animals, modern weaponry practices deliberate and extensive cruelty, so that "military surgeons, so successful over the past century in resuscitating wounded soldiers and repairing wounds of growing severity,

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<sup>33</sup>Keegan, John, The Face of Battle, Viking Press, New York, 1976. See in particular Chapter 5, "The Future of Battle". pp. 285 ff. Quotation on accidents is on p. 313.

<sup>34</sup>*ibid.*, p. 328 ff.

<sup>35</sup>*ibid.*, pp.297-298.

have thus now to meet the challenge of wounding-agents deliberately conceived to defeat their skills."<sup>36</sup> And, in a world increasingly restive over statist coercion, modern battle is basically a coercive act:<sup>37</sup>

It is a function of the impersonality of modern war that a soldier is coerced, certainly at times by people he can identify, but more frequently, more continuously, and more harshly by vast, unlocalized forces against which he may rail, but at which he cannot strike back and to which he must ultimately submit: the fire which nails him to the ground or drives him beneath it, the great distance which yawns between him and safety, the onward progression of a vehicular advance or retreat which carries him with it willy-nilly...

Keegan no doubt would assign a much lower probability to mid- or high intensity conflict than my chart above suggests, for he concluded that because families of three successive generations have suffered from war's violence and death, "the usefulness of future battle is widely doubted...The suspicion grows that battle has already abolished itself."<sup>38</sup>

One could hope that Keegan's "suspicion" were to be proved correct, but there is little evidence that such will soon be so; battles -- some intense and protracted -- have been fought in Southwest and Southeast Asia, Latin America, and Africa since Keegan wrote, including his countrymen's ordeals in the Falklands and Ulster. There have been extensive psychiatric analyses of modern combatants which suggest that humans are remarkably resilient, able to function even amid the horrors and strains of modern battle. One of Keegan's compatriots, S.J. Rachman of the Institute of Psychiatry, University of London, summarized his study of such analyses in these words:<sup>39</sup>

...Most troops experience fear in combat, Nevertheless, the overwhelming majority perform their tasks satisfactorily, and serious breakdowns are uncommon. The discordance between fear and avoidance behavior fits our definition of courage ... There is a close but imperfect relationship between the presence of danger and the experience of fear, with important exceptions...(consider, for example, the fearlessness of highly vulnerable fighter pilots). The soldier's sense of control, his confidence, is an important determinant of fear and courage; fear is generally greater where control is weak or absent. With some exceptions, ideological factors had little influence in generating or controlling combat fear. Surprisingly weak avoidance behavior was generated by repeated and prolonged exposures to danger and/or by the repeated experience of fear in combat. Individual differences in vulnerability to excessive combat fear are difficult to predict. Most soldiers, however, were more vulnerable to intense fear when alone.

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<sup>36</sup>*Ibid.*, p. 323.

<sup>37</sup>*Ibid.*, p.324.

<sup>38</sup>*Ibid.*, p. 336.

<sup>39</sup>Rachman, Stanley J., Fear and Courage, San Francisco, 1978, pp. 88-89.

## SOME LESSONS FROM HISTORY

### The Army of Rome and the Army of the United States

At the beginning of the Christian era, Augustus Caesar had reformed the Roman armies, including provisions that each legion should have a senior officer who bore the title *praefectus castrorum*, or "camp commandant" -- usually a former centurion of the legion -- who often acted as deputy commander, and who was charged with its organization, administration, training, and medical services.<sup>40</sup> The latter included instilling and enforcing strict sanitation discipline. Wherever a legion was stationed, it built a hospital, the attendants within which -- *medici ordinarii* (orderlies) and *casparii* (dressers) -- were classed as *immunes*, soldiers excused from the normal labors and duties of line troops. Army doctors, *medici*, mainly Greeks, could hold officer rank up to the equivalent of centurion, and practiced mainly against disease and trauma from edged and pointed weapons. Anaesthetics other than alcohol were unknown; antiseptics included pitch, turpentine, salt, disulphide of arsenic, silphium, and various oils and unguents. Magic potions and amulets were also part of a doctor's kit.

Most western military professionals have read about the legions of Rome in the treatise of Vegetius, a Roman noble of the fourth century, who wrote to call the attention of the Emperor Valentinian (AD 371-392 ) to the methods and means used by his predecessors to remedy the difficulties then beginning to beset the forces of the Roman Empire.<sup>41</sup>

...Of the greatest importance: the means of preserving the health of the troops. This depends on the choice of situation and water, on the season of the year, medicine, and exercise. As to the situation, the army should never continue in the neighborhood of unwholesome marshes for any length of time, or on dry plains or eminences without some sort of shade or shelter. In the summer, the troops should never encamp without tents. And their marches in that season of the year when the heat is excessive, should begin by break of day ...Otherwise they will contract diseases from the heat of the weather and the fatigue of the march. In severe weather they should never march in the night in the frost and snow, nor be exposed to want of wood or clothes. A soldier suffering from the cold, can be neither healthy nor fit for service. The water must be wholesome and not marshy. Bad water is a kind of poison and the cause of epidemic distempers. It is the duty of the officers of the legion, of the tribunes, and even of the commander-in-chief himself, to take care that the sick soldiers are supplied with proper diet and diligently

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<sup>40</sup>Grant, Michael, The Army of the Caesars, new York, 1974, pp. 69, 241,

<sup>41</sup>Flavius Vegetius Renatus, The Military Institutions of the Romans, Clark, Lt. John, trans.; Phillips, Brig. Gen. Thomas R., ed.; Harrisburg, PA, 1944. pp. 70-71.

attended by the physicians. For little can be expected from men who have to struggle with both the enemy and diseases. However...daily practice of military exercises is much more efficacious in preserving the health of an army than all the art of medicine. For this reason they exercised their infantry without intermission. If it rained or snowed, they performed under cover; and in fine weather, in the field. They were also assiduous in exercising their cavalry...Hence we may perceive the importance and necessity of a strict observance of military exercises in an army, since health in the camp and victory in the field depend upon them. If a numerous army continues long in one place in the summer or in the autumn, the waters become corrupt, and the air infected. Malignant and fatal distempers proceed from this and can be avoided only by frequent changes of encampments.

Down the centuries since the Caesars, commanders have neglected the health of their troops only at grave risk. And in the American military experience, lack of medical readiness has caused tragic loss of life.

One of the worst peacetime disasters ever to befall the United States Army can be blamed on two doctors, neither of whom seems to have read Vegetius. Early in 1809, the Jefferson Administration, in one of its final acts, dispatched to defend New Orleans the 3rd, 5th, and 7th Infantry Regiments, some 2000 troops of the line in all, under command of Brigadier General James Wilkinson -- a former physician, and a "wheeler-dealer" of note.<sup>42</sup> At a time when war clouds were gathering, this, the most formidable concentration of American forces anywhere, fell victim to enemies within. By April, 1809, because of poor sanitary discipline and vice, 30% of Wilkinson's soldiers were on the sick list, and only three doctors were themselves well enough to tend the sick. The incoming Secretary of War, William Eustis -- another physician -- became alarmed at initial reports from New Orleans, and first suggested, then ordered, Wilkinson to move his force up-river to more salubrious encampments. But Wilkinson, occupied in New Orleans with various lucrative schemes, rented a camp-site down-river, a thirty-acre plot known as Terre aux Boeufs, the mean elevation of which was three feet below the level of the Mississippi flowing within its embankments. His troops arrived on 9 June, and left on September 10. *Ad interim*, rains fell, the field flooded, tents leaked, mosquitos swarmed, food and water turned bad, and the supply of medicine faltered. Eustis, under Federalist pressure to cut the Army budget, foreclosed emergency purchases which might have avoided some of the suffering. The hapless soldiers at Terre aux Boeufs, accoutered in the same uniform worn on the Canadian border, sweltered, and sickened. Half of them died, and were buried in the river muck.

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<sup>42</sup>This account is drawn from Jacobs, James Ripley, The Beginning of the U.S. Army, Princeton, 1947, pp. 342-352, and Weigley, Russell F., History of the United States Army, pp. 113-114.

From the low-point of Terre aux Boeufs, leadership in the United States Army, afield and in Washington could only improve. By the time of the Civil War, American military professionals and surgeons, advantaged not only by reading Jomini and other commentaries on Napoleonic methods, but also by experience in Mexico, and by reports of medical service in the Crimean War, had developed a functional doctrine for medical support. Within the Union Army, Surgeon Jonathan Letterman set up a medical service of regimental aid stations, ambulance companies, and movable field hospitals, which system was officially sanctioned by Congress on March 11, 1864. Too, a civilian humanitarian organization, the United States Sanitary Commission, inspired in part by Florence Nightingale, issued what must be regarded as one of the Army's first field manuals, a guidebook for officers and men entitled Preserving the Health of the Soldier, and wrested from a reluctant bureaucracy permission for women nurses to serve in military hospitals. The military historian, Russell Weigley, judged that: "By the standards of the day, the Union armies received good medical service as well as generous supplies, to be altogether the best cared for and provided armies ever to wage war."<sup>43</sup>

Unfortunately, when the United States went to war against Spain in 1898, most of the lessons of 1861-1865 seem to have been forgotten, and Vegetius and Jomini ignored. The Army Medical Service was then headed by Surgeon General George M. Sternberg, an epidemiologist of some repute, but an indifferent administrator and leader. His military experience was extensive enough for him to have appreciated that soldiers, particularly newly mobilized troops, might be careless with preventive medicine and field sanitation, but aside from publishing a bulletin on hygienic precautions, the Surgeon General did little. The consequence was that in improvised encampments for recruits and activated reservists all across the southern United States, more lives were lost to sickness, especially typhoid, than were lost in Cuba either to battle or to tropical fevers.<sup>44</sup>

Early in the Twentieth Century, the U.S. Army came under the influence of two one-time doctors, Major General Leonard Wood and Major General Fred C. Ainsworth.<sup>45</sup> Wood began with the Army as a contract surgeon in the campaign against Geronimo, then accepted a commission in the Medical Corps, and finally entered the line, through the good offices of Theodore Roosevelt, as a colonel of the Rough Riders; in 1910, Wood was appointed Chief of Staff of the Army. Ainsworth too had been a contract surgeon, and earned a commission in the Medical Corps; but from there, he entered Army administration,

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<sup>43</sup>*ibid.*, pp. 224-226.

<sup>44</sup>*ibid.*, pp. 304-305.

<sup>45</sup>*ibid.*, pp. 325-341.

and rose to be Chief of the Record and Pension Division of the Medical Bureau, commanding a fine fulcrum for political leverage on Congress. Ainsworth finally was appointed Adjutant General of the Army, consolidating his control of the Army's records, reports, and orders. The two former physicians then became the center of a storm of controversy over how the Army should be administered: via a general staff, as the future-oriented, strategically-expansive Wood wanted it; or through its historic bureaus, as the more professionally-focused Ainsworth would have had it. In political in-fighting, Ainsworth was ousted, and Wood moved to implement his concepts. Thanks in part to Wood's vision of the future world role of the United States, the Army was able to prepare itself for the mobilization and combat of World War I. During that conflict, the Medical Corps redeemed its tarnished reputation: Weigley's judgement was that "for the first time the Army went through a war with casualties from disease lower than battlefield casualties. Despite the horrendous influenza epidemic of 1918, mortality from disease in the Army was 15 per 1000 per year, as compared with 65 per 1000 per year in the Civil War."<sup>46</sup>

### North Africa, 1942

Napoleon Bonaparte venerated his command surgeon, D. J. Larrey, and referred to him in his will as "the most virtuous man I have ever known." But he held in contempt his personal physicians, particularly those who attended his stomach cancer in his final days.<sup>47</sup> Erwin Rommel, the German General known to the British as "The Desert Fox", seems to have had an inverse relationship with his doctors: affection and respect for the physician treating his internal disorders, aloofness toward the medical officers of his *Panzerarmee Afrika*.<sup>48</sup> "In 1944," wrote one of his British biographers, "Rommel was already a living legend. He was known as a great commander in the field, distinguished by that rare quality, a feeling for the battle. Bold, dashing, and handsome, he was relentless in combat, magnanimous in victory, and gracious to his vanquished enemies. He seemed invincible. Where he was there was victory: he attacked like a tornado, and even when he

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<sup>46</sup>*Ibid.*, p. 371.

<sup>47</sup>Herold, J. Christopher, ed., The Mind of Napoleon, New York, 1955. p. 138.

<sup>48</sup>The Rommel Papers, B.H. Liddell Hart, ed., p. 270-271. Professor Doctor Horster of Würzburg University -- described as "one of the best known stomach specialists in German -- was Rommel's doctor and medical adviser in North Africa. In August, 1942, Horster reported to the German High Command that Rommel "suffering from chronic stomach and internal catarrh, nasal diphtheria and considerable circulation trouble. He is not in fit condition to command the forthcoming offensive." When the British offensive struck at El Alemein in October, 1942, Rommel was returning from treatment in Europe, and when he relinquished command in Africa in March, 1943, reasons of health were cited.

withdrew, his enemies followed very gingerly indeed..."<sup>49</sup> But by 1944 the allies had defeated Rommel, and ejected him from Africa. That year a British officer, a prisoner of war Rommel was interrogating, asked him about his African experiences. Rommel responded, "That was child's play. The only reason I had to retreat there was that no more supplies were getting through to me."<sup>50</sup>

Rommel, in official reports as well as conversation, perceived materiel as determinant in the battles for North Africa,<sup>51</sup> and he often blamed his African setbacks on "Italian treachery" in the form of half-hearted attempts to protect his forces' line of communications across the Mediterranean. It is undoubtedly true that often he was unable to obtain the men and equipment to make up for combat losses. But the record also suggests that Rommel's defeats were in some measure a consequence of his profligacy with the health of his command.

The Italians provided, on the average, at least one naval escort per resupply vessel, a higher level of convoy protection than the British were able to sustain in the same waters. The Italian navy had, indeed, assured the safe arrival of 91% of personnel dispatched to Rommel, 80% of embarked fuel, 85% of tanks and trucks, and 87% of munitions.<sup>52</sup> Rommel drove his troops relentlessly, and his battle losses were heavy. During 1942, a year which began with Rommel's capture of besieged Tobruk, and ended with his retreat across Libya before the British advancing from El Alemein, and with the allied invasion of French Morocco and Algiers, the average German strength was 43,000 effectives. During that year, 3600 were killed in action, 13500 wounded in action, and 9000 missing in action, battle losses which, taken together, amounted on the average to 2000+ per month. But far more crippling than battle casualties were losses through sickness. In 1942, German units carried 69,000 soldiers on their sick rolls: on the average, 5000+ per month. Rommel's men suffered from sun sores and other skin maladies, from diet-induced teeth and gum debilitation, gastric disorders, dysentery, diphtheria, jaundice, and a flu-like, fever-chill syndrome. When the British blow fell at El Alemein, October 23, 1942, of 46,000 Germans in the theater, over one-fifth, some 10,000 troops were sick, unavailable

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<sup>49</sup>Irving, David, The Trail of the Fox. New York, 1977., p. 5.

<sup>50</sup>*Ibid.*, p. 4.

<sup>51</sup>*E.g.*, Rommel, Erwin, "Africa in Retrospect", in The Rommel Papers, *op. cit.*, pp. 519 ff. Rommel's correspondence often touched on his own health, or the health of principal subordinates, and there can be no doubt that he appreciated, and shared to a remarkable extent, the trying circumstances of his soldiers. But there is little evidence that he concerned himself with preventive medicine or other aspects of the health of his command.

<sup>52</sup>Irving, *op.cit.*, p. 113.

for duty. Rommel's crack Fifteenth Panzer Division, his mailed fist, had less than 40% of its strength of 9,178 on hand.<sup>53</sup> Older Germans suffered disproportionately -- including a number of general officers, and Erwin Rommel himself, in Germany for a "rest." By the end of the year, after the fighting retreat across Libya, almost every senior German officer was sick. The yellow pallor of jaundice became part of the regalia of high command. In November, the entire staff of the Twenty-first Panzer Division suffered what appeared to be a mass nervous breakdown. But Rommel spurred them all onward.

Rommel was a strict, often arbitrary commander. He drove himself mercilessly, rarely sleeping or eating amid battle, and he pushed his subordinates as hard. He court-martialed a tank battalion commander who faltered in an attack and burst into tears over his unit's losses, and was quick to file charges whenever he detected any other failure of leadership in combat. He relieved Major General Streich, a much-decorated commander, rebuking him on his departure for being "far too concerned for the well-being of your troops". Streich saluted, and replied "I can imagine no greater words of praise for a division commander."<sup>54</sup> (Streich's replacement, Major General von Ravenstein, unable to cope with the desert's heat, spent his first several days in command lying on a cot in the shade of his tent.) But Rommel won battles, and that was enough to quiet his detractors in Africa, and at home in the German High Command. Again and again, his persistence and drive won against daunting odds. But by January, 1943, even his vaunted dash and luck seemed to be failing, as was his health. He complained of violent headaches and "nervous exhaustion" stemming from difficulties with "blood circulation", and there was talk of sending him back to Germany to recover from "depression."<sup>55</sup> But Rommel had one more surprise for his enemies: in late February, momentarily revived by the prospect of a quick riposte which promised to compromise the entire American position in Tunisia, he struck a devastating blow against Eisenhower's American forces at the Kasserine Pass.<sup>56</sup> But before that attack could be pressed home, Rommel himself broke it off, and turned his attention on the advancing British to his south. In early March, 1943, Rommel left Tunisia for Germany to undergo a "health cure," leaving the rank and file of *Panzerarmee Afrika* to become prisoners of war.

## **Burma, 1943-1945**

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<sup>53</sup>*Ibid.*, p. 262.

<sup>54</sup>*Ibid.*, pp.124-125, 132.

<sup>55</sup>*Ibid.*, pp. 313-315.

<sup>56</sup>*Ibid.*, p. 330.

I have always reckoned Field Marshal the Viscount Slim among the great commanders of World War II. Like Rommel, he was forced to battle with limited resources, yet won impressive tactical and strategic victories. Slim's Fourteenth Army fought in a tertiary theater of the war; its logistic support was tenuous at best (at the outset, even weapons themselves, let alone ammunition, were in short supply), and his polyglot forces were opposed by a victorious, cohesive, determined enemy. Yet Slim won decisively, using innovative methods. Quite unlike Rommel, Slim operated with evident consciousness that his most precious resource was manpower. His own account of his undertakings as Fourteenth Army commander from October, 1943, to September, 1945, begins with his assessment that the health of his command loomed among the most pressing problems he faced, as important as solving his supply insufficiencies and opening effective lines of communication to India.<sup>57</sup>

In 1943, he noted, for every soldier evacuated from Burma with wounds, there were 120 evacuated sick. The annual malaria rate alone was 84% per annum among the Army as a whole, and approached 100% among units on the battle lines. There was a high incidence of dysentery, skin disease, and mite or jungle typhus. The sick rate of evacuees from units was 12 per thousand per day. The new Army commander could see his command melting away before his eyes. His senior medical officers pointed out that their medical units were understrength, and the command's hospitals overtaxed: 21,000 occupied beds were being cared for by 414 nurses, less than 1:50 beds by day, and 1:150 beds by night. Slim immediately began to clamor for medical reinforcement:

I knew that we had to beat Germany first. I was ready even to accept the fact the Fourteenth Army was the Cinderella of all British armies, and would get only what her richer sisters in Africa and Europe could spare. I would not grumble too much if we came last for men, tanks, guns, and the rest, but I would protest, and never cease from protesting, that we should be at the bottom of the list for medical aid...

Slim concluded, however, that he could neither wait for help, nor try to bootstrap upwards the command's hospital capacity. Prevention was the better answer, to stop soldiers from going sick, or staying sick. He and his doctors -- his narrative is not clear whether he had one principal medical officer or several -- attacked the health problem on three axes: (1) practical application of the latest medical research; (2) changes in evacuation policy, providing for air evacuation of serious cases, and for increased treatment in forward areas of the less serious; (3) command emphasis on raising morale.

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<sup>57</sup>Slim, W.J., Field Marshal the Viscount, Defeat Into Victory, New York, 1961. pp. 150, ff.

Under Slim, Fourteenth Army became a practical testing ground for new techniques and drugs. The evacuation policy which had been in effect condemned a malaria patient to the ardors of hundreds of miles by ambulance, railroad car, or boat to a hospital in India. Often he could recover and be reinfected while in the chain of evacuation. The minimum absence from duty averaged over five months, and many were simply lost to Fourteenth Army for the duration of the war. Slim therefore organized "MFTUS", Malaria Forward Treatment Units, field hospitals in tents or native buildings, often but a few miles from the battle lines. The MFTUS cut time from onset of an attack of malaria until a man returned to his unit to as little as three weeks, permitted diverting transportation to other pressing logistic tasks, and spared the patient the discomfort of the long journey. Slim reported that the MFTUS had another pay-off: "When morale was not high some men welcomed malaria and took no precautions to avoid it, reasoning that a bout of malaria was a cheap price to pay for getting away from the Burma front. If it only took them half-a-dozen miles from the front and brought them briskly back it was not so attractive."

For the wounded, surgical teams were formed and sent forward. Physicians were attached to forward units to oversee preventative medicine, and nurses were stationed forward to initiate care for patients with diseases like mite typhus where nursing counted for more than doctoring. Air evacuation system was introduced, beginning with light fixed wing aircraft picking up casualties from jungle strips within a mile or so of the battle, and flying them to rendezvous with transports at airfields, which having discharged supplies from India, then evacuated the casualties direct to airfields set up alongside hospitals on the plains. (Slim argued successfully against the views of "the more orthodox" for the construction of these in the steamy lowlands as opposed to the more salubrious climate of the mountains because the aircraft could land in the lowlands with ease, while the mountain sites would have necessitated further travel by ambulance over primitive roads.) During 1944 and 1945, one of these new hospitals treated more than 11,000 British casualties in blood-soaked battle dress evacuated straight from the front line, with a death toll of 23.

Slim held that good doctors were of little avail without sound unit discipline. Therefore, more than half the battle against disease had to be waged by line officers, not medics. The unit leaders had to insure that the daily doses of prophylactic drugs were taken, that shorts were never worn, that shirts were worn and sleeves turned down before sunset, that minor abrasions were treated before sepsis developed, and that bodily cleanliness was enforced. He notes that when mepacrine was first introduced, troops turned a jaundiced yellow, and the inevitable whispers having started that the drug would render men impotent, many soldiers simply discarded their pill:

An individual medical test in almost all cases will show whether it has been taken or not, but there are a few exceptions and it is difficult to prove for court-martial purposes. I therefore had surprise checks of whole units, every man being examined. If the over-all result was less than 95% positive I sacked the commanding officer. I had to sack only three; by then the rest had got my meaning.

Slowly, but with increasing rapidity, as all of us, commanders, doctors, regimental officers, staff officers, and N.C.O.s, united in the drive against sickness, results began to appear. On the chart which hung on my wall the curves of admissions to hospitals and MFTUS sank lower and lower, until in 1945 the sickness rate for the whole Fourteenth Army was one per thousand per day...

Slim's measures to raise morale were no less extensive and direct. He undertook to convince his line soldiers that they were superior to their opponents, and his rear echelon soldiers that each occupied a vital job worth doing well. He revitalized rear echelon camps where units might be sent to rest after a period in the line, or replacements might be trained enroute to their unit. One such camp was assigned to each line division, and became a vital part of its operations. Two training divisions were set up, where incoming recruits were taught by battle-experienced officers and sergeants how to survive and to fight in the jungle. Officer leadership, unit identity, pride and cohesion, even-handed military justice and personnel policies -- these and other details of soldierly life became matters of express interest to the commander of the Fourteenth Army, who reported that there soon emerged "a fighting spirit for our men and a confidence in themselves and their leaders that was to impress our friends and surprise our enemies."

### **Germany, 1945 and 1978**

As mentioned above, the U.S. Army's Eighth Infantry Division has had extensive experience in Europe. In late 1944, the "Pathfinders" fought a costly battle in the Hürtegen Forest on Germany's western border in which its casualties included a significant number of cold injuries. Thirty-four years later the Division -- then under my command -- conducted a 10-day Field Training Exercise in the Saarland region of Germany during which snow fell and the temperature remained below freezing; again the Division had an adverse experience with cold injury. To insure that our successors would not have to learn as painfully how to cope with operations in cold weather, I directed the Chief of Staff and the Division Surgeon to study that FTX in detail, and to prepare a divisional directive on measures to avoid cold casualties. Their staff study eventually was published as a manual of some 130 pages, which I entitled Winning in the Cold: Leaders' guide to winter combat

readiness.<sup>58</sup> Reproduced below are the first several pages of Chapter 3 of the original manual, presented as an example of a divisional general staff analysis led by a Command Surgeon which had direct payoff for military operational effectiveness:

American military history is not reassuring about the durability of the American soldier in winter warfare. Of the Continentals who began the winter of 1777-1778 at Valley Forge, only two-thirds remained in the ranks when spring came, and of these, half were unfit for duty. In the Civil War and World War I, winter quartering practices kept losses to cold injury down, but in World War II, the U.S. Army fought hard winter campaigns, and lost heavily to cold. Trenchfoot and frostbite seriously weakened the fighting strength of U.S. divisions; in the winter of 1944-1945 alone, U.S. forces fighting in Europe evacuated 71,000 cold weather casualties -- more soldiers than now man the entire V Corps. During the War in Korea, cold injury struck as decisively as the Chinese Army: one U.S. division, during the months of November and December 1950, fielded an average strength of 22,496, but lost fully one-third that number, 7,338, as non-battle casualties, chiefly from frostbite and trenchfoot.

In the Seventh Army today, every soldier assigned is essential for our success in the first battles of the next war. The Division cannot afford to allow cold injuries or winter accidents to sap its strength.

We need every Pathfinder for our wartime mission, especially in winter. Leaders must not squander human resources through ignorance, carelessness, or lack of training for cold weather operations.

Yet in recent winter exercises, some units experienced losses which, in wartime, could spell the difference between winning and losing. During a divisional exercise in the winter of 1978, nearly two percent of the force was lost in 10 days: hundreds of soldiers were medically evacuated with suspected frostbite, or with winter-related injuries -- falls on ice, burns from careless fires, vehicular collisions, or other accidents. One senior NCO was killed by a passing civilian car while checking a convoy at a halt. A jeep-load of soldiers were killed traveling with doors closed when struck by a train at a marked crossing. A VTR crew drank some wine, locked themselves inside their vehicle with the heater running, fell asleep and died from carbon monoxide poisoning. Post exercise investigation concluded that:

In virtually every case, a concerned leader could and should have prevented the loss, or a knowledgeable soldier could have avoided the danger.

<sup>58</sup>U.S. Army Eighth Infantry Division, Winning in the Cold, APO New York 09111, 31 March 1979. Subsequently, this manual has been reproduced and issued in other divisions of Seventh Army, and in 1980-1981, Infantry magazine carried excerpts serially in three successive issues under the title "Cold Weather Operations".

### Cold Injury: The Scope of the Problem

Among the losses leaders can prevent most easily are those from frostbite -- a form of cold injury. General Mannerheim, the Finn who defeated the Soviet Army in the Winter War of 1939-40, has stressed that:

"Losses among the troops because of frostbite weigh heavier on the commander's conscience than battle casualties, because in this case there always remains the disturbing feeling that losses due to cold might possibly have been avoided if greater precautions had been taken."

Of all units in Seventh Army, the infantry regiments of the 8th Division have historic bitter reasons for concern for cold injury. The 87th Infantry, in its fighting for Kiska, Alaska, in 1943 suffered heavily from cold casualties. The 13th and 28th Infantry lost heavily to cold injury in late 1944 and 1945 as shown in Figure 9.

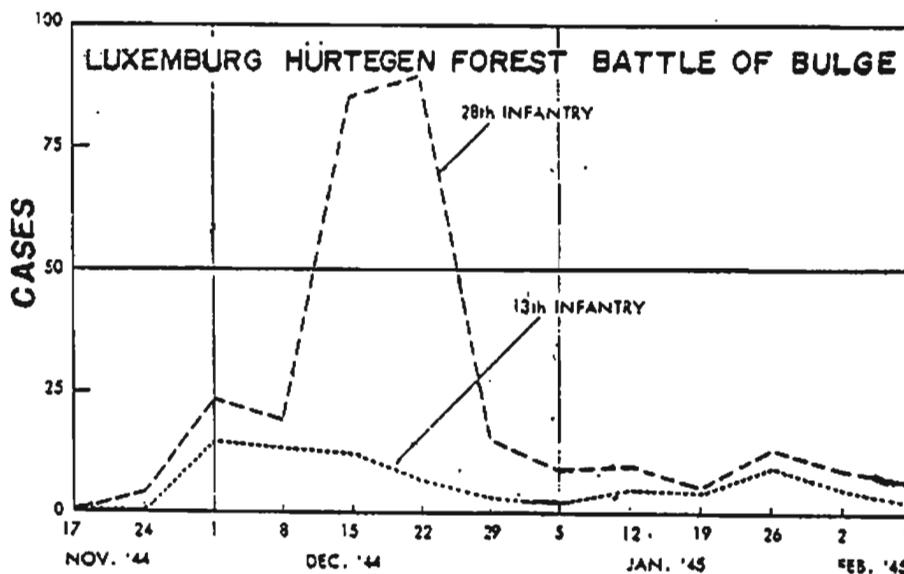


Figure 9. Cold Injury Experience by 8ID Infantry Units During Winter 1944-1945.

<sup>4</sup>DA Pamphlet 20-292, Warfare in the Far North, Oct 1951, p. 4.

The heaviest losses portrayed above were suffered by the 28th Infantry Black Lions while cut off in the Hurtgen Forest. Infantrymen of isolated forward companies, subjected for two weeks of continuous enemy fire while in wet, muddy foxholes, without hot food or drink were severely hit by cold injuries.

But the 8th Division's adverse experience extends right up to recent FTX's. Figure 10 shows the experience of three infantry battalions on a 1978 winter FTX which encountered snow, cold, and wind chill down to  $-51^{\circ}\text{F}$ . Battalions A and B were initially on the defense; Battalion C was initially attacking. The changeover of missions occurred on day 4 and 5.

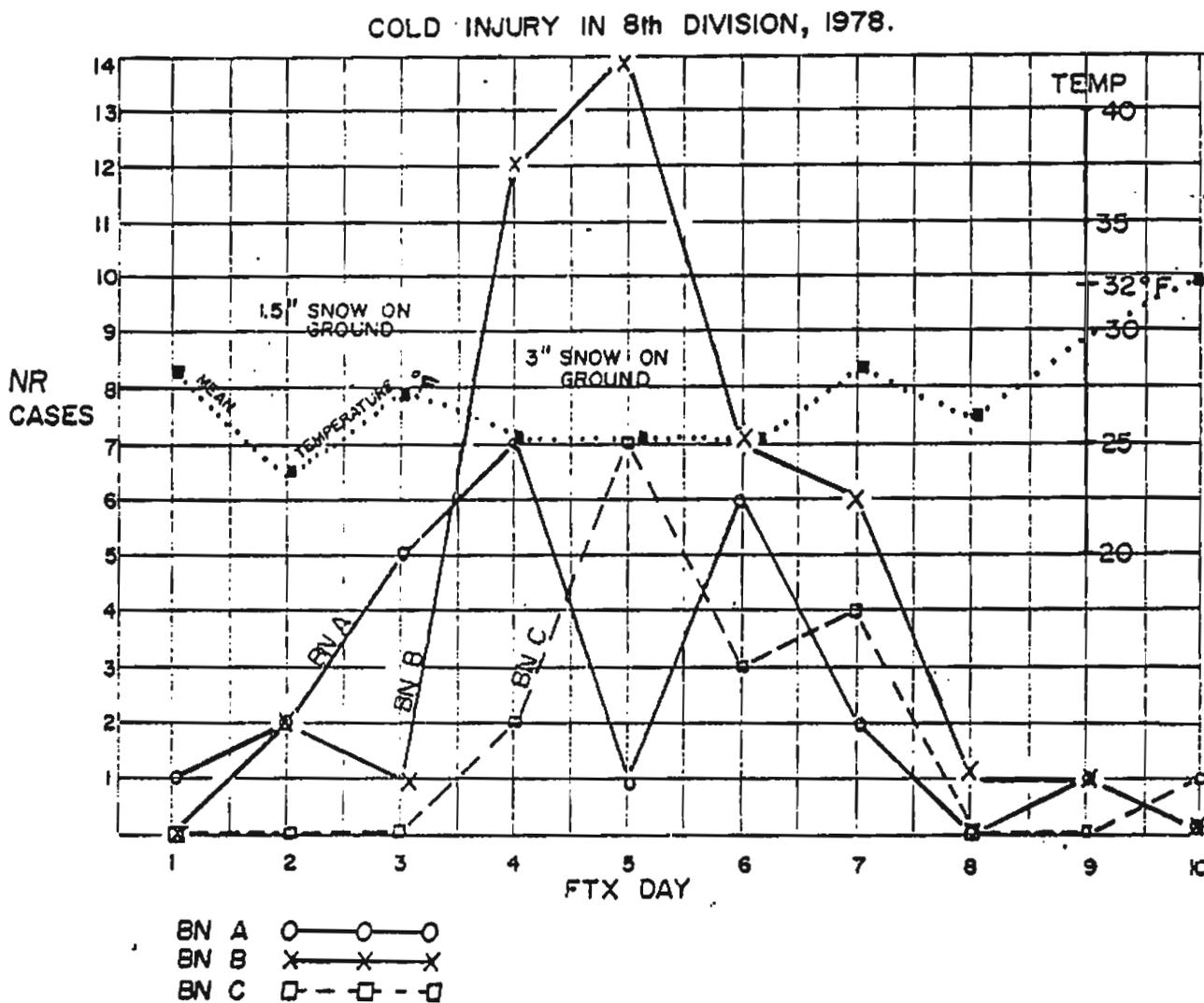


Figure 10. 1978 Cold Injury Experience of Three Battalions During a 10 Day Winter FTX in Germany.

The message is clear -- troops who were on the move and in the attack had few cold weather injuries; however, troops in the defense, improperly led and supervised, became needless cold casualties.

No mechanized infantry division such as the 8th is today need accept such risk of wide-spread cold injury. It has armored fighting vehicles to bring forward and move supplies about the battlefield even under fire, direct to the fighters-on-foot, who need them the most -- including ample clothing, shelter, warming equipment, food and hot drink. That mobility also assures adequate rotation of individuals and units from exposed positions back to warming areas. No Pathfinder soldier need stand in a flooded foxhole -- an APC bilge pump can be rigged to pump the hole dry quickly and efficiently.

Our men and women are the division's most vital resource. Even if winter supplies -- personal bags, tents, stoves, camouflage -- require diversion of transport from ammunition basic load, frontline soldiers must get what they need to survive in order to fight.

Yet indications are that the very advantages of being mechanized cause carelessness in some leaders. On the 1978 field exercise, some infantry leaders never thought to take advantage of insulated boots, allowed some troops to go without warming or hot drink for periods of up to three days, and paid the inevitable price in cold injuries -- a completely unacceptable lapse in professionalism. Moreover, only 2 of 10 soldiers evacuated could remember having been instructed how to prevent cold injury -- a completely unacceptable lapse in training.

Cold injuries tend to occur more often among troops defending or delaying than attacking, because the attacker can use his initiative to keep his troops warmer and better rested, while the defender must spread his men over wide frontages where warming is hard, and keep them out in the cold, on the alert. But in recent exercises some units, no matter what their tactical posture, accomplished their mission with 0 cold injuries. The difference is plainly better leadership.

Too many leaders regard cold weather operations in Germany to be nothing more than business as usual -- they think cold can simply be gutted-out until ENDEX -- nothing could be further from the truth.

Each leader must understand who in his unit is vulnerable to cold injury, and devote special attention to those soldiers more likely than others to become a casualty. In the 1978 winter exercise referred to earlier, losses to cold injury were concentrated among young, junior soldiers, most of them in the field during winter weather for the very first time.

<sup>5</sup>AR 40-418, para 2-22, requires that the Surgeon General be notified telegraphically if a soldier is admitted to a hospital as a result of cold injury. Figures are based on those so reported.

Figure 11 shows the profile of the cold injuries from that exercise:

Male	100%
Age 18, 19 or 20	94%
Black	70%
From South	55%
Service less than 2 years	75%
Injured feet	100%

Figure 11. Profile of Cold Injuries Experienced by the 8th Infantry Division During a 10 day Winter FTX in 1978.

We do not have sufficient information concerning the performance of female soldiers in cold weather; however, we must assume that the lessons provided could and should pertain vis-a-vis women.

Based on hard learned and relearned experience, leaders must focus attention on:

<u>Southerners</u>	Most of the cold-injured came from the Carolinas southward and westward to Texas.
<u>Newbies</u>	For most, the FTX came during their first winter in Germany.
<u>Kids</u>	Lack of experience, lack of motivation to keep active -- both could have figured.
<u>Feet</u>	Almost all had duties requiring prolonged contact with snow-covered ground. While <u>all</u> had been issued insulated boots, and most had these boots in the field, three out of four were wearing leather boots when injured.
<u>Infantry</u>	Three out of four were in infantry units. Most of the rest were on guard, or manning an OP on a perimeter.
<u>Blacks</u>	It is statistical fact that blacks are especially prone to cold injury. <sup>6</sup> Young blacks require extra vigilance.

<sup>6</sup>DA, TB MED 81, Cold Injury, Sep 76, p. 3.

# THE COMMANDER-COMMAND SURGEON RELATIONSHIP

## The Command Surgeon

Against the background of the foregoing, let me tell you what I would look for were I seeking a Command Surgeon today. He or she should have all of the following characteristics, albeit perhaps better endowed with some than others:

**Medical Professionalism.** *Sine qua non* would be solid attainments as a medical doctor, and an evident personal commitment to practicing medicine -- my definition of "professional". Not business acumen (Brigadier General Wilkinson had that), not political finesse (Secretary Eustis had that), but rather confident possession of the skills and knowledge of the medical art, and the ability to apply it to military matters. The Command Surgeon should be able to provide the Commander *entre'* into the world of health care, to call to his attention significant new developments or innovative approaches to solving old problems, to keep him abreast of medical writings especially germane to his own professionalism, and to acquaint him with other medical professionals whose pursuits impinge upon his own. He should serve the Commander not like Rommel's doctor -- by acting mainly as a personal physician -- but like Field Marshal Slim's medics, making it possible for the Commander to bring to bear within his command the latest and best in medicine.

General Johnson pointed out that the Army exists to interact with land and people. In this era, few parts of the world are wholly bereft of medical services, and the ability of American military medics to establish professional rapport with indigenous doctors, civilian and military, can often be crucial to a U.S. command's success. Such rapport is particularly crucial when lives are at stake, as in the aftermath of a natural disaster, or amid civil unrest.

**Military Competence.** Not every Command Surgeon will have an opportunity to be a Jonathan Letterman, but almost all will be called upon to solve problems like those faced in 1898 by Surgeon General Sternberg, or the doctors of the Eighth Infantry Division in Germany in 1944 and 1978. In military affairs as in medicine, the final word on how to perform any operation will never be written, and there is more than ample room for life-saving ingenuity and thoroughness. What the Commander needs is a Command Surgeon who, as a principal general staff officer with a sound understanding of what the Commander intends, fashions a robust and facile medical support system which anticipates need as much as possible, and adapts to the (inevitable) unexpected. The Command Surgeon must visualize that system as part of the warp and woof of the command afield, an

integral part of its sentience and communications, a logistical asset rather than burden, a vital adjunct to its operational strength, and bend his energy and will to make it function as such.

The eyes and ears of U.S. military medics can often learn much about the country in which a U.S. command is operating that would otherwise be denied it: about the attitudes of the civilian population, about the condition of hostiles, about sources of water, food, and medical supplies. U.S. medics have often been a fundamental way of conveying to a foreign people the concern of the United States for their welfare, and they frequently have set a politically significant example for indigenous armed forces. Their introducing Letterman-like reforms of medical support for a Third World army has dramatically reduced mortality, and eased suffering.

**Skill as Trainer.** The experience of the Eighth Division makes the point that every Division Surgeon, and indeed, every doctor serving with troops, has an important and continuing responsibility that the training of his or her unit be medically cogent: that it anticipates and wards off actual health hazards for participants, that it simulates the medical exigencies of battle to the degree practical in the circumstances, and that the entire organization is drilled in combat casualty care. The engagement simulation techniques currently in use in the Army lend themselves readily to inclusion of medical tasks, but in my experience, it is a rare line officer who will think of developing their full potential for such purposes: the prevailing line attitude is that medics will train the medics, and that for non-medics, aside from individual training for the first aid tasks in the Soldier's Manuals, training in the unit ought to focus on "operational missions". This attitude is difficult to reconcile with what one ought to expect of future mid- or high intensity battle: surviving medics overwhelmed, and much of the job of clearing away the dead and caring for the wounded falling to non-medics. A Command Surgeon worth his salt would persistently counsel his Commander to prepare against that contingency.

I was recently asked to observe and critique a new training technique for armored units, one which capitalized on the capabilities of SIMNET, networked, fully-crewed armored vehicle simulators engaging other manned simulators in two-sided battle. The equipment is a truly exciting advance in training effectiveness, enabling participants to acquire what I would term vicarious combat experience, and most of my comments were laudatory. But I expressed disappointment that no attempt had been made to carry the training beyond the point that an armored fighting vehicle was fatally hit: at that point the simulator emitted a loud noise and went blank, the crew dismounted, and were directed to the "coffee area", there to "take a break", while survivors continued to fight. The "break" could go on for hours. With very little additional cost or trouble, the training for the

"casualties" might have continued with drills in evacuating hit vehicles, administering first aid, and reconstituting crews and platoons to man "replacement" or "repaired" vehicles. The "dead" simulators could have been remanned with deliberately scrambled crews and leaders, restarted from some logical point on the battlefield, and sent to rejoin the battle. What SIMNET needed, I said, was consultation with an Israeli medic experienced in dealing with battered armored units, or U.S. medic equipped with vivid, current information on the medical consequences of hitting an armored fighting vehicle with modern ordnance. Then the engagement simulation would extend into the medical dimensions of battle, and the Army's return on its investment in the simulators would be increased manifold.

**Doctrinal Awareness.** As in the medical profession, some concepts and techniques are born in schools or laboratories, but many are developed in the field, in serving units. Certainly every day in battle ought to provide better ideas on how to fight in the future, and every scrap of battle-like experience in peacetime ought similarly to be translated into increased readiness for combat. Every commander needs a Command Surgeon who can assist him in thus influencing the Army's doctrine.

I suspect that few of the architects of current Army doctrine have consulted competent medical authority. The informational intake and decisional output they have postulated for commanders in battles of the future seems to me to exceed in stress-potential what had been expected of past commanders by several orders of magnitude. And in an era when the Army has on hand or in immediate prospect enough night vision equipment, navigational aids, and communications gear to support 24 hour per day operations, little thought seems to have been given to how to structure the force for continuous battle.<sup>59</sup> The answers clearly ought to take into account the physiological needs of the combatants for nourishment and sleep, as well as the capabilities of equipments. Again, an active Command Surgeon could make signal contributions.

**Contributor to Research and Development.** Like its doctrine, the Army's mechanisms for researching and developing technology profit from input from commands which identify requirements for technological upgrades. My impression is that those mechanisms need in particular an infusion of requirements for conserving life. As Soviet hegemony disintegrates, it is ever more evident that U.S. forces ought to raise readiness for the sort of combat, more likely in the Third World than elsewhere, in which constraints are

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<sup>59</sup>As an example of thoughtful observations on such problems from a medical resource, see Manning, Major Frederick J., MSC, Human Factors in Sustaining High Rates of Artillery Fire, U.S. Army Medical Research Unit, Europe, undated, under letter of transmittal from Chief of Staff, Eighth Infantry Division, 14 March 1979.

bound to exist on the use of U.S. firepower and destructive maneuver, and in which our government will be under strong pressure to operate effectively with minimum U.S. casualties. But even in the Third World, combatants must be prepared to encounter deadly ordnance. Soviet forces, in their campaigns in Afghanistan, peppered the valleys and mountain trails with small anti-personnel mines, with the result that among Afghan war refugees in neighboring Pakistan, there were reported to be 80,000 amputees; scatterable mines are now widely available on the world's arms markets. Large vehicular-borne explosive devices capable of devastating blast over-pressure have become a weapon-of-choice for terrorists, *e.g.*, the U.S. Embassy and the U.S. Marine billets in Beirut, and the Police Headquarters in Bogata. The Iran-Iraq War made it clear that even secondary powers can employ chemical weapons and ballistic missiles. The fact is that any future battlefield is likely to be quite lethal.

There is a serious question whether dismounted combatants can survive and function if opposed by such portended weapons as blinding lasers, broadcast antipersonnel munitions, compound chemical weapons, conventional explosives optimized for anti-personnel effects from blast or fragmentation, and man-homing munitions. One response to these threats might be to develop and field a small armored vehicle with extraordinary sentience, armament, and protection, possibly a two-man tank controlling one or more robotic vehicles. But land vehicles have thus far proven expensive to buy, operate, and maintain, relatively easy for an enemy to target, and problematical for strategic mobility. They are surely questionably effective for such missions as rescuing American hostages in a high-rise hotel in San Salvador or Manila. There will be places on every imaginable battlefield where vehicles simply can not go -- *e.g.*, cities and forests -- places where dismounted soldiers will have to be used to gain or maintain control. And foot soldiers who can be conveyed abroad in passenger aircraft are inherently strategically mobile. Hence, a better response might be to develop much higher levels of individual protection than have been available to date in the hodge-podge of helmet, armor overgarments, respirators, goggles, ear plugs, and impregnated clothing.

It appears technically possible to develop a battle dress for the individual soldier which could combine much better protection against blast, projectile and respiratory threats with a personal air conditioning unit, and with devices for remotely monitoring vital signs. Further, such heightened protection might be integrated with effectiveness-enhancing sensory magnifiers, decision aids, weapon sights, and a powered exoskeleton. But it remains for some Commander to articulate requirements for these, and it might be hoped that he would do so in concert with his Command Surgeon.

**Personnel Expert.** As the Hippocratic Oath centers on service of mankind, so too a Command Surgeon ought to center his attention on soldiers. Every Commander will have on his general staff a personnel officer (G-1 or J-1) tasked to manage the human resources of the command. But both that general staff officer and the Commander need advice and assistance from the Command Surgeon, who can offer insights into the physical and psychological status of those resources, and identify medically sound, ameliorative courses of action either to preempt problems, or to solve them once identified. All men may be equal before the law of the United States, but their bodies and minds often have militarily important differences which a Command Surgeon could flag for the Commander, such as the impact of age on stamina (as in the 26th Infantry in Viet Nam), or the inherent vulnerability of black soldiers to cold (as in the Eighth Division). And in the medical units of the Command, the Command Surgeon has sources of information on troop morale of unparalleled credibility. His voice should be one the Commander heeds above others.

### **The Commander**

Of course, despite all the Army's schools have done to call such matters to the attention of military professionals, some Commanders will have given them scant thought, and will be ill prepared to use to advantage an effective Command Surgeon. Others may be absorbed with tactics, and find the human dimensions of warfare painful to consider. General Patton may have been such a commander. His biographer, Martin Blumenson, notes that after his victory in Sicily in August, 1943, "he put aside his sorrow over the losses among his men. He was always aware of the hurt of combat, but he never brooded over the inevitable costs of war. They were personally too painful for him, and besides, to be too sensitive might adversely affect his generalship."<sup>60</sup> Rommel may have had similar attitudes which manifested themselves in strain and deteriorating health. Keegan believes that Generals Alexander, Eisenhower, and von Runstedt coped with the stress of battle by positioning themselves above its detail.<sup>61</sup> Such commanders may not be open to recommendations from a Command Surgeon on the matters I have noted above. But I suspect that most contemporary U.S. Army commanders, because theirs has been a professional upbringing very different from that of their World War II predecessors, will

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<sup>60</sup>Blumenson, Martin, The Patton Papers 1940-1945, Boston, 1974, p. 326. Blumenson thus begins his chapter on the two incidents in which Patton slapped soldiers, one in the 15th and the other in the 93d Evacuation Hospital. One soldier had been admitted on a diagnosis of "exhaustion", the other of "nervousness, but both subsequently turned out to have physical maladies, the first malarial parasites, the second, dehydration and elevated body temperature.

<sup>61</sup>Keegan, *op.cit.*, p.330-331.

welcome a close professional relationship with their Command Surgeon, and will provide that staff officer easy and frequent access.

There could be tension between a Commander and his Surgeon, and if so, probably over medical policies pertaining to soldiers excused from duty within their units, or evacuated from their units. Concerning both, before entering the lists against the Commander, the Command Surgeon should master the personnel estimate of the situation, and assure himself that the Command's medics were acting cogently with respect to same. Despite all the talk about "come as you are wars", even forward deployed units of the U.S. Army are maintained at less than war strength, with little manpower to spare. In peacetime, epidemic sickness, or other sick-list expanders, can have devastating impact on unit readiness, and must be prevented or countered with all the vigor that either the Command Surgeon or the Commander can bring to bear -- preferably in tandem. In war, as Slim's Fourteenth Army in Burma demonstrated, there are usually ways of skinning the cat different from the theater's evacuation policies in practice at the moment, and worthy of adoption at least on a trial basis. It seems to me vital that a Command Surgeon propose an evacuation policy which treats the mission of the command as paramount, and addresses holistically the question of who shall leave the unit, and who shall stay, and how shall the latter be combined with inputs from the replacement stream to restore the fighting strength of the line -- including such team training as may be required. Such a proposal, it seems to me, will invariably win the respect and approval of the Commander.

I could wish for a medical officer about to become a Command Surgeon no finer Commander than one like Field Marshal Slim: strategist, tactician, and innovator, well aware of the medical facets of the art of command in battle.