Military Review

THE PROFESSIONAL JOURNAL OF THE U.S. ARMY

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CELEBRATING ONE HUNDRED YEARS OF DEBATE AND DISCUSSION

ARMY UNIVERSITY PRESS

Military Review

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The Secretary of the Army has determined that the publication of this periodical is necessary in the transaction of the public business as required by law of the department. Funds for printing this publication were approved by the Secretary of the Army in accordance with the provisions of Army Regulation 25-30.

By Order of the Secretary of the Army:

JAMES C. MCCONVILLE
General, United States Army
Chief of Staff

Official:

MARK F. AVERILL
Administrative Assistant
to the Secretary of the Army
2135503

Cover: This edition of *Military Review* marks its one hundred-year anniversary. At conception in 1922, it was established as a subelement of the advanced military schools' system at Fort Leavenworth, Kansas, for the specific purpose of supporting the faculty in the education and training of officer students and development of Army doctrine. As a consequence, the evolution of this publication has been intimately intertwined with the development of what is today the U.S. Army Command and General Staff College as well as other component agencies that are part of what is today the U.S. Army Combined Arms Center under the U.S. Army Training and Doctrine Command, including those responsible for doctrine development, lessons learned, and research related to military leadership. Subsequent to 1922, interest in the material published in *Military Review* has expanded well beyond the schoolhouse and Fort Leavenworth. As a result, it has become a highly respected journal that attracts interservice, interagency, and international interest. It became a component element of the Army University Press under the Army University system established in June 2015. (Graphic elements courtesy of starline, flatart, and kjpargeter via www.freepik.com. Composite graphic by Arin Burgess, Army University Press)

ARMY UNIVERSITY PRESS

From the immediate aftermath of the First World War to today's era of strategic competition, *Military Review*: *The Professional Journal of the U.S. Army*, has given voice to the values, interests, and intellectual concerns of Soldiers of all ranks. The lessons contained in its pages are both historic and enduring.

Whether AirLand Battle or Multi-Domain Operations, from lessons learned in Vietnam to Afghanistan, *Military Review* has enriched our profession of arms through impassioned debate on military doctrine and theory and the ever-changing character of warfare. Those debates are relevant now more than ever.

Congratulations to *Military Review* on a century of thought-provoking, professional discourse, and here's to the next 100 years!

People First! Winning Matters! Army Strong!

JAMES C. McCONVILLE
General, United States Army
Chief of Staff

I take special pleasure in introducing the January-February edition of *Military Review*, which celebrates the journal's centennial anniversary. *Military Review* is the Army's oldest continuously published professional journal. Since 1922, the journal has served Soldiers interested in offering their insights and opinions to the Army as the institution has grown and changed. Founded at the U.S. Army Command and General Staff College, the journal's original purpose was to collect articles on military affairs from a broad variety of sources. In the 1930s, as the Army grew concerned about the gathering storm in Europe, *Military Review* became a fully mature venue for publishing original articles penned primarily by U.S. military officers. Since then, it has served as an invaluable forum for new thought and debate on issues of emerging importance to the evolving U.S. Army.

Military Review has been both a witness to and an actual participant in events leading to the rise of U.S. military power over the last 100 years. The discussion and debate in the journal's pages have included conflicting views on emerging issues such as mechanization, nuclear weapons, counterinsurgency, and the role of artificial intelligence on the battlefield. This debate often included senior leader perspectives on the new directions that the Army should take. *Military Review* has also published numerous articles on the moral dilemmas often faced by Soldiers related to strategic bombing, drone warfare, detainee operations, and other aspects of modern warfare.

Even a cursory review of the journal's volumes will show not only the breadth of topics covered but also the degree to which the issues that interested previous generations of military professionals echo today's concerns. In previous decades, the journal published discussions on the role of women in the Armed Forces, race relations, and the ethics of psychological operations and propaganda. In many cases, *Military Review* was among the first professional publications to address these significant topics. As the Army and the Nation progress, *Military Review* will continue to serve the next generations of Soldiers and leaders as a much needed forum for rigorous discussion of the profession and its challenges.

On behalf of the Combined Arms Center, I express my congratulations to *Military Review* on its first 100 years and my appreciation for its continued support to the U.S. Army. May it see at least another 100 years as a thought leader for the Force!

THEODORE D. MARTIN
Lieutenant General, USA
Commanding

LETTER FROM THE EDITOR

U.S. Army General Orders, No. 92, dated 23 December 1921, reorganized the School of Application for Infantry and Cavalry at Fort Leavenworth, Kansas, into a new school that in time became the U.S. Army Command and General Staff College. That same order directed the school to establish "a publication monthly of the titles and brief synopsis of leading news items of military value to the instructors of the school." In a 1922 report, the commandant, Brig. Gen. H. E. Ely, made note of the progress of the new publication describing it as having a uniform size, six by nine inches, and containing digests of selected articles and documents, as well as reviews of books and magazines received in the library. Reportedly, the school then printed and distributed six hundred copies of the first edition of the publication. In time, this publication would eventually be named *Military Review*.

For the next twelve years, the publication provided school instructors and students detailed summaries of works on military matters gleaned primarily from foreign magazines and journals, news reports on international developments, military books, and other sources. These summaries promised to complement the courses at Fort Leavenworth but in retrospect, resemble what today's military students might recognize as a rather large and complex commandant's reading list.

However, characterizing the early editions as merely reading lists is very misleading as to the true character of the summaries produced. A survey of the content of any of these early editions reveals a truly impressive amount of research behind the reviews. Though its focus was on identifying sources of a military nature, compilers of the review did not restrict themselves to exclusively military subjects. Instead, they sought out material that treated a wide range of subjects that promised to assist faculty and students develop a broader understanding of the global operating environment of the time. Consequently, the review included summaries of works on politics, religion, economics, philosophy, engineering, and history among many other topics. Those works were found mainly in British, German, and French publications, but periodically, the compilers of the review pulled material from Russia, Poland, Brazil, Turkey, and India, among others. Sifting through and selecting recommended works from the vast amount of material available at the time must have been exhausting tasks for the editors.

In the December 1933 edition, the review included the first original article titled "Conduct of a Holding Attack." The author was a student at the Leavenworth schools named J. Lawton Collins, who would later serve as VII Corps commander during the Normandy invasion and chief of staff of the Army during the Korean War. Unfortunately, in 1933, many of the school's senior leaders thought that Lawton's article violated operational security. Consequently, copies of that issue were recalled and three pages of the article excised before the issue was again made available, a dubious start to the publication of original analysis. Ironically, this incident illuminated the need for an official Army venue to publish original thought to stimulate discussion and debate among military professionals on important topics in a somewhat open forum. The publication, which in 1939 became officially known as *Military Review*, has since included original articles written by both military and civilian authors. Today, while *Military Review* periodically reflects the origins of the journal by republishing material taken from other sources, the vast majority of its content is original.

Over the decades, this journal has published thousands of articles, many of which introduced new concepts and provoked discussion. The topics in discussion were often unique to each era through which the U.S. Army was passing as it evolved from a small standing force that swelled with conscripts in times of emergency to its transition to a volunteer Army that eventually would become the world's preeminent land force. Importantly, *Military Review* has not shied away from discussion of how broader social issues have affected the U.S. Army. For example, it was

among the first military venues to publish articles on how women should be integrated into the Army, to include the combat arms, as well as discussions of the evolving state of race relations within the force.

Each article in *Military Review* is thus a sampling of the times in which it was written, reflecting evolving thinking and attitudes in a range of dimensions (political, social, economic, technological, etc.) as world events and technological advances reshaped global society and with it the character of the operational environment. The rich collection of articles in *Military Review* offers concrete examples of information and opinion inside the Army across a spectrum of decades providing a unique repository of nuanced detail, much of which is from the prospective of junior participants in the major issues of the day.

As the editorial staff considered how best to depict a century's worth of thought in *Military Review,* it decided that the best way was to let the articles speak for themselves. Thus, the articles have been selected under the assumption that they reasonably represent each decade from which they were drawn as much as any single article is able. Moreover, though general officers and other luminaries published articles in *Military Review* over its history, the staff has chosen to use this issue to highlight contributions from the far more numerous junior contributors whose ideas and analysis were the mainstay of the journal over the last century. This was done with the conviction these contributors offer detailed insights into the opinions and views that prevailed within the Army in the era they were published.

The articles selected for this issue capture the evolving landscape on which the U.S. Army operated and the ideas that these challenges inherent in a changing environment generated. Several articles illuminate technological change in the Army, from reliance on horse-drawn systems and horse cavalry to the use of mechanical vehicles, tanks, aircraft, and nuclear weapons. Other articles such as Lt. Col. George S. Patton's "Why They Fight" and Gen. Donn A. Starry's "To Change an Army" are emblematic of the thought that evolved within the U.S. Army during the Cold War. After the 9/11 attacks, *Military Review* became a major venue for discussion of counterterrorist and counterinsurgency operations. The blunt critique of the U.S. approach to counterinsurgency in Iraq by British Brig. Nigel R. F. Aylwin-Foster illustrates the character of the discourse in *Military Review* during the Global War on Terrorism. Finally, as diversity and inclusion emerged as critical points of debate with the U.S. defense community, *Military Review* provided a platform for authors like Col. (Ret.) Dwayne Wagner, whose article "We Have Come a Long Ways … We Have a Ways to Go" offered keen insights into racial dynamics within the Army and reached a broad audience.

As we celebrate its 100th birthday, it is important to highlight *Military Review* as one of very few officially supported military publications that welcomes submissions from military members of all ranks as well as non-military contributors. The journal's mission of enabling and fostering discussion and debate on matters critical to the Army and its soldiers is its paramount strength. And in this role it continues to serve the U.S. Army as a unique and invaluable institution.

—Editor

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In celebration of our 100th anniversary, we have selected a small sample of articles from our archives that reflect the thoughts, interests, and concerns of our Army at the times of their publication. We have maintained the style, usage, and grammar of the original articles, so readers might notice some inconsistencies as they read through the selections. We hope you enjoy this special edition of *Military Review*.

—The Editors

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THE GENERAL SERVICE SCHOOLS

FORT LEAVENWORTH, KANSAS

December 23, 1921.

GENERAL ORDERS
No. 92.

1. The following named officers, in addition to their duties in the Staff Class, are detailed as acting instructors, these schools:

Colonel Evan H. Humphrey, Cavalry,
Lieutenant Colonel Thomas W. Brown, Infantry,
Major Robert R. Ralston, Corps of Engineers,
Major Donald C. Cubbison, Field Artillery,
Major Samuel T. Mackall, Infantry,
Major Edward J. Moran, Infantry,
Major Karl Truesdell, Signal Corps.

2. A Publication Division is established at these schools with the following functions:

(a) Drafting the manuscripts of all publications the War Department directs these schools to prepare.

(b) Supervision and preparation of all documents for the "Mailing List."

(c) Publication of all school text or reference books.

(d) Translation and publication of foreign literature of military value to these schools.

(e) Publication monthly of the titles and a brief synopsis of leading news items of military value to the instructors of these schools.

(f) Preparation and conduct of any correspondence school course that may hereafter be prescribed.

3. General Orders Nos. 5 and 8, these schools, 1920, are modified according to the provisions of paragraph 2 of this order.

4. Colonel Ewing E. Booth, Cavalry, D.O.L., is announced as Director of the Publication Division.

BY COMMAND OF BRIGADIER GENERAL ELY:

F. L. MUNSON,
Executive Officer.

OFFICIAL:

ALFRED J. BOOTH,
Adjutant.

G. S. Schs., Fort Leavenworth—12-29-21—400

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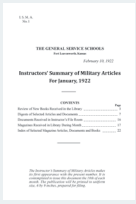
No. 1



To view a complete redigitized version of the "Instructors' Summary of Military Articles For January, 1922," visit https://www.armyupress.army.mil/Journals/Military-Review/English-Edition-Archives/MR-1st-Edition/.

THE GENERAL SERVICE SCHOOLS
Fort Leavenworth, Kansas

February 10, 1922.

Instructors' Summary of Military Articles
For January, 1922

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The Instructors' Summary of Military Articles makes its first appearance with the present number. It is contemplated to issue this document the 10th of each month. The publication will be printed to uniform size, 6 by 9 inches, prepared for convenient filing.

REVIEW OF NEW BOOKS RECEIVED IN THE LIBRARY

THE BATTLE OF THE PIAVE, June 15-23, 1918.

Issued by the Supreme Command of the Royal Italian Army Translated by Mary Prichard-Agnetti. 82 pages.

This is the Italian General Staff account of the Austrian offensive in June, 1918, in Italy. It is well written and is published with complete and excellent maps. It was published in December, 1919. The account is written from a strategical standpoint, based apparently on documents in possession of the Italian General Staff. As none of these are given or quoted, it is impracticable to judge as to the accuracy of the narrative. The account is very readable, and at present seems to be the best that has yet appeared on this battle. It is well worth studying and is recommended for officers interested in strategy, in mountain warfare, and in the operations in Italy.

THE BATTLE OF VITTORIO VENETTO. 24th October-4th November, 1918.

Report of the Supreme Command, Royal Italian Army. English text. 42 pages.

Beginning with the consideration of the effect of the Bulgarian armistice (p. 10) and ending with the conclusion of the general armistice (p. 23), this is an excellent account of a campaign, the importance of which has not been generally appreciated. Obscured as it was by events transpiring at the same time on the western front, it was, nevertheless, a deciding factor in the defeat of the Central Powers.

Those parts of the report not included in the above pages have an understandable partisan point of view, and the whole report is somewhat colored and possibly cor-

rected by a knowledge of after events. No recognition is made of the part the Allied G.H.Q. undoubtedly had in the conception and direction of this campaign.

However, the statement of the general strategic plan of battle; the details of its execution by the various armies; the farsighted preparatory arrangements; and the estimate of the enemy situation, are all clear and convincing.

The description of the battle is given in enough detail to add interest and at the same time not to obscure the working out of the general strategic plan. With the aid of the excellent maps, the development of the strategic penetration is readily followed. The operations of the cavalry in the break through and pursuit are clearly shown and afford an excellent example of the proper use of masses of mounted troops.

So much of the report as is indicated above affords an excellent subject for examination by the student of the art of war. It includes a well considered plan, skillfully and successfully carried out, with the subsequent exploitation of the success gained.

THE DESERT MOUNTED CORPS. An account of the Cavalry Operations in Palestine and Syria. 1917-1918.

By Lt. Col. The Hon. R. M. Preston, D. S. O., with an introduction by Lt. Gen. H. G. Chauvel, K. C. B., K. C. M. G., Commanding the Desert Mounted Corps.

This book, a volume of some 360 pages, well illustrated with maps, is an extremely interesting story of the campaigns in Palestine and Syria, especially of the cavalry operations, from June, 1917, to November, 1918. The book is of especial interest to cavalrymen and field artillerymen. To the layman it reads like a novel. To the military reader, however, there is much to be desired in the way of technical details, tactical formations and other matters of like nature. The story portrays in a very vivid manner the difficulties of campaigning in this desert country, and gives many of the means and methods adopted to overcome those difficulties. To the cavalryman and field artilleryman the striking things the book brings out are the length of time

animals can work without water (in several instances animals could not be furnished water for periods of three or four days), the many successful cavalry charges, the many long and successful marches made, and the wonderfully successful operations of the largest cavalry force of modern times. The Desert Mounted Corps was a force of about 25,000 men. The story gives in a clear and concise manner the cavalry operations beginning with the attack of Beersheba, the advance through the Judean hills, the fall of Jerusalem, and the final advance to Damascus which resulted in the annihilation of three Turkish armies. The book contains many valuable lessons for the careful cavalry reader, not the least of which are those taught by the operations of the 5th Cavalry Division, which in 38 days marched 567 miles, fought six actions, and took over 11,000 prisoners and 58 guns. The book concludes with three short chapters; one on the discussion of horse artillery and its use with cavalry, one on a discussion of horses, forage, water, horsemanship, etc., and one on the question of transportation and ammunition supply. One who commences this book will have difficulty in laying it down before completing it.

THE ARTILLERYMAN

By Jay M. Lee 264 pages.

This book is in substance an account of the history of the 129th Field Artillery, of the 35th Division, during the World War. It was published in 1920, and is based in part on documents quoted or referred to, but largely on the author's recollections.

The chapters on the participation of the regiment in the Meuse-Argonne battle are of value from an historical standpoint and as illustrating the experiences of one field artillery regiment. The account appears on the whole to be quite accurate.

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RECUEIL DE DOCUMENTS MILITAIRES ALLEMANDS DE LA GRANDE GUERRE, 1914-1918.

(Collection of German Military Documents of the Great War, 1914-1918.)

By L'Officier-Interprete Griffon, Professor at the Ecole Speciale Militaire de Saint-Cyr and at the Lycee de Lille. Text mainly German, partly French. 153 pages.

This book, which was published in 1920, with the authorization of the French General Headquarters, contains selected documents from captured German official papers (in the original German text), together with tactical comments and introductory matter (in French) by Major Mera; a preface by General de Maud'huy, and a French-German lexicon of military terms and German abbreviations.

The subject matter is arranged in order under the following heads: Infantry, Gas Protection, Artillery and Pioneers. Introductions and comments deal with the German military situation and the organization of the German army as of June, 1917; the German infantry tactics in 1917 and at the close of the war; the use of gas clouds and shell by the Germans; the organization, materiel and employment of the German light and heavy artillery, and the organization of the pioneers (including flame-thrower, gas, and minenwerfer troops).

The German documents pertain mostly to the 103d German Division, during its service in the regions of Soissons, Vailly, and Chemin des Dames, from June to October, 1917. A number of daily reports of the division are included (apparently selected at random); as well as orders of the VII Army, the Army Group Vailly, the 103d Division, and the artillery of the 103d Division, all in anticipation of an Allied attack, about September 18, 1917. Additional documents include orders for the relief of an infantry battalion; certain artillery orders of the 52d and 103d Divisions; a report of the field artillery commander of the 43d Reserve Division (August 7, 1917); and circulars and instructions issued by the German General Headquarters and other commands concerning alerts, protective barrages, various kinds of artillery fire, precautions against conveying in-

formation to the enemy, gas defense, the employment of gas shell, and precautions in handling gas shell.

THE CORRECT PREPOSITION—HOW TO USE IT
THE CORRECT WORD—HOW TO USE IT
THE LITERARY WORKSHOP—HELPS FOR THE WRITER

The foregoing constitute three companion books on correct English, by Josephine Turck Baker, published by the Correct English Publishing Company

The nature of these books, which average about 200 pages each, is sufficiently indicated by the titles. They are recommended for study and reference by anyone interested in correct writing or speaking.

(NOTE:—The following books have been received; reviews will be published in the next issue.)

TACTICS (Based on the World War.)

Translation of a German book by Major Rohrbeck, original published in 1919. 468 pages.

HISTORY OF THE WORLD WAR

By Francis A. March. 726 pages.

DIGESTS OF SELECTED ARTICLES AND DOCUMENTS

THE EMPLOYMENT OF ARTILLERY

By Major Pamard. (13 pages—French Text.—To be continued.) —*Revue Militaire Gencrale*, Nov., 1921, p. 852.

This article, which is the first of a series, is very interesting, although based more upon stabilized conditions than upon warfare of movement. The present article deals with the evolution of artillery from 1914 to 1918, the fundamental principles of artillery employment, and the employment of artillery in the defensive.

Tactical and Strategical Effects of the Development of the Fast Tank

Major L. S. Hobbs, Infantry

In approaching this subject we must, from the start, acknowledge the technical difficulties incident to securing the fast tanks with which we have to deal.

Many individuals will maintain that no definite and generally acceptable doctrines relative to the tactical and strategical use of fast tanks can be established until the essential characteristics of the tank with which the Army is to be equipped are determined with a fair degree of certainty. I take exception to that conception. In this highly mechanized age, when each year competing automotive industries supply new models with many new features, it is reasonable to feel assured that, if the tasks we desire the tanks to perform are determined, the tanks will be forthcoming. The evolution of the tank to fit our tactical and strategical needs is as inevitable as was that of the automobile and the airplane.

While it cannot be denied that in a future emergency we will have to start with the material at hand, our Army should strive to improve its position in this regard as far as possible, and to develop methods for employing new models. In general, most successful armies have been those whose leaders have been quickest to appreciate new possibilities, and to develop methods for exploiting the advantages offered thereby.

The *Infantry Field Manual* has defined a fast tank as "a tank that has a sustained cross-country speed of ten (10) miles per hour or more." In view of recent American, British, and Russian tank developments and tests, this definition is surely conservative. All such tanks have shown speed far in excess of ten miles per hour, and, while such increased speeds probably would not normally be used, they are valuable because they indicate a reserve of power capable of carrying the tank over the majority of the terrain where tanks may expect to operate, at about the conservative rate of ten miles per hour. The tank may also be in a position to profit from a possible burst of speed.

Combined with speed must be the qualities that will permit the tank to travel long distances and for considerable periods of time without serious mechanical difficulties. Fast and reasonably dependable tanks have already been produced in small numbers, and there can be no question that further developments will continue, and that the armies of the world must learn to use this weapon to the greatest advantage.

Organization

Presupposing the availability of fast tanks in sufficient numbers to utilize them as desired, the organization of units has a direct bearing on the success of our mission. Our present organization appears, in the main, to be satisfactory. Here we find a General Headquarters reserve, organized into regiments, and an allotment to infantry and cavalry divisions. The allotment of these tanks in specific instances will be based on the plan of maneuver, with a priority series.

General Headquarters will allot to Army. Army will allot to leading missions, Corps and Army reserve. Corps, in turn, will allot to leading missions, Divisions, and Corps reserve.

The present triangular organization within the tank units proper, that is, three battalions to the regiment, three companies to the battalion, and three platoons to the company, also appears to be satisfactory.

Within the tank platoon, it is probable that the present number of tanks (five), could and should be reduced to three, in order to secure more satisfactory control and facilitate communication. The presence of the platoon commander man individual tank as a member of the crew, or in a vehicle capable of accompanying the platoon is necessary.

The British, who have led the world in tank development and employment, have found need for two tanks in their organization; small, fast tanks for purposes of command, communication, reconnaissance and security, and medium fast tanks which constitute the principal fighting weapon of the organization. However, in most recent maneuvers the trend seems to be toward the utilization of only light tanks.

Add to a tank organization as noted above a mobile weapon that can accompany the tanks to aid in overcoming antitank defense weapons of the enemy, and we come to our task well equipped with an efficient machine.

Tasks

The *Infantry Field Manual* states: "The combat functions of tanks are strictly offensive. Although tanks may assist in the defense, they do so by offensive action. The tactical employment of tanks now in our services comprise the following roles:

(1) As leading tanks.

(2) As accompanying tanks.

"Exploitation by tanks: For exploitation, fast tanks will be especially suitable. When tanks are employed for exploitation they should, if practicable, attack the hostile general reserves. By so doing they may prevent a hostile counterattack and bring about decisive results."

We will therefore hold to the terms of leading, accompanying, and exploiting tanks used in the *Infantry Field Manual* as adequate for our needs of terminology.

Approach Marches

With the advent of the fast tank, the problem of getting the tanks to the battlefield seems to be vastly simplified.

With the demountable-track tank the flexibility of the support to be rendered by the mass of tanks held in General Headquarters reserve is greatly increased. Tank concentrations can be shifted from one part of the front to another on short notice and without delay. Tank parks can be located farther to the rear, thereby better avoiding the enemy artillery, and avoid congesting forward areas. The approach march, which, with the old tanks, took one or two nights, can be accomplished in a few hours with the fast tanks. The detraining point will no longer be needed. The assaulting positions can be much farther back from the line of departure, thereby better avoiding enemy fire, insure fewer casualties, and afford better preparation for the assault. Speed in the approach march, combined with the absence of the characteristic noise of the slow tank, will permit us to concentrate our fast tanks at any desired place without the knowledge of the enemy, and secure the element of surprise, which was difficult with the slow tank.

Accompanying Tanks

Let us again quote the *Infantry Field Manual* regarding the accompanying tank: "The mission of accompanying tanks is to render close cooperative assistance to the advance of the assaulting waves of attacking troops. They reduce points of resistance that may develop immediately to the front or flanks of the units to which the tanks are attached. Slow or fast tanks and light or medium tanks may be used, but *fast* light tanks are best suited to this mission."

As the name indicates, accompanying tanks are used in direct conjunction with infantry troops. Infantry mobility on the battlefield will be enhanced by a more effective assistance in breaking through the bands of small-arms fire which habitually covers the hostile front, and which pin the unarmoured soldier to the ground. From the viewpoint of the infantry, this is the principal mission of the tanks. To serve such a purpose tanks must, above all other things, be invulnerable to small-arms fire. But, since it is impracticable to carry sufficient armor to protect against shells, combat machines must also have a speed, maneuverability, and reliability on average terrain that will make them difficult targets for artillery.

The one redeeming trait of the present slow accompanying tank, and the one so much referred to by those who think high speed undesirable, is the fact that they cannot "run away" from the infantry which they accompany. Increased speed in no way presupposes such a running away. It does presuppose a power of cooperation which will permit the use of limited objectives, and beyond which they will not move until these objectives are occupied by foot troops. The speed of the tanks will be used for changes of

direction, seeking sheltered avenues of approach, and the neutralization of antitank weapons. The speed of the fast tank will permit a more continuous advance in assistance of the foot troops because the fast tanks can seize an objective, assemble, receive additional orders, and, with a new burst of speed, maneuver on to a new objective. The fast tank in an accompanying role can not only do everything that the slow tank can do, but it can do it better, and many more things in addition. No one can dispute that the following facts relating to the fast tank all tend to favor such a vehicle over the slow tank:

(1) They can cover more ground in a much shorter space of time.
(2) They can utilize cover and concealment to better advantage.
(3) They can engage and crush hidden machine guns more readily.
(4) They can be assigned a wider zone of action.
(5) Their ability to employ sudden bursts of speed and to zigzag rapidly reduces the danger of being put out of action by direct hits—the only hits that materially affect tanks.

We can therefore expect that fast accompanying tanks will permit the more rapid advance of the foot troops, with fewer casualties. The rate of the foot troops will remain unchanged, but the time consumed in gaining the necessary rifle fire superiority to permit an advance will be materially lessened.

Once light fast tanks penetrate a hostile position their infiltration will be so rapid that the defender will have a poor chance of withdrawing his infantry on either side of the breach in time to rally and build up a fresh line of resistance to the rear. Because of their speed and armor, tanks are clearly the ideal agents of infiltration or "soft spot" tactics, that is, to push along the line of least resistance, while reserves deal with the groups of the defense that still hold out. In 1918 these tactics brought the Germans great, but limited success, as the infiltration was carried out by the slow-moving and non-bullet proof infantry. Today it can be carried out by fast tanks, less susceptible to the risk of being checked by flanking machine guns.

We will now leave the accompanying tanks and go to the leading tanks, where our subject offers the widest field of development. However, we will keep in mind that we have not exhausted the subject of the accompanying tank, and that we will offer additional utilization of these with the leading tanks.

Leading Tanks

The idea of leading tanks is based on the supposition that tanks can assist the attack by passing well through and beyond or around the enemy main battle position, and, by action against artillery, reserves, and communication systems, open the way for its success. The *Infantry Field Manual* has the following to say on this subject:

> "The purpose of leading tanks is to assist in the main effort of a general attack by making a breach through a strongly organized defensive line with the ultimate mission of disrupting artillery in position and strong local reserves available to the enemy for counterattacking and closing the gap. Leading tanks normally operate under the control of a unit larger than a division, usually a corps. This is necessary to insure that their own effort will be well coordinated when, as frequently occurs, their zone of action includes, in whole or in part, the zones of action of adjacent divisions; also to insure cooperation between them and the long-range artillery when they pass beyond the range of divisional artillery.
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> "A battalion of leading tanks will usually form for attack in line of companies in column of platoons deployed in line. Battalions are arranged in line or other formation suited to the situation. The number of regiments in the leading force depends upon the needs of the situation and the number of tank units available.
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> "The zone of action of the leading tanks is determined by the commander from whom the commander of the leading tanks receives his tactical orders. Usually this zone will be definitely prescribed only through the hostile main position, since beyond it the situation, as it develops, may determine the direction and extent of the leading tank action.
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> "The waves of leading tanks cross the line of departure between time limits fixed in orders. The attack starts at a definite initial speed. Subsequently the speed is coordinated by guiding upon a base unit or by means of a simple time schedule. Zone or routes for the advance

of subordinate units may be prescribed. The depth of advance depends chiefly upon the speed of the tanks, the depth and strength of the hostile defense, and the terrain. Other factors may be the condition of the tanks, the training of the personnel, the daylight available, etc. Under favorable conditions the Mark VIII tank may penetrate to a depth of from 5,000 to 10,000 yards. Fast tanks might effect deeper and speedier penetrations.

"The principal objectives in the order in which encountered are the main hostile position, to include the regimental reserve line; artillery in position, command posts, communications, and small local reserves; and, finally, the large local reserves. In overrunning the hostile main position the leading tanks attack organized terrain features, such as centers of resistance, strong points, groups of automatic arms, and antitank weapons. Penetrating further, they take advantage of every opportunity to disrupt measures taken by the enemy to meet the attack.

"Routes for the return of leading tanks to their assembly points are planned in advance so that their appearance moving counter to our direction of attack may not be mistaken at a distance for a hostile counterattack. These routes may be outside the zone of action as prescribed for their attack.

"Communication with the leading tanks will be provided for in the plan of signal communication of the unit to which the leading tanks are attached. Airplanes are particularly useful in observing and reporting the progress of the tank attack. The use of light tanks, airplanes, or both, for messenger service may be advisable."

A large body of fast tanks moving into enemy territory will unquestionably be of powerful assistance to assaulting troops, but in order to get to their objective as at present contemplated, they must pass through the main hostile position, beyond the assistance of infantry, and in a zone where artillery support will be difficult and at times impossible. The organization of such a force must unquestionably include a close supporting weapon, and must insure close control of its units.

Our present policy for leading tanks is based upon the idea that such tanks will move to the attack shortly before the assault troops, pass over the enemy position and through artillery fire, both of our own and that of the enemy. The enemy fire of course cannot be controlled, and the tank units must take their chances. But coordination with our own artillery must be secured. Can we afford to lift preparation fires, or do without them on the selected front, for a sufficient period to permit the leading tanks to pass through? In passing through the position, how long will it be before the artillery can open fire? Can the counterbattery and harassing fire of the artillery be coordinated with this tank move? Can an Army or Corps commander risk the heavy losses that might result from failure of proper coordinating effects?

If the commander is far-sighted, and considers his fast tanks powerful supporting weapons to be used to further the general scheme of maneuver, might he not well decide to give a mission to the artillery on one part of the front and a mission to the leading tanks on another part? In answer to this last question we have no concrete example on which to base our conclusions. But we can take the example of the British at Cambrai, remember the initial success attained by following just such a procedure, and visualize what the results might have been if fast tanks had been available at that time.

Such a plan would simplify the coordination of artillery and tanks, and leave the bulk of the artillery to support the attack on other parts of the front. These questions afford a subject for much thought, but the answers do not fall within the scope of this discussion.

It is a fundamental principle that we should bring a striking force to the point of employment as nearly complete as possible. A move of fast, leading tanks toward their real objectives, namely, reserves, artillery and rear establishments, and through the enemy's battle position, would certainly find them sadly depleted in making the initial breakthrough. They would have to combat enemy antitank guns and machine-gun batteries in such a movement.

But suppose we precede these leading tanks with what we may call advanced accompanying tanks. These would also be fast tanks whose sole duty would be to effect the breach through the main battle position, combat the enemy antitank guns and machine-gun batteries located in that battle position, and

then return for further use as accompanying tanks as we now understand them.

We would then have a unit of fast leading tanks adequate to the task of moving rapidly through the breach created, and proceeding rapidly to their mission of disorganization in the rear areas.

There is no question that by such a procedure the leading tanks can reach vulnerable areas and effect damage which will amply repay losses which must necessarily occur to the tank units. The disruption of enemy's communications, the destruction of an important reserve, or the destroying of his ammunition supplies at the beginning of a large offensive might easily render such an enemy impotent at the time of our decisive effort, and bring forth a speedy decision in favor of our forces.

Through such a breach we assist the movement of our fast leading tanks by the use of smoke screens, and air and artillery preparation. There are two fundamental classes of tank attacks:

(1) An attack without artillery and air preparation; and
(2) An attack with a short (one to one and one-half hours) artillery and air preparation.

Consider the latter method, also using a smoke screen. In order to save time and to secure surprise, the artillery and air preparation should be conducted during the employment of the smoke screen. Destruction of definite areas and points of resistance can be so carried out, in view of the strength of modern artillery. It is only necessary to make all arrangements regarding the distribution and transfer of fire before the smoke has reached the respective targets, and to coordinate the action of the artillery in time and in depth with the scheduled smoke screen. The mission of the artillery and air preparations during such an attack is to disrupt the enemy artillery and destroy his system of antitank defense. The further operation of the artillery and the air forces must be coordinated with those of the tank groups and the placing of the smoke screens.

But why limit our activities to moving such fast leading tanks through a portion of an enemy's defensive system in a stabilized situation or directly toward him in a strategic advance and concentration, if terrain and enemy's dispositions permit us to move around one or both flanks?

There is nothing visionary about the subject of "deep tactics" as referred to by the Russians. In such an action we consider, by a combination of the use of fast tanks, aviation, long-range artillery, and motorized and mechanized units, a simultaneous operation against the whole depth of the hostile combat zone with the mission of simultaneously engaging and annihilating all the enemy's troops, no matter how far away they may be located. The striking power of the principal arms of such tactics—fast tanks and aviation in large numbers—can be made sufficient for the execution of independent missions in the enemy's rear. During the World War attempts were made on the western front to engage hostile defensive zones throughout their entire depth, and the lack of success was due, not to the fault of the tactics, but on account of the capabilities, limitations, and methods of employment of the then existing tanks, aviation, war gasses, and artillery.

With forces of any size directly opposing each other the attacker can only gradually overcome the hostile defensive system, because only the weapons in the vicinity of the main battle position can be completely silenced, and the enemy has time to concentrate his reserves in the endangered locality. In order to overcome this situation, it is necessary to launch simultaneously a frontal attack and an attack against weapons, reserves, headquarters, etc., located in the rear areas.

A suicide club, you say? So people talked about aviation in its infancy, but today we hear cries from all sides that future wars will be won in the air. Surely a fast tank unit can have more chance of maneuver against an enemy stronger in such weapons than can an inferior air force against an opposing air force that is correspondingly stronger; can have as much chance against a force of its own size; and even more against an inferior enemy than can units of an air force involved on similar missions.

Such a move by fast tanks is no more hazardous than any detached mission, on the ground or in the air, where it requires ingenuity and skill to successfully perform a mission and successfully return. Losses? Yes. But in incurring such losses the fast tank unit has accomplished the destruction of the rear echelon of the enemy, the ammunition located in his ammunition depots, the artillery moving into position or moving up from rear areas, enemy reserves, enemy airdromes, disrupted the enemy communication system, thrown the enemy's entire system into chaos. Any or all of these results justify the losses, and operate to prevent far greater losses of lives and materiel and far greater

financial outlay which of necessity would occur in a progressive frontal attack with a continual hammering of infantry and artillery and all other supporting arms to accomplish a grand "breakthrough."

In modern war with the information available to commanders of field forces, definite conclusions as to general courses of hostile action can be made with considerable accuracy. There is little excuse for a commander to remain inactive and await developments. When a course of action, offensive or defensive, has been accepted, decisive action in accordance therewith must follow. We immediately think of dispatching into the air our air forces, for an initial destructive mission or missions, or to gain information.

We have at hand in the fast tank a means of securing commensurate results of a more definite character, both as to destruction and to information. Against an offensive on our part, an enemy is rushing his forces up to a specified defensive location and organizing in depth, with his main effort directed principally to the front or the immediate flanks of such a front. Ordnance of all types in rear areas is generally incapable of serious action against tanks. They are heavy calibers, slow of movement, and unsuited for fire against point targets, especially when those targets are moving. The only real protection of rear areas at the present time is antiaircraft artillery, which is designed primarily for fire against targets which insure an elevation of the gun through an angle considerably above the horizontal.

In the initial phases of combat between first class nations such a condition will exist until the need of antitank guns in rear areas is demonstrated, and until such guns are available in sufficient quantities. Meanwhile, the nation with the foresight to insure that it has on the field of battle fast tanks in sufficient numbers to afford a hard-striking force, will secure results that will make it too late for its opponent to bring into action those pieces of ordnance in rear areas so vital to its protection.

Several interesting examples from the British exercises of 1932 bring out some salient points in the utilization of fast tanks.

To show the celerity of a fast tank force, one battalion of the Royal Tank Brigade was suddenly called upon to interrupt the march of a reinforcing infantry brigade, so as to prevent its tilting the scale of battle. When the call came the tanks were under cover, five miles distant from the enemy column. The latter had a lesser distance to go before it could arrive on the field of battle. But it did not arrive. In a short space of time the tank battalion was on the move, already preceded by a patrol of light fast tanks reconnoitering for the head of the enemy column. In about twenty minutes the head of the column was fired upon by the leading tank company. In another fifteen minutes the column had been completely dealt with, when a report was received that hostile tanks were hastening to the rescue. Within ten minutes the whole tank battalion reformed, and was ready to tackle the new opponent.

In another exercise the entire tank brigade was used as an army's strategic arm of maneuver. It circled round the flank of a hostile army with the aim of turning that army's retreat into a rout. At daylight the brigade was in a concealed location eleven miles distant from the road on which the nearest column were retreating. The distance would have been nearly a day's march for an ordinary force. After the issuance of orders, a light battalion moved off, followed by three mixed battalions. Within twenty-five minutes the light battalion had advanced over seven miles. Upon making contact with the enemy's marching column, a stream of messages reached the brigade tank commander in rear, giving the location, not only of the head and tail of the column, but of its battery position and antitank weapons. Orders were given for two battalions to attack the forepart and hindpart respectively of the column, one light company having been sent off ten minutes earlier to block the head. One-half hour later a third battalion, followed by two light tank companies, was launched between the two battalions, and completed the enemy's demoralization.

In still another maneuver the entire tank brigade was again used. In this exercise the general idea was that the small army to which the tank brigade was ultimately attached had been compelled to retreat in order to gain time until the mobilization of their forces was complete. The stronger army had pressed on, and was menacing the capitol of the small army. Mobilization of some forces having been completed, and the tank brigade having been made available, the advance of the enemy was brought to a halt and the counteroffensive was assumed. To coincide with the offensive, the tank brigade executed a wide enveloping maneuver around the flank of the hostile army, against its communications, and covered nearly fifty miles. By afternoon it was astride the enemy's rear, cutting communications and lines of retreat.

This exercise was cited as an excellent example of a move that would have been decisive in 1914 in turning the flank of the German right wing, the maneuver which, in the exercise, was begun and completed in a single day.

It is worthy of note here that the tank brigade referred to, although not complete with the latest machines, embodied a fire-power, in guns and machine guns, greater than a division of nearly 20,000 men. The fire-power is, for practical effect, multiplied by armor and speed. Yet it could be assembled in a time incomparably small as compared with an infantry division, and this tremendous fire-power was wielded and the brigade maneuvered by hardly more than six hundred (600) men.

Exploiting Tanks

Again quoting from the *Infantry Field Manual*: "For exploitation fast tanks will be especially suitable. When tanks are used for exploitation they should, if practicable, attack the hostile general reserves. By so doing they may prevent a hostile counterattack, and bring about decisive results."

In the World War experience proved that the attacker, having demoralized the enemy, and needing little to change defeat into disaster, was often thwarted from reaping the final fruits of victory because he had passed beyond the effective support of the artillery and was unable to continue the pressure he had been exerting. The old tanks were too slow in reaching the enemy to be effective.

But the fast tanks, held in reserve by the commander until a success is indicated, will be able to exploit that success, and so gather the full fruits of victory. A regiment of fast tanks could be sent to seize essential terrain features, to disrupt artillery which still interferes with the advance, to interfere with the communications of the defender, to disorganize or scatter organized reserves, to prevent counterattacks, or prevent organization of defense on a new position farther to the rear. Such tanks should not be piece-mealed out, but should be used as an entire force, giving to them a mission, which, if fulfilled, would cause the greatest embarrassment to the enemy. Here the supreme commander can more readily determine what part of the front to give to the harassing fire of long range artillery and what part to exploiting tanks.

Movements and formations for exploiting tanks will conform generally to those visualized for the leading tanks except that the tank commander of the exploiting tanks may be allowed more freedom of action. Such exploiting tanks, used at the proper time, in the direction and against the objective which offers the greatest opportunity for turning a local success into a real victory, will be the most powerful ground weapon available to the army or corps or division commander.

Defense

Like the airplane, the tank is an offensive weapon, so that whatever the plan of the higher commander, the action of the tanks must be offensive. In the defense, the commander uses all means at his disposal to disorganize and perhaps stop the enemy's attack before it reaches his defensive position. Here we can see an excellent use for our fast tanks.

We can give them a mission of disrupting the hostile attack by a blow against assaulting troops. If this attacking force were struck in flank by an attack of fast tanks just as they were about to move forward to the attack, the results would be particularly effective.

An attack against the enemy's formed reserves by a fast moving tank unit could well be the means of attaining success in any defensive position by preventing the enemy from using such reserves. Fast tanks will of course be used in counterattacks launched to restore portions of the position which have been overrun. The mobility of the fast tank will enable it to take part on more of these counterattacks on different portions of the defensive position, to accomplish its mission more quickly, and to avoid casualties.

Fast tanks will be invaluable in the counteroffensive. Here we see opportunities to attack the enemy in force from a flank or from a covered approach, and effect a maximum of surprise with a strong crushing blow.

Special Operations

Speed, dependability, and mobility have made the fast tank a weapon of great value in the special operations of warfare. They could be used by advance guards to quickly overcome slight resistance, and permit the column to march without interruption.

Due to their ability to travel considerable distances under their own power, they can move along with the advance guard whenever occasion demands. If not

accompanying the advance guard, they could move rapidly forward from the main body and assist an advance guard in offensive action.

In a meeting engagement, fast tanks operating against one or both flanks of an enemy, even swinging completely around his rear, would greatly delay his forward movement, and probably bring it to a standstill. In a withdrawal, fast tanks could disengage closely pressed units by a series of counterattacks from flank positions. During the retirement they can harass and delay the heads of the pursuing columns. In the hands of an energetic outpost commander a unit of fast tanks would constitute a highly mobile and effective reserve.

We cannot leave this question of special operations without mentioning tank vs. tank. It is inevitable that there will be a meeting of such forces in a future war between first class nations. Success will depend upon rapidity of maneuver, armament, armor, and fire-power of tanks. Proper utilization of terrain, surprise, accuracy of fire, and training of personnel will be the important factors. If confronted by tanks of superior speed and power, combat would probably be avoided unless circumstances are particularly favorable. However, it must be remembered that bold leadership, skillful maneuver, and high morale may at times bring success to the weaker unit.

Conclusions

Fast tanks embody the most advanced thought of highly mobile ground weapons available to a first class nation.

Fast tanks will secure the following results:

(1) Effect increased demoralization among hostile troops, diminishing their opportunity for escape, and increase their prospect of being run over.
(2) Make hostile fire upon the tanks much less accurate.
(3) Afford hostile gunners time for but few shots while the tanks are closing upon them.
(4) Afford greater freedom as to the selection of the point to be assaulted by the tanks.
(5) Reach an important point earlier than the enemy, thus saving some important objective from destruction, or otherwise securing an advantage.
(6) Deprive the enemy of time needed for the organization of his defense in accordance with his normal plans.
(7) Increase the possibility of surprise to an important degree.
(8) Simplify the movements of tanks from a remote point to a suitable area from which to launch an attack.

Commanders and staffs must visualize early operations with only a very few mechanized units on hand, and at the same time evolve tactics for the employment of such fast tanks as soon as they have become available in quantity.

In any future wars the present slow tank will be entirely inadequate to the tasks required, and a mechanization and motorization program for our Army should be coordinated with mobilization plans.

The inevitable trend in modern warfare is toward greater speed of strategic maneuver; increased fire-power on the battlefield through the employment of weapons of much greater efficiency, with a resultant wider dispersion in tactical formations; and more power in the attack through utilization of combat vehicles invulnerable to small arms fire and capable of cross-country travel.

With fast tanks a maneuver of a range that would have been decisive at a critical time in the World War and that would have taken several days with the means available, can now be begun and completed in a single day. Modern formations cannot be used effectively until our higher commanders and commanders of lower units have developed what one may call "tank-time sense." Tank time is the correct time for figuring a move to a decisive spot. It gains time so quickly that it can gain a decision, and it is the only maneuver that has such promise in modern war.

The conditions of war are still such that fire which is directly applied at close range—as the fire of an armored force can be—is far more potent than indirect fire in battlefield reality.

Increased mobility of tanks will give to the more mobile Army the advantage of the initiative, including frequently the selection of the terrain of decisive battle.

The tactical and strategical maneuvers suited to the employment of increased mobility should receive special study.

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Hints for Combat

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—The Editor

In looking back on the Tunisian campaign one sees the completeness and soundness of training and tactical doctrines employed by our Field Artillery School. These things are essential because there is very little new technique learned by personnel under fire except methods of self-preservation. Training then must be complete, leaving only mechanical execution for the battlefield. Training also, insofar as possible, should be progressive so that the unit may be committed to action at the peak of its cycle much as a coach works his team up to the important game of the season. The intent of this article, then, is not to advance new ideas but to stress the importance of certain old ones.

Much has been said on the subject of leadership. No one denies the importance of this attribute so essential to an officer, yet too little is known of how to lead troops in combat. On one hand, young officers who are thrown into rather intimate contact with their men in the field permit the spirit of comradeship, which is the natural human reaction to sharing danger, to break down that reserve and self-reliance which must be retained. On the other hand, other officers in their consuming desire to do a good job resort to loud, bombastic, exaggerated phraseology which reduces the weight of subsequent orders and definitely induces a feeling of tension or excitement among subordinates. In combat the initial problem of the individual is to overcome his natural tendency to be excited in order that he may think and act most efficiently. Excitement transmitted by a strained or high-pitched voice is most contagious among troops. They may function in spite of it, but certainly not because of it. If an officer must change his normal manner in combat it should be to slow down in every way except mentally, and regardless of circumstances he must retain his self-composure. Patience and a good sense of honor are invaluable characteristics. An officer should push and drive his command, be it a platoon or regiment, throughout its precombat training, so that obedience and the proper performance of duties are instinctive. Prior to combat he must make himself known to his men as a person of inflexible will who accepts no alibis and will be satisfied with nothing but results. Then, on the battlefield, the command will achieve results because it knows nothing else. Other suggestions for obtaining the confidence and maximum efficiency of troops are as follows:

1. Let it be thoroughly understood before your unit is committed that the slightest evidence of cowardice will be punished. See that the troops themselves attach a stigma to neurosis and weakness.

2. In your first action, commit your command under the best circumstances possible within the limits of your mission. Make no blunders, for a unit is profoundly affected by the success and confidence achieved in its first engagement.

3. Always know the tactical situation and keep subordinates informed. If you don't know it, find out immediately even if it involves personal reconnaissance. No American troops, fear anything they know is coming, and if they know the mission of the unit they will accomplish it without you.

4. When not within range of small-arms fire, keep your men out of foxholes and busy. Under aerial attack and artillery fire, don't let your officers display fear by rushing to the deepest and best slit trench in the area.

5. Encourage humor when the situation is tough. It relieves tension and increases efficiency.

6. Never make important decisions based on reports received from an excited and exhausted man without verification of the facts. Often a cup of coffee will reduce the number of the enemy he saw by 99%.

7. When you visit front line troops, depart at the speed at which you approached the front.

8. Keep troops in combat either marching, fighting, eating, or sleeping. Arrange in advance for relief teams for functions normally carried on twenty-four hours a day regardless of tables of organization.

9. Instruct personnel in all possible uses of their principal weapon and develop their complete confidence in it. They must understand clearly that they will not leave, move, or destroy that weapon without orders, and the safest place to be in an attack is behind the gun and operating it.

10. Habitually site your CP no farther back than your reserve elements or rear battery. This facilitates communication, insures your knowledge of the situation, and inspires confidence among subordinates. Nothing is more disgusting than spending half a day traveling to and from a CP to receive orders.

11. By your actions, not words, impress your command with your desire to get the most of the best available for them. At the same time don't make a fool of yourself coddling them.

12. If you command a battalion, make your most promising young business man personnel officer and give him plenty of ration savings or other funds with which to buy on the local market. The arrival at the front of eggs, fresh fruits, vegetables, etc., does more for morale than a letter from home.

There is a tendency among some of our units not to employ all the supporting weapons available. I have seen an infantry regiment in the line with its 37-mm antitank guns sitting in a ravine 500 yards to the rear in march order and without gun crews. Even if loss of personnel requires that antitank gun crews be used as machine gunners, the guns can be placed in position on their MLR, dug in and available for use if needed. Also, in the case of the infantry regiment mentioned above, only half the mortars were set up and the assault guns were not being used. A German memorandum contained a severe reprimand of a unit commander by the division commander because records indicated his unit had fired only one-tenth of the ammunition available for his heavy weapons. Perhaps that is a good method of checking when personal inspections are impossible.

On another occasion a reconnaissance unit was assigned the mission of taking a mountain which rose abruptly out of a flat plain. The battalion commander asked for all the artillery support he could get, and while I was working out his fire plan with him I noticed he was bringing up every mortar, assault gun, and 37-mm he had. When the attack was launched everything he had opened up, and his troops pushed through to their objective without heavy loss.

On 24 March our forces were finally stopped, after a fifty-mile advance, by well-prepared defenses on the high ground east of Maknassey. A chief of section from an infantry cannon company came to my CP that morning with an urgent request for a forward observer to come and adjust fire on two guns that were being dug in near the crest of the hill. All of the observers were with the infantry; so I accompanied the sergeant in my radio jeep. Upon arrival at the position of the cannon company I saw no officers present. The sergeant pointed out the two German guns and I asked why he didn't knock them out with his self-propelled M3A1 75-mm howitzers. He said he had been using the howitzers, but their shells ricocheted off the front parapet of the partially dug pit. I then asked him why he didn't use a lower powder charge and drop the shells into the pit. He had never heard of that, nor had any of the other NCO's who gathered around. Serving the piece as gunner, I demonstrated the simple procedure. We knocked out one gun with the sixth round after splitting a four-tenths mil bracket. I left them bracketing the other gun with charge two and using a gunner's quadrant for the first time in their lives. There were still no officers around. Those men were doing their best, but no one had instructed them in all the uses of their principal weapon.

In the initial stages of the campaign a little difficulty was experienced in getting infantry to jump off after an artillery preparation and follow its barrage closely. As they became more accustomed to it and saw the results of enemy machine gunners "coming to life" after the barrage passed, they followed at approximately two hundred yards. In one highly coordinated attack they stayed within fifty yards. A battalion of infantry had previously attacked "Question Mark Hill" across the valley from "Hill 609" in the sector east of Beja. The attack was unsuccessful. The next day, 1 May, an artillery forward observer occupied a large fox hole with the infantry battalion executive who had radio communication with the assault company commander. They were on the forward slope of a hill about two hundred

yards from the company. The forward observer fired a short preparation with his battalion, starting near the top of "Question Mark Hill" and shortening range in fifty-yard bounds until the fire was falling on the forward German elements. The battalion executive then ordered the company to crawl up as close as possible to our fire. When they reported themselves in position the forward observer increased the range fifty yards and the company commander was told the next volley would be the last at the old range. When that volley hit he was to run into the smoke and dust and take cover in the shell holes. This was executed, and when the company commander again reported ready some five minutes later, the fire was lifted another fifty yards and the company plunged into the smoke and dust of the last volley at the old range. Enemy soldiers not injured by the fire were quickly handled in the bottom of their fox holes. This procedure was repeated until our troops were on top of the hill, and then our fire was kept on the other side until they reported they were dug in and organized. Only two men were slightly wounded in the entire operation, and when asked how he felt with our fire falling so close, a sergeant said, "Hell, sir, it felt kinda friendly!" Our troops are learning the accuracy of the old British axiom, "It is more economical to suffer one per cent casualties by following our artillery fire closely, than to lose ten per cent from enemy action."

Another use made of artillery by one infantry regiment was to mark with smoke certain hill tops to orient patrols which reported they were lost. This was easily done with map data, but to pick out one barely-covered hill from the others on the ground was almost impossible. Artillery was also used to mark a terrain feature in enemy territory with smoke in order that Allied dive bombers could orient themselves immediately.

Never depend entirely on other units for local security; and always, regardless of how little sleep you've had, hold a morning "stand-to" thirty minutes before daylight, in which every man is inspected by an officer to see that he is alert and has his arms in his possession.

On the night of 16 February, near Sbeitla, an artillery battery commander posted the usual outpost guard even though his battery was 3,000 yards back of the front line. At 2100 hours a report of heavy firing at the front and the withdrawal of several friendly units was made to the battery CP. At 0100 hours a patrol walked into a German Mark III tank. He quickly found a slit trench and opened fire with tracer ammunition from a tommy gun. When the tank returned the fire, the soldier dropped into the trench; and the battery opened fire on the tank. Other German tanks opened fire and disclosed their positions. The attack was repulsed and three tanks knocked out because they were discovered in time.

On 20 February in Kasserine Valley a battery went into position in the evening; and since they were some distance behind the line and hadn't had any sleep for two days, a small guard was posted rather close in. No "stand-to" was held, and the battery was awakened at daylight by battle cries of an infantry battalion which had infiltrated back to their position. All the guns and about half the personnel were captured.

Radio security is a most important subject. The German intercept service is well organized and passes information to line troops very rapidly. When no useful information can be gained from an AM [amplitude-modulation] net, they frequently jam it with a mechanical three-tone transmitter. I have never seen or heard of their jamming an FM [frequency-modulation] net, but I have seen the results of interceptions on that net. Apparently the German artillery was monitoring an artillery battalion fire-direction net with a captured radio. An excited battery officer reported, "A shell just burst four hundred yards in front of this position. Request permission to displace." Before displacement could be started the accurate sensing was applied by the German battery and upon intercepting the next message, "That one was right in the position," they fired for effect. Likewise, the transmission of adjusted data in the clear is bad practice because the Germans will go to the trouble to plot your position; and their map data corrected is not bad. There was rather convincing evidence of their locating a CP in one stabilized sector by the operation of an AM radio position-finding station. However, this was not common and can be expected only when a set transmits from one location for several days.

The aid CP (L-5 airplane) was found to be indispensable, but not exactly in the way it was anticipated. In the first place, the situation never occurred when the approximate location of the target was known in order that the guns could be laid before the plane took off. In every case of accurate location of a target, the

man who located it adjusted the fire at the time and on the spot where he located it. By radio and telephone relays, even reconnaissance platoon commanders and tank and infantry officers conducted fire more effectively than by trying to locate the target and make an adjustment from the air OP. Ground observation is definitely better for two reasons: (1) you can approach the target more closely; (2) you can use glasses or a spotting scope in a stable position. However, we were able to keep a plane in the air long enough to pick up muzzle flashes, especially early in the morning and at dusk, and then make an adjustment. We never lost a plane due to enemy action, and that included flights from 31 January to 3 February at Station de Sened when enemy planes were overhead approximately twenty minutes out of every daylight hour. It was found after a few weeks use that enemy batteries would usually cease firing when the L-5 appeared in the air and it therefore became a passive counter-battery measure. Other very important uses for this plane are reconnaissance and security, particularly in fluid situations when you know there is either enemy or nothing on the other side of the hills on your flanks. An L-5 well piloted can hardly be shot down by fighters because of its maneuverability and ability to land quickly. The only chance a fighter has is on his first "pass," and by taking evasive action just before he comes within range the L-5 pilot can avoid the fighter. The plane, of course, might be destroyed on the ground; but this never occurred to my knowledge in Tunisia.

I have made this letter rather long only because I have not had time to make it shorter.

—Pascal in *Lettres Provinciales*, 1656.

To view "Hints for Combat" as it was originally published in October 1943, visit https://www.armyupress.army.mil/Portals/7/military-review/Archives/English/JF-22/Original/Burba.pdf.

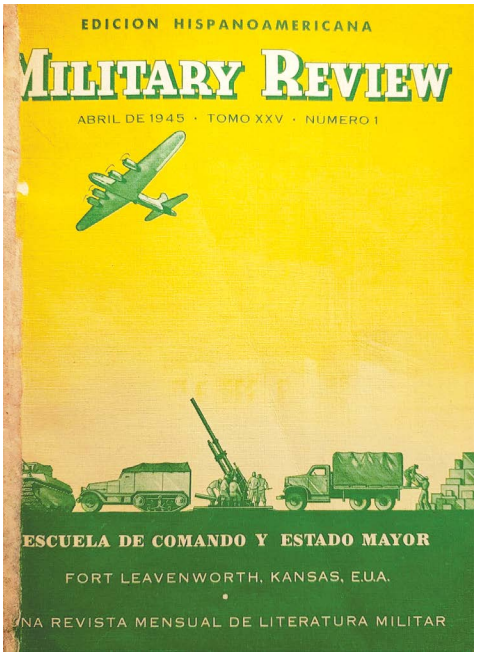
Military Review Latin American Editions

Editor's note. *This excerpt was originally published in the master's thesis by George D. Stewart at the University of Kansas in 1974, titled "A Study of the* Military Review*: The Development of a Professional Journal."*

In late 1944, a new role for the *Military Review* was considered by the War Department. The publication was examined as a possible means for assisting in the establishment of the War Department's plans for the development of a permanent hemispheric defense system throughout Latin America.

The United States had begun a unilateral program to build up the defenses of the hemisphere in 1938. The military missions of Axis countries throughout Latin America were regarded by the United States government as a serious threat to the security of the hemisphere, and in 1938, it initiated a program through the War Department to supplant this threat. The program included the establishing of a military mission prog ram in Latin America, the supplying of military arms and materiel under the Lend-Lease Program, and the training of Latin American military personnel in the United States.

In January 1942, the United States called for a consultative meeting of foreign ministers to solicit the cooperation of the Latin American countries in the overall defense of the Western hemisphere from the aggression of the Axis powers. By the end of the meeting, held in Rio de Janeiro, the United States had gained the support of all of the Latin American nations except for Argentina and Chile. Provisions also were made for the establishment of the Inter-American Defense Board to promote military cooperation for the defense of the hemisphere. The Inter-American Defense Board, which gave the Latin American nations a sense of participation in the security of the hemisphere, was more an a political maneuver than a military exigency, but the board did provide the nexus for future United States military activities in Latin America.



The cover of the first Hispano-American (Spanish) edition of *Military Review* from April 1945.

These activities supplied the United States with little direct military assistance for its war effort, but they did furnish base rights that the War Department considered mandatory for its defense plans.

This cooperative spirit was threatened, however, by the deterioration of diplomatic relations between the United States and the Latin American nations. The renewal of the Hispanidad, Pan Hispanic, and Synarchist movements throughout Latin America gave rise to anti-United States sentiment and resurrected "Yankeephobia" and its accompanying cry of the dangers of United States imperialism.

Realizing the danger these developments presented to hemispheric security, the War Department began to reappraise its plans for Latin America. The United States considered it extremely important to maintain the rather elaborate defense system it had established in Latin America. With that objective in mind, the War Department undertook a program to solidify the military relations between the United States and the nations of Latin America.

A major segment of the program was the standardization of the armed forces of all the American nations in

training, organization, and equipment. In October 1945, this concept became the basis for a recommendation by the Inter-American Defense Board that all American governments set the complete standardization of the various armed forces as their ultimate goal.

This concept was further stabilized in May 1946 when President Truman submitted the "Inter-American Military Co-operation Act" to Congress. This opened the way for the full implementation of the standardization program.

The War Department, however, did not wait until 1946 to begin its program. With military missions established in the various Latin American countries since the early phases of the war, it was a simple task for the War Department to begin a military indoctrination program. Some of the Latin American officers had received training at War Department schools in the United States and were used as a base upon which to build the program.

The cover of the first Brazilian (Portuguese) edition of *Military Review* from April 1945.

By late 1944, the *Military Review* was recognized by War Department personnel as an esteemed journal of United States Army concepts and doctrine. It was a natural medium for the indoctrination of Latin American military personnel with the latest United States Army principles. This in mind, the War Department began to investigate the possibility of publishing *Military Review* in Spanish and Portuguese for distribution to Latin American nations.

This concept was readily approved by all senior United States military personnel throughout Latin America, and on October 28, 1944, the approval of the State Department was received from Joseph E. Johnson of the Division of American Republics Analysis and Liaison.

The next task was to obtain the necessary funds to prepare and print the two new editions. No War Department funds were available for such a project and the submission of a request to the Congress for a supplemental appropriation was not considered feasible at that time.

Major McCarthy of the Budget Office, War Department General Staff, pointed out that the War Department had available the Inter-American Relations Fund, and it was his opinion that authority was broad enough to pennit an expenditure from this fund to finance the two foreign language editions. Acting on this information, Major General J. E. Hull, assistant chief of staff, War Department, advised the Budget Office that the operations division of the War Department considered it in the best interest of the overall War Department plan for Latin America to endorse the publication of the *Military Review* in Spanish and Portuguese. He directed that office to determine whether Inter-American Relation funds might be used.

On November 4, 1944, Col. John J. Duebelde, Jr., deputy director of the Budget Office, advised the War Department that Inter-American Relation funds could be made available and on November 16, 1944, $17,100 was allocated for the publication of the two new editions.

The Command and General Staff School had determined that it would require an additional four officers and eight enlisted men to the editorial and clerical staff and twelve personnel, civilian or military, to the production staff to publish the two new editions. The search for qualified personnel began immediately with Lieutenant Rafael Montilla, an aide to General Truesdell, going to Puerto Rico to recruit persons to fill the newly established staff positions. Montilla was able to obtain enough personnel to start work on the Spanish-American edition, and in December 1944, Colonel Andres Lopez was assigned as its editor.

At the same time, negotiations with the Brazilian government were underway to obtain Brazilian military personnel for assignment as staff members for the Brazilian (Portuguese) edition. Until these negotiations were completed, General Carvalho, Brazilian military attaché in Washington, D.C., designated Maj. Severino Sombra

as guest editor of the Brazilian edition and furnished one clerk-typist to assist Sombra.

The Command and General Staff School was ready to start publication of the two new editions and in April 1945, the first issues were published. Colonel Barrows announced the creation of the two new editions to the readers in May 1945.

> This notice is to acquaint our readers with the fact and to assure our Spanish-American and Brazilian neighbors that it will be our most sincere endeavor to translate the English text faithfully, and to produce, to the best of our ability, a magazine that is authoritative, informative, interesting, and instructive.

The new editions were well received in Latin America, and by June 1945, unofficial figures indicated that more than 700 subscriptions had been received from military personnel in Latin America.

Colonel Barrows spent the remainder of 1945 solidifying the staff of the two foreign language editions. Major Sombra went to Brazil to discuss personnel support with the Brazilian minister of war, and upon his return to Fort Leavenworth, he reported that the minister of war favored the arrangement and would designate Sombra as editor of the Brazilian edition. Three additional persons were promised as more funds became available. On June 21, 1945, the Ministry of War advised the War Department that an additional two officers and two enlisted men would be provided to assist in the translation and publication of the Brazilian edition. With the assignment of these persons, the staff of the Brazilian edition was well established and caused the publication little trouble until 1961, when the Brazilian government was forced to recall its personnel for two years.

Establishing the staff for the Spanish-American edition was not an easy task. The first group of persons assigned to this staff did not meet the standards of proficiency that had been expected. Until their proficiency improved, Barrows considered it necessary to obtain additional personnel if the publication of the edition were to continue. Under pressure from the War Department, however, the supposed magnitude of this problem was eliminated and sufficient personnel were found to insure the continued publication of the edition.

The addition of these two new editions necessitated the complete reorganization and the enlargement of the staff. Colonel Barrows became the editor-in-chief, Colonel Lopez became the editor of the Spanish-American edition, and Major Sombra became the editor of the Brazilian edition. In May 1945, the number of assistant editors was increased to eight. ... A ninth assistant editor ... was added in July 1945. The increased activity at the *Military Review* also made it necessary to bolster administrative capabilities. In May 1945, two new positions—production manager and business manager—were created. ...

In September 1945, Lieutenant Colonel W. H. Van Dine became the Washington representative for the magazine. His function was to provide the liaison between the War Department and the Command and General Staff School and to coordinate *Military Review* actions in the Pentagon.

When Colonel Barrows left *Military Review* in December 1945, it had embarked upon a new course. The journal proved itself as an important military professional journal during the war years by offering the readers a current, factual account of the tactics and techniques used by United States combat forces. It maintained the awareness of the professional soldier in the war situation and allowed him to profit by lessons his contemporaries had learned in battle. Equally important, the publication became the foremost medium in South America for the dissemination of United States military doctrine. ■

To view the 75th Anniversary *Military Review* Hispano-American (Spanish) Edition, visit https://www.armyupress.army.mil/Journals/Edicion-Hispanoamericana/Archivos/Segundo-Trimestre-2020/. The most current Spanish edition is available at https://www.armyupress.army.mil/Journals/Edicion-Hispanoamericana/.

To view the 75th Anniversary *Military Review* Brazilian (Portuguese) Edition, visit https://www.armyupress.army.mil/Journals/Edicao-Brasileira/Arquivos/Segundo-Trimestre-2020/. The most current Portuguese edition is available at https://www.armyupress.army.mil/Journals/Military-Review/Edicao-Brasileira/.

Let the Women Do It

Colonel John W. Davis, *Artillery*

Instructor, Army War College

The views expressed in this article are the author's and are not necessarily those of the Department of the Army, the Army War College, or the Command and General Staff College.

—The Editor

At the Key West meeting of the Joint Chiefs of Staff, in 1948, the roles and functions of the three services were delineated. One of the functions assigned the Army was: *to provide Army forces for the defense of the United States against air attack in accordance with joint doctrine and procedures approved by the Joint Chiefs of Staff*. The Navy and the Air Force were assigned corresponding functions, suitable to their capabilities. In addition, the Air Force was given unilateral responsibility for the air defense of the United States.

Responsibilities

Accordingly, each of the three services contributes to the air defense of the United States. The Air Force provides interceptor aircraft and an early warning system. The Navy furnishes aircraft, as required, and sea-borne means of air defense, such as antiaircraft vessels and picket ships. The Army contributes antiaircraft artillery and surface-to-air guided missiles. Both the Army and the Navy have organic radar and aircraft warning equipment which supplements the early warning system operated by the Air Force.

Costliness

It takes very little imagination to visualize the possible immensity of the air defense effort. The United States is large in area, roughly twenty-five hundred by twelve hundred miles. Our population is preponderantly urban. We have many widely separate population centers and areas of concentrated industry. It is a task that could consume not hundreds of thousands, but millions of men, and billions of dollars of matériel. The end items employed in air defense—interceptor aircraft, radar, guided missiles, and antiaircraft artillery—are expensive, very expensive. These end items are not push-button affairs. Many intelligent, well-trained people are required to operate them.

Defensive *versus* Offensive Effort

Not only is the air defense of the United States costly, but it constitutes a purely defensive effort, a direct subtraction from offensive means. Every aircraft employed to protect the United States from air attack is one less available for tactical air support. Every soldier at an antiaircraft gun site in the United States is one less available for offensive action against the enemy. The decision as to the extent of the resources to be employed for this purpose is a major one, involves many complex factors, and may have far reaching effects.

The Germans, the Japanese, and the British were faced with this dilemma in the past war. The million and a half persons employed by the Germans in air defense and the industrial effort expended for

It is the privilege of every man and woman to fight any enemy attempting to destroy this country. So that available manpower may be utilized for offensive action, the use of women in AA units in the US is favored.

aircraft, armament, and munitions were significant and important factors contributing to their ultimate defeat. Similarly, the air defense effort by Great Britain was a strain that was sorely felt throughout the war. Fortunately, this was not a problem for the United States. But remote as the threat may have been, we had able-bodied men manning antiaircraft guns in defense of Washington and other areas regarded as vital.

The shoe is now on the other foot. It is painfully clear that this immunity from air attack, which we enjoyed in the past war, will not be repeated in a future conflict. Aircraft of the *B-29* type, operating from unfriendly bases, have the capability of penetrating the air space over any area of the United States. True, to reach some areas, one-way missions may be required, but this cannot be regarded as a serious deterrent. The loss of an airplane and crew after the successful delivery of its A-bomb is readily acceptable.

The Problem

What do we do about it? Can the United States be left unprotected against air attack? The answer is *no*: a *no* that becomes more emphatic with the passage of time, and the consequent increase of opposing A-bomb stock piles. On the other hand, do we place primary emphasis on the air defense of the United States? Again the answer must be no, at least for the present or foreseeable future. This is a task that could absorb our entire military potential, and ensure nothing more than a high attrition rate of hostile aircraft.

The answer obviously lies somewhere between these two extremes: a solution which will, first, place primary emphasis on offensive means, in other words, the ships, aircraft, and divisions which will carry to a successful conclusion any war thrust upon us; and, second, provide for the protection, in this country, of those areas contributing most vital support to these offensive means. After all, the carrying of the fight to the enemy and the destruction of his capabilities at the source constitute the best and only sure defense.

The best defensive means the British and Americans could provide alleviated, but did not prevent, the German *V-1* bombardment of London. The menace was not eliminated until allied divisions had cleared the Pas de Calais, Belgium, and parts of Holland. Nevertheless, the effort expended in the *V-1* defense of London was not wasted. As a defensive effort it was very successful, eventually accounting for 70 percent of the missiles launched. Similarly, the allocation of resources to the air defense of the United States is necessary, but it must be a frugal not a lavish allocation. The unimpairment of our offensive strength must be kept in mind. Nevertheless, sizable forces will be required to defend this country from air attack.

The Army's Role

The part that the Army will be required to play in the air defense of the United States should not be underestimated. The Army may and probably will be the greatest contributor of the three services in personnel and materiel. With the development of surface-to-air guided missiles, Army weapons may well be the backbone of air defense. Fighter aircraft may even be relegated to a secondary role, that of constituting a mobile attack force to reinforce or to plug gaps in static air defenses. Since these statements may be regarded with some skepticism, a few examples of the last war are cited in illustration.

Illustrations

In 1943, German flak accounted for one-third of the Eighth Air Force losses over Germany. In 1944 and 1945, flak accounted for two-thirds of the bomber shot down—and considerable numbers *were* shot down. True, that in 1944, the *Luftwaffe* was beginning to lose its punch. But, at the same time, German flak had neither the proximity fuze nor radar of the quality equivalent to our SCR 584, both of which were then available to us. It has been said that these technical advances or improvements multiplied the lethality of our antiaircraft artillery guns by three.

On our side, between D-day and the cessation of hostilities, the antiaircraft artillery of the 12th Army Group made 2,100 confirmed kills, inflicting an attrition rate of approximately 11 percent. Despite our overwhelming air superiority, fighter kills never approached this total. On 1 January 1945, the Germans made one of their biggest air efforts, an estimated 700 to 750 sorties, directed at our airfields. Antiaircraft artillery destroyed 220 of the attackers; fighter aircraft less than 100.

We again turn to World War II for some indication of the drain on manpower imposed by the use

of antiaircraft weapons. Germany, at a time when a maximum of a million and a half persons were employed in air defense, had 850,000 persons manning antiaircraft weapons. In Great Britain, the greatest number similarly employed was slightly more than 300,000, but this figure does not include the Royal Air Force personnel who operated barrage balloons and automatic weapons in defense of airfields.

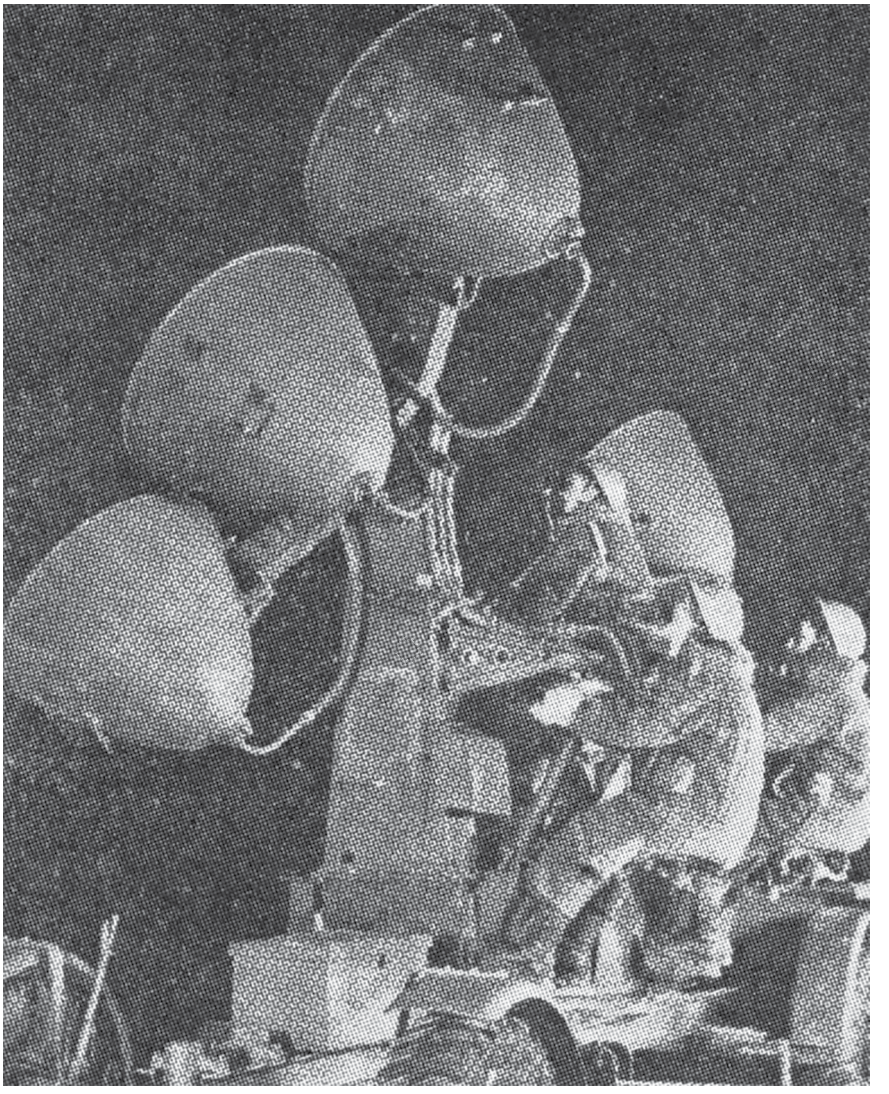
Technological advances during the postwar period, to some extent, alter this World War II picture. Radar has eliminated the antiaircraft searchlight. Barrage balloons are obsolete. In so far as the United States is concerned, the A-bomb has all but eliminated requirements for antiaircraft automatic weapons. The attainment of an air burst of maximum blast effectiveness necessitates the release of the A-bomb, by the carrier aircraft, at an altitude far above the effective range of automatic weapons. Of course, there are certain targets which are attacked most successfully from a low altitude. These are comparatively few. The antiaircraft gun itself may be on the verge of obsolescence, but as long as we have *B-29*-type aircraft to shoot at, it is a very effective weapon. Surface-to-air guided missiles, as they become available, may, in time, supplant the antiaircraft gun.

Therefore, we may expect that the antiaircraft defenses of the United States will consist of a small percentage of automatic weapons, a preponderantly large percentage of antiaircraft guns, and a small but growing percentage of guided missiles. Even with the deletion of searchlights and barrage balloons, and small demand for automatic weapons, personnel requirements will be large.

Great Britain and Germany entered World War II with antiaircraft defenses manned with young, able-bodied men; personnel physically qualified for active service on the battlefronts. Both had to change.

The British Experiment

The British, faced early in the war with manpower problems, began, in 1940, to experiment with women in mixed batteries; that is, units composed of both men and women. It might be added that the experiment was conducted to the accompaniment of many misgivings in official circles. Some politicians were fearful that public opinion would never sanction women operating death-dealing weapons of war. Others felt that women would be coarsened and their morals lowered by military service. Despite these misgivings, the experiment



A searchlight battery operated entirely by women during the Battle of Britain.

was considered a success. Women were permitted to volunteer for service in antiaircraft artillery units, were trained, and then organized into "mixed" batteries. At one time, 74,000, equivalent to four divisions, were enrolled. It was estimated that 170,000 could have been employed had they been available.

As events proved, public opinion did not recoil in horror. On the contrary, the British public appeared to take tremendous pride in the fact that their women were defending the homeland. Morals, in mixed batteries, were no lower than in civilian life. But quite surprising to many, women actually proved better in their assigned tasks than did the average male soldier. Their coolness and courage were amply demonstrated in hundreds of antiaircraft engagements during the remaining years of the war.

ATS girls using a spotter on a gun site, searching the skies for hostile aircraft.

As the war progressed, more and more of the young, able-bodied men were diverted from antiaircraft units deployed in defense of Britain to overseas combat units. Their places were taken by older and physically limited men. Eventually, the Home Guards were employed on a part-time basis, an expedient which was not too successful. By the end of the war, older and physically limited men, the Home Guards, and women were doing the job.

German Experience

The German experience, in many respects, parallels that of the British. Until the end of 1942, German antiaircraft units, deployed in defense of the homeland, were composed of men physically qualified for service on the active fronts. Beginning in 1943, the manpower pinch began to be felt severely, and antiaircraft units defending the homeland were among the first to be tapped. To meet these manpower demands, an antiaircraft auxiliary was organized, composed of a hodgepodge of factory workers, foreign nationals, prisoners of war, and women. This auxiliary eventually comprised 44 percent of the personnel in antiaircraft units. The remaining 56 percent were regular military personnel, but the majority were in the older and physically limited categories. Women were employed in limited numbers, but were poorly trained and did not do well. The German expedient, as a whole, could not be considered a success.

It would be well for us to look rather closely at the British and German experiences. Both found, early in the last war, that manpower demands would not permit able-bodied men to be utilized in the antiaircraft defense of their homelands.

Both resorted to the employment of women and over-age and physically limited men. The Germans, in addition, used prisoners of war, factory workers, and foreign nationals.

Need for Air Defense

But there is an essential difference between the early '40s and the present time. The rate of

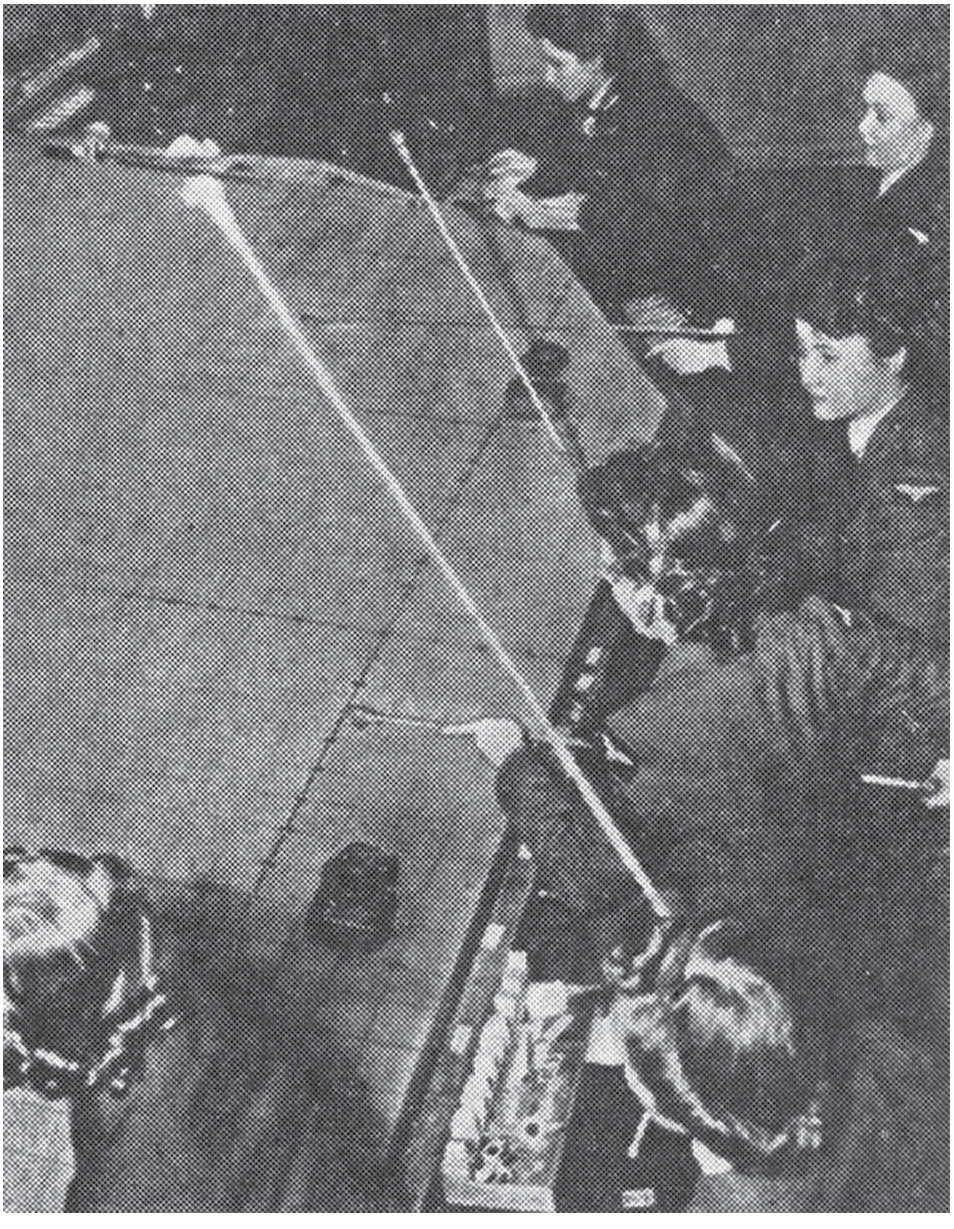
destruction, then, of a nation's industries and population by conventional explosives was far less than that now capable of being inflicted with mass-destruction weapons. Despite punishing air blows, Britain and Germany had some time to adjust their defenses. Time was costly then, but it is infinitely more valuable now. The first month, even the first days of a conflict, could see very severe, if not crippling, casualties and damage inflicted on this country.

This time factor is so clearly unmistakably vital, that it is stating the obvious to say that an air defense system is an urgent necessity. It is apparent, too, that the Army, the Navy, and the Air Force components of our air defense system should be at effective strength, well trained and efficient, and must be so maintained as long as there is any threat of an air attack with mass-destruction weapons.

Sources

Initially, the Army's obligation to provide forces for the air defense of the United States may be met, wholly or partially, by the allocation of existing antiaircraft units of the Regular Army, National Guard, and Organized Reserve earmarked for overseas service. Although this expedient is certainly necessary at the present time, it is dangerous to rely too heavily upon it. An equally urgent requirement will exist for these units to provide antiaircraft protection for overseas field forces, their bases and ports, and for overseas airfields and air bases. The need for antiaircraft artillery is certain to be acute during the early stages of the battle for air superiority. A margin of safety requires that at least a nucleus of antiaircraft units be earmarked for the air defense of the United States. This would alleviate the problem of conflicting demands between the United States and overseas commands, in the early stages of a conflict.

Further, antiaircraft units to be employed permanently in the air defense of the United States should be comprised of personnel physically not suitable for service in the combat zone. Certainly they should not contain able-bodied men likely to be withdrawn



Women plotting the course of friendly aircraft for Royal Air Force controllers.

as the urgent need for such manpower arises. We can and should avoid the loss of efficiency and waste motion which would result. The alternatives are limited—workers in industry and over-age and physically limited men and women.

Use of Workers

The employment of workers in antiaircraft defense is suggested frequently. The premise is that a preponderant amount of the antiaircraft artillery will be sited in or near industrial and heavily populated areas; that workers can be formed into home guard antiaircraft units to function on an alert or part-time basis. The idea is attractive and, if practical, would result in appreciable savings of manpower. Unfortunately, there are many serious drawbacks to this scheme. In the first place, most antiaircraft units will be located outside the area defended in order to intercept attacking aircraft before bombs can be dropped. Those distances, outside the defended area, may not be great, but they may be sufficient to create a transportation problem. But much more serious is the training problem. Antiaircraft actions are short and intense. Perfect timing, co-ordination, and teamwork are required. Months are required to train personnel to operate and maintain radar, fire control equipment, and armament. Control and discipline are essential. This system of worker utilization provides none of these elements. Now add the problems engendered by constantly shifting personnel, sickness, absence, and boredom, and we have an impossible situation. The value and capabilities of the equipment are too great to be wasted in such arrangements.

Over-age and Physically Limited Personnel

There is no reason why efficient and effective Army antiaircraft units cannot be organized and trained, utilizing over-age and physically limited personnel. Any position in a headquarters or firing battery can be filled by personnel within these categories, providing they are not infirm or hopelessly incapacitated. However, there will be strong competition for the over-age and physically limited males. They may be gainfully employed elsewhere in the services, particularly in rear areas and in Zone of Interior installations. In addition, industry must draw heavily on these categories for workers to turn out the machines of war.

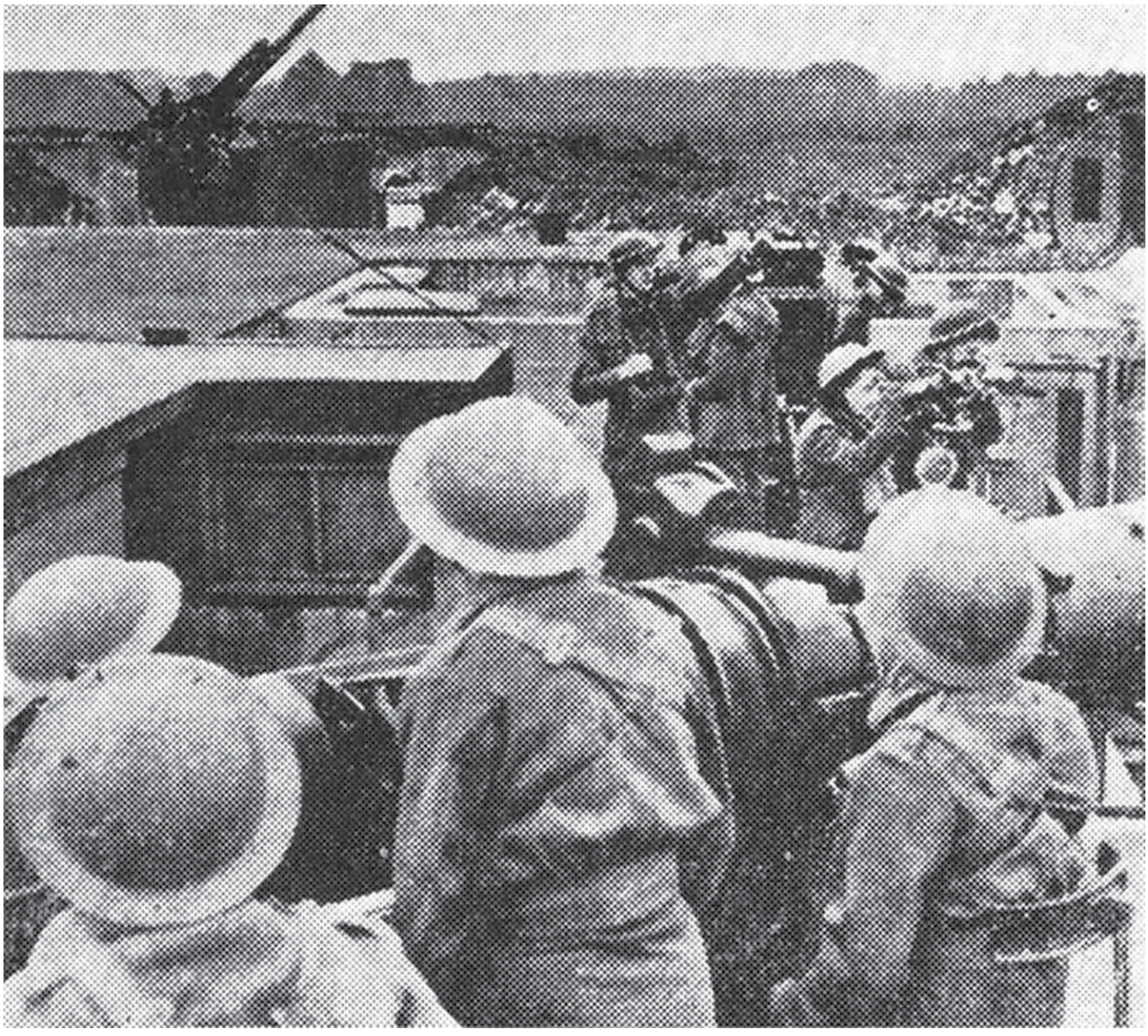
A Suggested Solution

Women can perform 50 to 60 percent of the tasks in a static gun battery, and, as a matter of fact, perform them as well if not better than men. Such tasks include the operation of fire control and radar equipment, plotting tables, telephones, and switchboards. They can act as cooks, clerks, and drivers. Women, likewise, can perform an even higher percentage of the tasks in the various headquarters organization, and do them efficiently and well. The actual manning and operation of the guns is beyond the physical capabilities of the average woman. Again, there is not unlimited womanpower. Women are not only employed profitably elsewhere in the three services, but industry will depend upon the employment of a large percentage of women.

The most serious obstacle to the employment of women in antiaircraft units appears to be fear of public opinion. The suggestion frequently will bring forth the remark that "the public won't stand for it." The basis for this fear is difficult to find. Certainly, some people would oppose the idea of women serving in combat organizations. Unanimity of opinion is not obtained in this country on any issue. Contrary to this frequently expressed opinion, it is believed the great majority of the public would not only stand for it, but like it. After all, this country has a heritage of fighting women. For example, Molly Pitcher, at the Battle of Monmouth, took the place of her husband on an artillery piece after he had been overcome by heat; our pioneer women, who helped build the nation, endured the hardships of frontier life, and, on more than one occasion, fought the Indians, side by side with their men. For the benefit of those who have qualms on this issue, it should be borne in mind that the destruction of aircraft by gun fire is a very impersonal business. The women, operating fire control and radar equipment, contributing to the kill, do no more than those women working in factories producing the munitions and machines of war. In any case, it should be the privilege of every citizen, man or woman, to fight and destroy any enemy attempting to inflict destruction on this country.

Conclusion

The employment of women and over-age and physically limited men in Army antiaircraft units, allocated to the air defense of the United States, is



Army Territorial Service girls using a range finder during the Battle of Britain.

favored. The argument may be advanced that the employment of women is not necessary and that they can be more profitably employed elsewhere in the services or in essential industry. This is doubted. There is ample precedent, found during the last war, when the British, and to a lesser extent the Germans, found it necessary to utilize women in their antiaircraft units. Women are as well if not better adapted to perform a proportion of the tasks in a firing battery than are men.

The time factor in this period of tension is vital. Advance warning of an attack may be short, indeed. We must be prepared to counter air attacks with effective means, and to maintain our defenses in a high state of efficiency as long as the threat of an attack with mass-destruction weapons exists. We cannot afford to experiment after the air onslaught is launched. It is believed that practical measures can and should be taken now to prepare ourselves better to meet the shock of air attacks. Some of these measures are:

1. Establish, now, mixed antiaircraft artillery units for allocation to the static air defense of the United States. Determine the percentage of women that may be employed profitably; the proportion of over-age males that

may be used; and the types of physical disabilities which do not handicap the performance of such duty.

2. Encourage officers and men, incapacitated by wounds or illness to the extent that they are no longer physically qualified for active combat, to transfer to static antiaircraft units. Train such personnel as battery officers, communications and radar officers, and as radar, fire control, and gun maintenance personnel.

3. Establish Reserve Officers' Training Corps antiaircraft artillery units for women in our colleges.

4. Authorize women to take appropriate courses in antiaircraft artillery and guided missiles at the Antiaircraft Artillery and Guided Missile Center at Fort Bliss, Texas.

We are engaged in a historic effort to hold together all of the free peoples of the world in the face of the greatest danger ever confronting them.
As a leader in that effort, we must demonstrate to the whole world that the Founding Fathers were wise in their faith that our Government of divided powers would never suffer disunity or frustrate necessary action in time of peril.

President Harry S. Truman

National policy on military matters can rise no higher than its source, and that source is the American people. Military power and the will to use it in the national interest spring from the people at large.

Lieutenant General M. S. Eddy

To view "Let the Women Do It" as it was originally published in November 1951, visit https://www.armyupress.army.mil/Portals/7/military-review/Archives/English/JF-22/Original/Davis.pdf.

Supplying United Nations Troops in Korea

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The views expressed in this article are the author's and are not necessarily those of the Department of the Army or the Command and General Staff College.

—The Editor

Although warfare in itself is strictly an unbusinesslike venture, getting supplies to the front can be put on a business basis. When fighting erupted overnight in Korea, the movement of all the accoutrements of war to that unhappy peninsula was a hurried and unscheduled operation. Men went into battle in an ever increasing crescendo as nation after nation committed forces on the side of freedom. Getting vitally needed supplies to these fighters was an important and urgent task.

Emergency Methods

Cargo planes racked up thousands of hours of flying time and all available rail, truck, and shipping transportation were hastily thrown into action. The job was being done, but not efficiently. Overtime for labor, special ship chartering, round-the-clock schedules, hasty unplanned loading of cargo, and other emergency factors added up to high operating costs.

Efforts to rectify this were thwarted by a rapidly changing tactical situation. Heavy fighting imposed enormous demands for emergency equipment which was thrown into combat immediately upon arrival. The tactical situation, changing almost daily, discouraged the setting up of large, permanent storage and supply depots on the peninsula. Land held today by United Nations troops might be either bypassed or far from the front tomorrow.

Inadequate Korean Ports

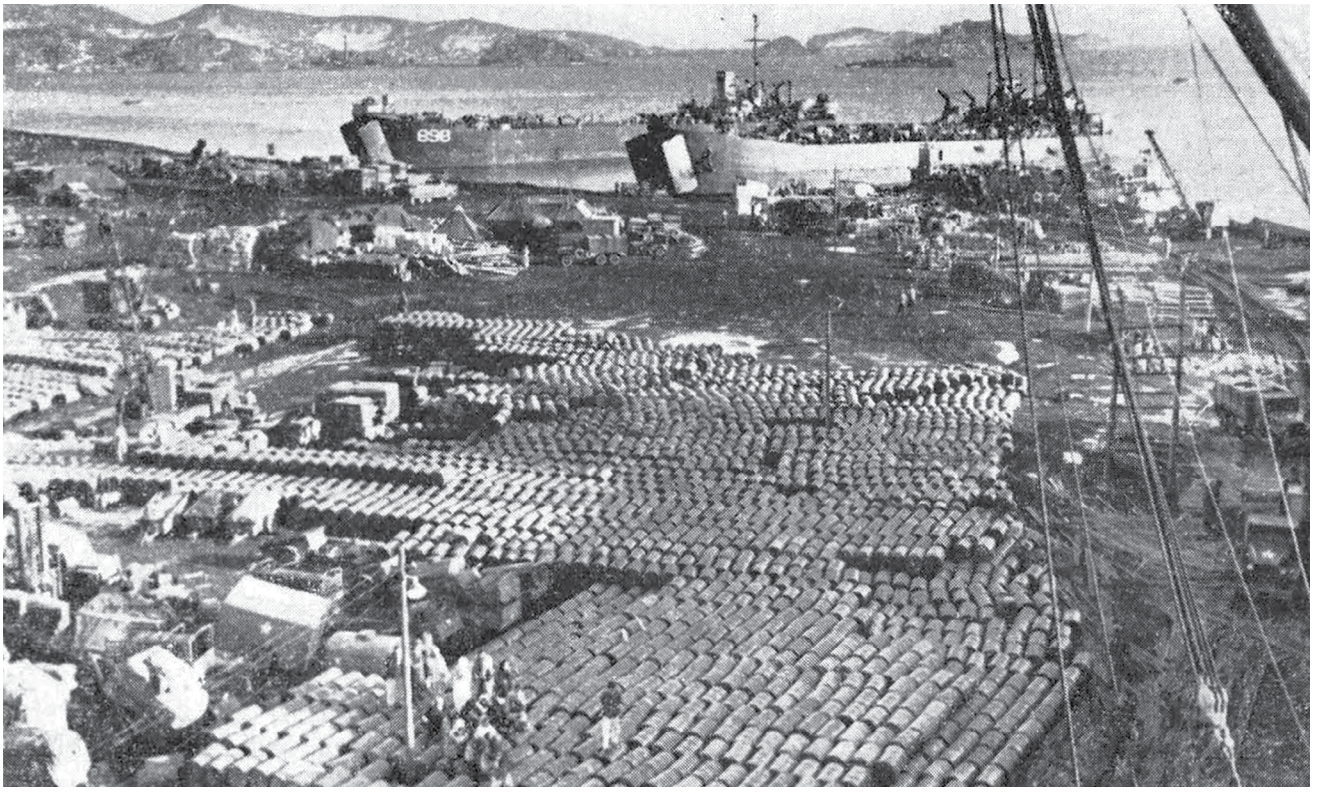
Ports from which United Nations forces could operate in Korea were few. Their restricted capacity to unload and process cargo caused entanglements and bottlenecks in the existing supply system. Stock-piling goods to ensure immediate combat availability was precluded because of the limited capabilities of the depots. Supply men of the Japan Logistical Command (re-designated United States Army Forces, Far East) were thus forced to ship limited amounts with greater frequency to lessen the danger of overcrowded ports and depots.

Advanced Information Lacking

These factors, coupled with uncertain delivery dates and the lack of advance information on ship departures from the United States, resulted in the shipment of most of the vital goods directly to depots and warehouses in Japan, for transshipment to Korea at a later date. Meanwhile, such staple items as food and

Supplying the men at the fighting front can be put on a firm business basis. The Japan Logistical Command has saved about 3/4 million dollars a month through its programmed movement of supplies to Korea.

The best equipment the world has to offer now flows smoothly through supply channels to ships, to ports, to depots, and to the United Nations fighting man. Above, LSTs unloading equipment and men on the beach during the invasion of Inchon, Korea. Below, supplies and equipment being stock-piled at a Korean port.—Department of Defense photos



ammunition frequently had to be airlifted on a call-as-needed basis from the Japan Logistical Command's (JLC) storage depots in Japan. The tremendous supply system that clothed, fed, and equipped the fighting United Nations armies needed rejuvenation, and quickly.

Programmed Movement

The Commander in Chief, Far East, in response to the increasing needs of field commanders and mounting logistical problems, ordered that a joint study be undertaken to devise a system of programmed movement of supplies to Korea. The commander specified that the program must:

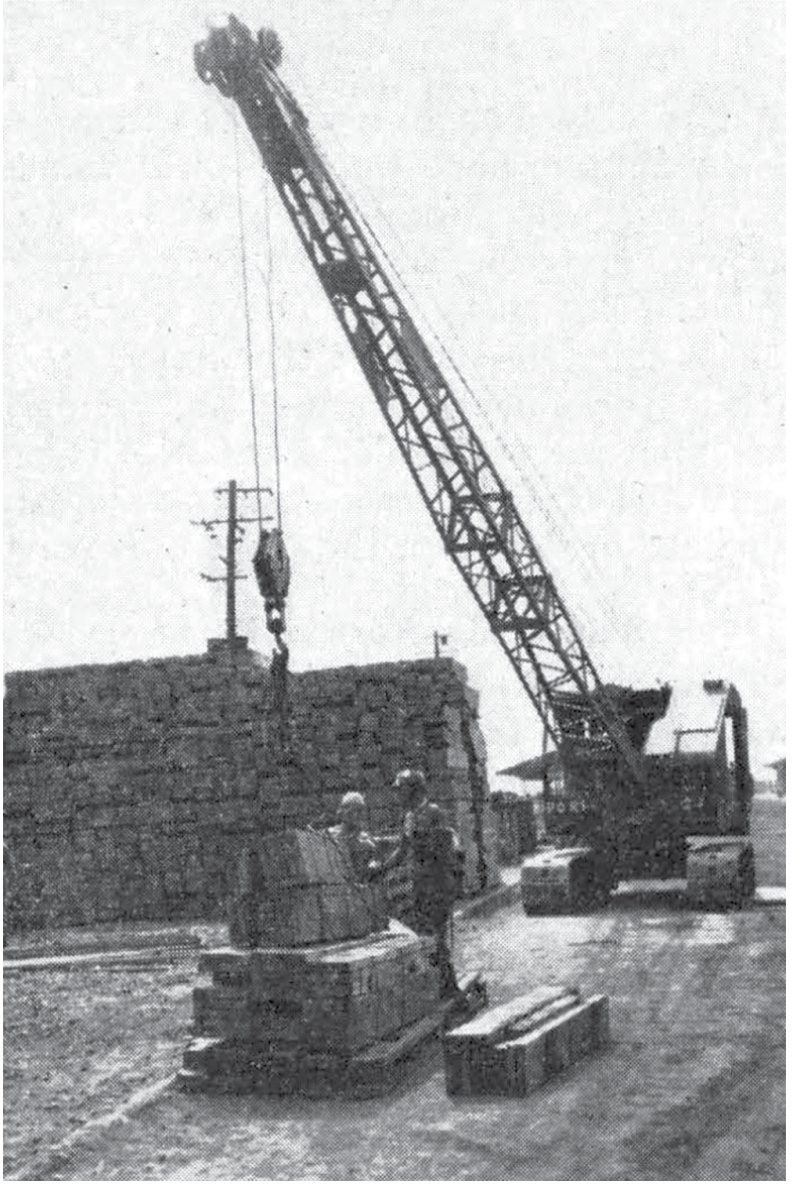
1. Adequately supply front-line troops at all times.
2. Cut down the tremendous expense involved in emergency operations and cargo shipment of war supplies.
3. Substantially decrease the emergency nature of supply support.
4. Provide reasonable stocks of supplies in Korea for future needs.
5. Effect maximum shipments direct from the United States to Korea.

By the spring of 1951 sufficient equipment had been stock-piled throughout the theater and the tactical situation had stabilized enough to provide the basis for a system of "programmed movement of supplies." Programmed movement can best be defined as the movement of specific quantities by specific facilities during stated periods of time.

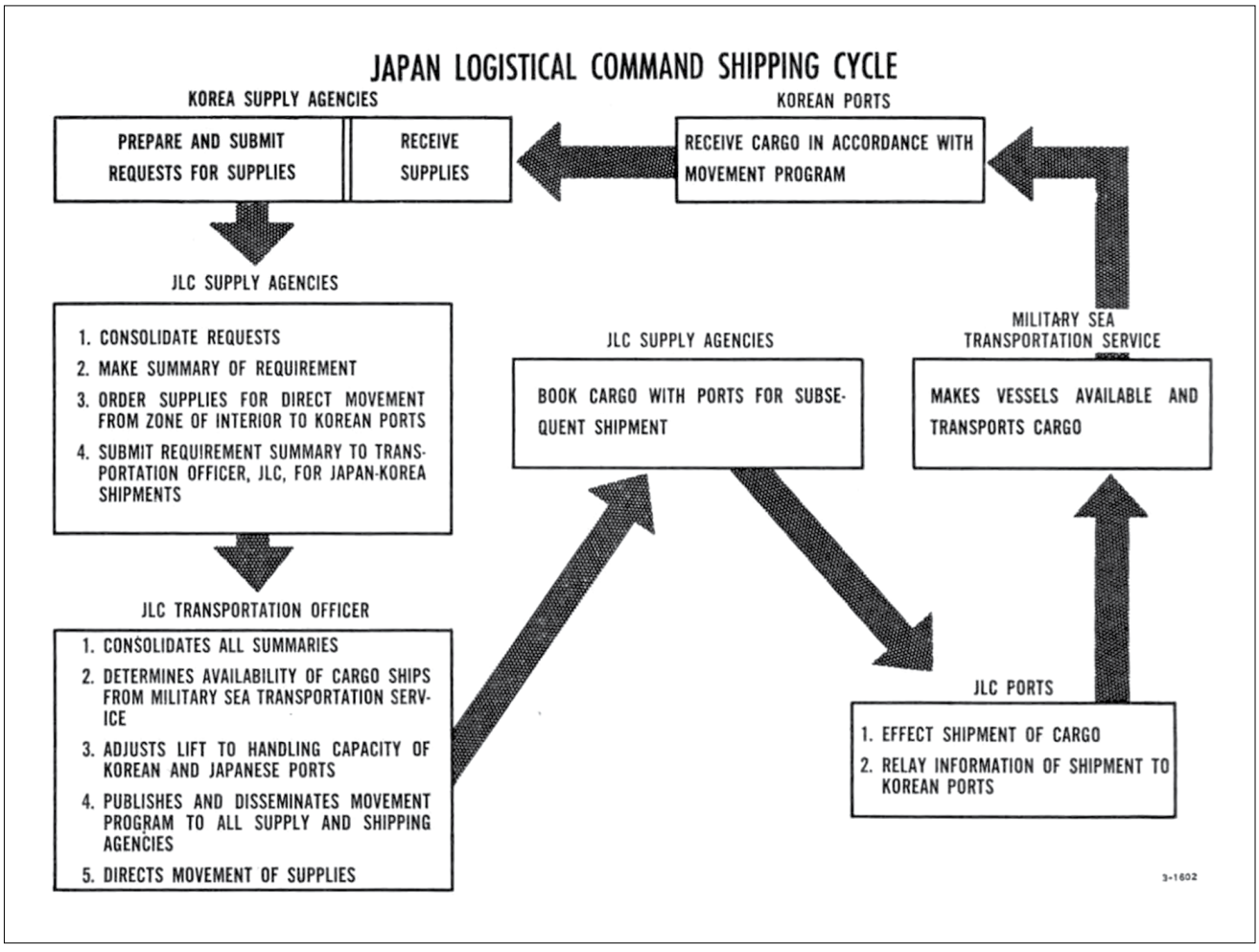
Programmed movement of cargo and personnel is not a new idea, but JLC's specific technique for movement of supplies from Japan to Korea is new. Whereas the order and shipping cycle for supplies from the United States to the Far East Command is 120 days, the cycle from Japan to Korea is only 60 days. The Department of the Army's program of cargo and personnel movements is published using bulk projections of cargo to move within specific periods. JLC's program lists in detail individual totals of supplies to be moved by service, class, commodity, point of origin, outloading port in Japan, and receiving port in Korea.

Calendar of Actions

Briefly, in JLC's support of the Korean effort, programmed movement meant the steady movement of supplies to Korea in accordance with a preconceived plan. This preconceived plan, wrought from timetables, charts, and professional know-how, is called a *calendar of actions*. The calendar is the nucleus of the programmed movement, listing in detail precise steps to be taken by the many agencies concerned in



Supplies, stock-piled in Japan, waiting for scheduled shipment to troops in Korea.



the major supply movement. It details, within a given shipping cycle, the deadlines for submission of requisitions, publication date for movement programs, booking of cargo, shipping of goods, and dates for departures and arrivals.

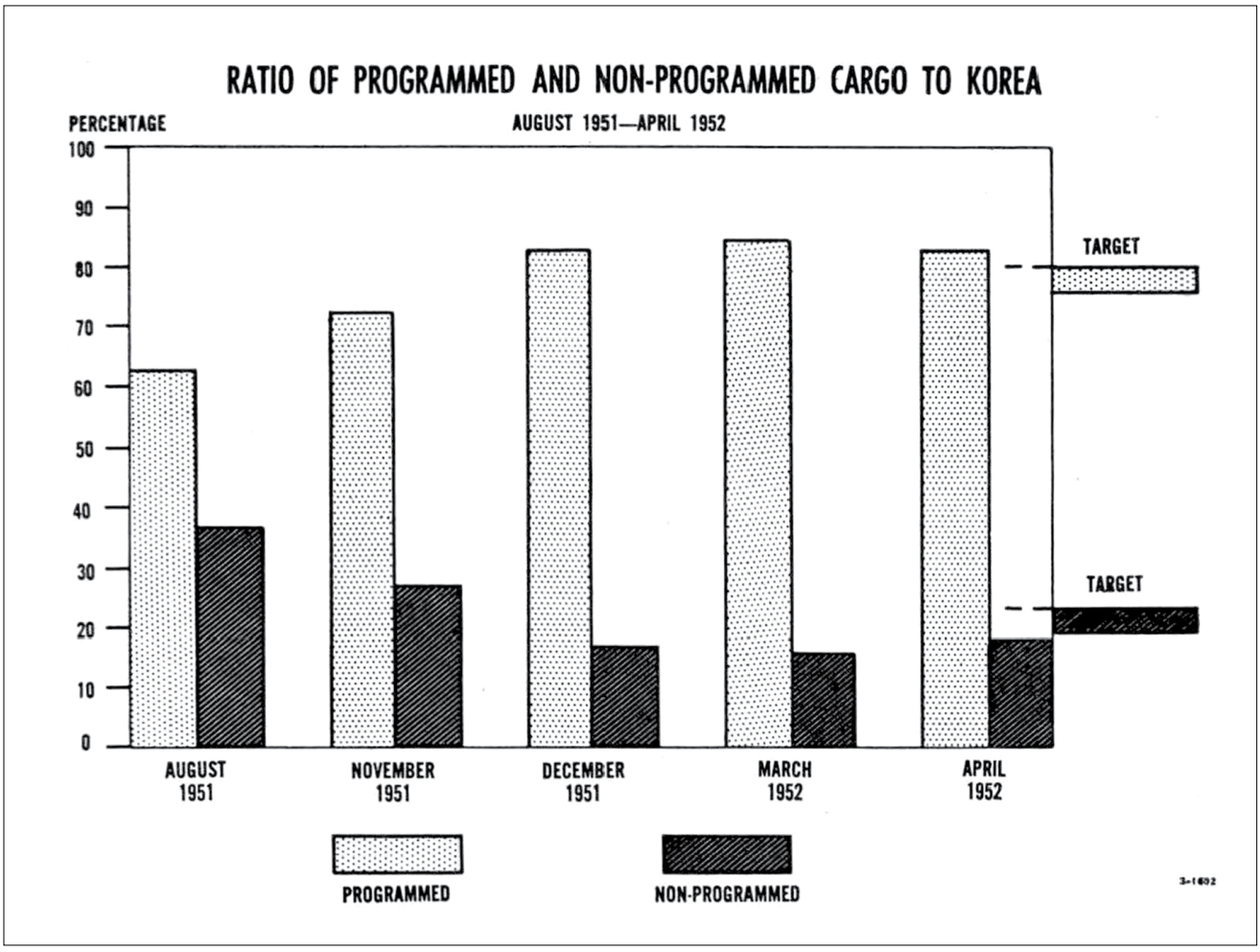
The using organizations order equipment from supply agencies in Korea who in turn notify JLC's supply agencies of their needs. The orders are consolidated and catalogued by service, class of supply, quantity, present location of stocks, and final destination. Separate consolidations, or summaries, are submitted for shipments from Japan to Korea, and for anticipated deliveries from the United States to Korea during a designated 15-day delivery period. The summaries are turned over to the JLC transportation officer for action.

The transportation officer plans shipping movements, tonnages, and port calls for cargo and shipping. By the use of JLC's calendar he can plot the answers to the maze of facts, figures, and shipping requirements before him, preparing a sound, all-inclusive movement program that will start gears turning, and equipment rolling.

First, contacts with Korean ports are made. What are the present, and the future, port capabilities? What are the physical facilities of the receiving agencies to unload ships, and the capacity of depots to store cargo? What plans are being made to move cargo out to front-line units immediately after delivery?

Second, Japanese ports which are expected to take part in the cycle are consulted. The amount of tonnage that these ports can process during the given cycle period is computed and charted.

With the full capacities of the Korean and Japanese ports before him, the transportation officer refers to his shipping charts. Tonnage, requested by technical services on a bulk basis, is transformed to tonnage-per-type cargo, in view of the limited processing abilities of Korean ports.



Finally, liaison with the Military Sea Transportation Service establishes the number of ships that will be placed at his disposal for the operation.

Movement Program

On the basis of the assembled information the "movement program" is published. The program contains all the essential elements necessary to start cargo rolling from supply depots to cargo ships, and from cargo ships to Korean ports. Schedules, shipping requirements, types and quantity of cargo, point of origin, and destination are then established.

After publication, a conference with Army, Navy, Air Force, and Military Sea Transportation Service representatives is called. Difficulties are ironed out, last-minute changes are made, and a supplement to the movement program, reflecting the changes, is published.

After the conference, the "movement" goes into high gear. Copies of the program supplement are rushed to all concerned. The program is the go-ahead signal for many impatient men with a job to do. The program is the *work order* and JLC's machinery begins to hum. The printed program:

1. Serves as a request to the Military Sea Transportation Service so that shipping space may be provided for the movement of cargo.
2. Authorizes supply agencies in Japan to book cargo at appropriate ports for shipment to Korea.
3. Directs ports to accept bookings from supply agencies in Japan.
4. Directs ports to effect the timely shipping of equipment.
5. Informs ports in Korea and receiving depots of their forthcoming workload.

As soon as the loading of cargo is completed at ports in Japan, information governing the movement is relayed to Korea, to permit planning for its reception.

Co-ordination is the byword of the entire program. The ground work is finished. With co-ordination, the job of transporting, processing, and loading for shipment will carry the supplies through to the men at the fighting front. Troops now receive their supplies at the specified time. The best equipment the world has to offer now flows smoothly through supply channels to ships, to ports, to depots, and to the United Nations fighting man; and JLC is constantly improving the program through the introduction of new methods and procedures.

Logistics men point out that at the present time all classes of supply (excluding perishable goods) are moving to Korea on a "programmed" basis. Some 83 percent of all goods shipped are moving in accordance with a preconceived plan. Improved vessel utilization, better stowage efficiency, and faster turn-around time has resulted in more supplies being shipped in less time.

The costly Red Ball express (a premium service combining expedited rail and truck delivery to Japanese ports, then by connecting cargo ship to Korea) has been reduced to a minimum.

The establishment of additional ports and unloading beaches in Korea has resulted in a substantial increase in the amount of goods that can be shipped.

Estimated Savings

With the program in full force, approximately 50 percent of all supplies are now programmed from the United States directly to Korea. This direct support results in an estimated savings of $465,000 each month for the taxpayer.

The suspension of expedited service (rail, truck, and ship) made possible through the movement program has resulted in an additional savings of $135,000 a month.

Cargo ships now travel with full holds and carry emergency equipment on top decks. The jam-packed and efficient utilization of all storage space now nets a savings of approximately $215,000 a month.

Totaled together, the savings effected by JLC's programmed movement amount to almost 3/4 million dollars each month.

Moreover, logistical support for Korea has become, for the most part, a routine process, whereas prior to programming it consisted of a continuous series of crises.

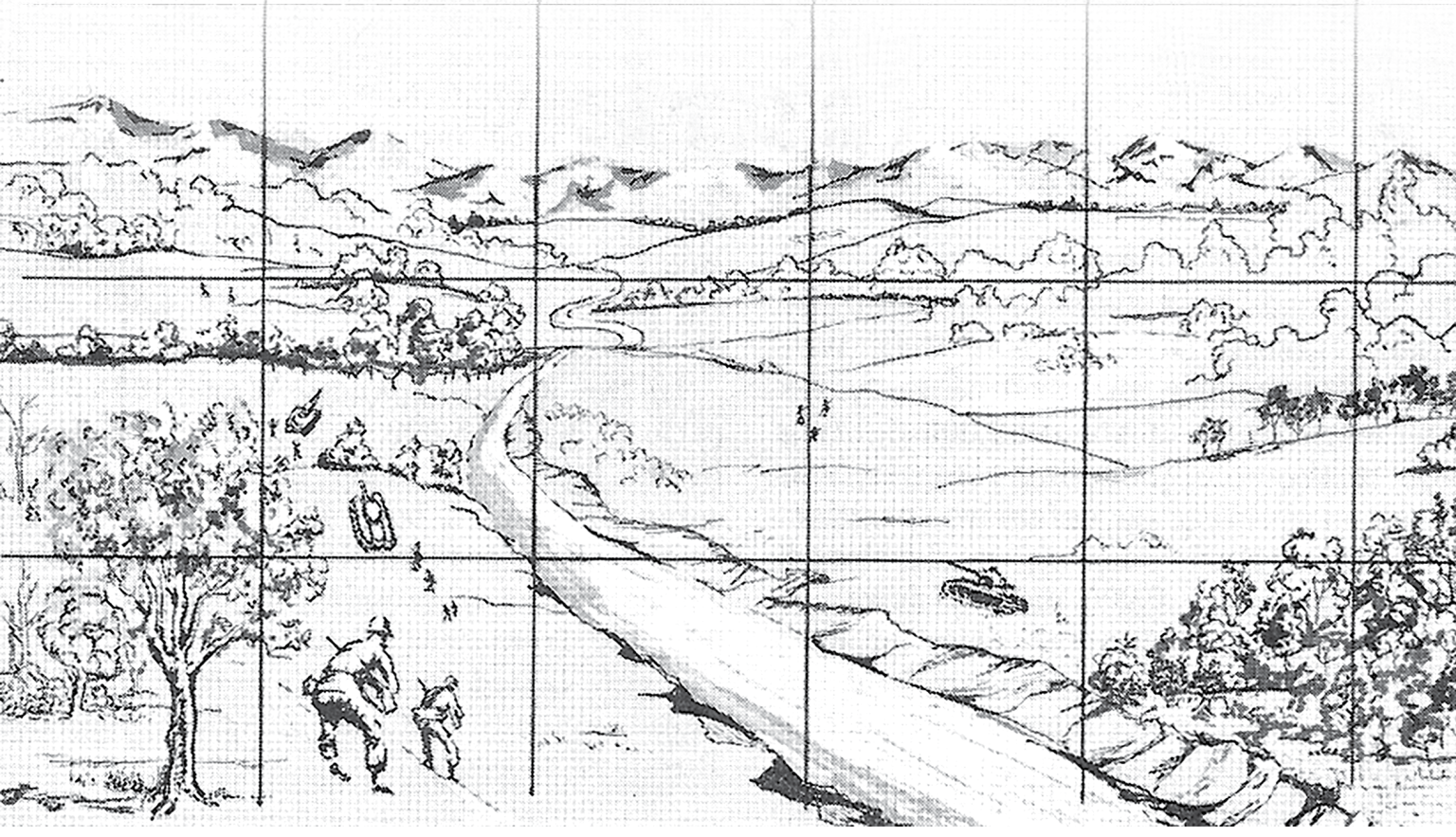
Our victory in World War II and our successes in Korea were dependent on mobility and fire power. We acquired mobility by having available ample supplies of motor vehicles. While our fire power was dependent on reliable and accurate weapons supplied with adequate quantities of ammunition, it was equally dependent on the means of getting the ammunition to the men who could use it at the time they needed it—the men on the firing line.

General J. Lawton Collins

To view "Supplying United Nations Troops in Korea" as it was originally published in April 1953, visit https://www.armyupress.army.mil/Portals/7/military-review/Archives/English/JF-22/Original/Kirby.pdf.

The Ratio of Troops to Space

B. H. Liddell Hart



Some 30 years ago T. E. Lawrence—better known as Lawrence of Arabia—urged me to do a study of the ratio of force to space in war, his own conclusions being that it was of basic importance and contained the clue to many of the puzzles of military history. I have never found time to do a full exploration of the subject, but in my researches have been impressed repeatedly with its significance, particularly in its bearing on the prospects of attack and defense.

Recently I have been prompted, by some other work I have been doing, to summarize and analyze the evidence on this basic matter during the last century and a half—but more particularly on the two World Wars. It is a subject which ought to be much more fully explored.

One significant point which emerges from the initial analysis that I have made is the crucial importance of the time factor in relation to the ratio of force to space. A second is the significance of the ratio between the mobile reserves and the forces holding the front.

For at least a century and a half the number of troops needed to hold a front of any given length securely has been declining steadily. In other words, the

defense has been gaining a growing material ascendancy over the offense. Even mechanized warfare has brought no radical change in this basic trend.

Looking at the experience of great armies since 1800, the first general conclusions may be drawn from the Napoleonic Wars. At that time a ratio of about 20,000 fighting troops to the mile, including reserves, was normal in holding a defensive position. That was the ratio of Welling three-mile front at Waterloo. Two days earlier Blücher had tried to hold a seven-mile front at Ligny with 12,000 to the mile and was defeated by a force slightly smaller than his own.

Ratio Changes

The numbers had dropped substantially 50 years later in the American Civil War of 1861-65. During the first three years of the war a ratio of about 12,000 fighting troops to the mile, including reserves, was normal in holding a defensive position. Later, as methods of defense developed, it was found that 5,000 men or fewer to the mile could withstand an attacker with double that strength. Lee's army held out for nine months in its long stretched line covering Richmond and Petersburg until its ratio fell below 1,500 to the mile.

The Franco-Prussian War of 1870 was decided by strategic and grand tactical maneuver before there could be any marked change of ratio. The figure of 12,000 to the mile was, therefore, normal in holding a defensive position. In the early battles, such as Gravelotte, however, the increased power of defense due to better firearms became very obvious.

In the South African War (1899-1902) the Boers—with magazine rifles and a high standard of shooting—repeatedly succeeded in repelling attacks by much larger British forces with a ratio of only 600 to 800 men to the mile. At Magersfontein the Boers had only 5,000 men on a front of six miles, and at Colenso only 4,500 men on a front of seven and one-half miles.

In the Russo-Japanese War (1904-5) a ratio of about 8,000 to the mile developed in the later and larger battles. These became protracted both in time and space. In the final great battle at Mukden, where each side had a strength of just over 300,000, the front was 40 miles long, and the struggle lasted two weeks before the Japanese extending flank leverage led the Russians to retreat.

World War I, 1914-18

The First World War provides many instructive situations. After the trench deadlock developed in the autumn of 1914, the Western Front stretched from the Swiss frontier to the Channel coast—approximately 450 miles along the curving contour of the trench line. During 1915, when the Germans were on the defensive in the West, they held this front with an average of 90 divisions. This was a ratio of one division for every five miles of front, or about 3,500 men to a mile. The last 100 miles at the eastern end, along the Vosges and the old fortress line, was regarded by both sides as unsuited for attack and was thus more thinly held. On the main stretch, therefore, the ratio was about one division for three miles of front (6,000 men to the mile).

The divisions actually holding the line had fronts of four to six miles in width (4,500 to 3,000 men per mile). With this ratio of troops to space, the Germans successfully repelled all the Allied attacks. Yet in the great autumn offensive of 1915 the Allies, with a total of 140 divisions (an over-all superiority of three to two), managed to strike with an initial superiority averaging five to one on the sectors where they attacked.

As the war continued, both sides raised more divisions while increasing their scale of artillery support. In 1916 the Allies' strength on the Western Front was approximately 160 divisions against the Germans' 120; in 1917 it became 180 divisions against 140. But although the Allies made slightly deeper dents in the front, they failed in all attempts to break through it and generally suffered much heavier losses than the defenders.

New German Tactics

In 1917 the Germans developed new tactics of defense, using their increased number of divisions to give it greater depth. They aimed to have a division in

An analysis of the ratio of force to space, considering the important time element, indicates that a NATO force of 26 mobile divisions, properly deployed, would be reasonably good insurance against sudden attack.

reserve behind each division in the line, and only one-third of each frontline division was posted in the forward position. The Allies' method of long preparatory bombardment forfeited surprise and gave the Germans the chance to adjust their dispositions to meet the threat. On threatened sectors the defenders' ratio of troops to space now was often as much as one division to a mile. This was almost the Waterloo ratio of 20,000 men to a mile—although in the frontline itself the ratio was only 2,000 to 3,000 men to the mile.

With the collapse of Russia in 1918, the Germans were able to bring larger reinforcements to the Western Front. They took the offensive with 190 divisions against the Allied 170, a superiority of little more than 10 percent. By an improved technique of attack the Germans succeeded in driving deep wedges into the Allied front. But they never succeeded in pressing the exploitation far enough to achieve a complete breakthrough and produce a general collapse of the front.

The deepest and most dangerous penetration was in their first offensive, against the British right wing in March. They drove forward 40 miles in a week before being checked just short of Amiens. But at this time there were no adequate means of maintaining momentum in exploiting a penetration, because infantry was too slow and horse cavalry too vulnerable.

The initial success of the German breakthrough has been ascribed generally to the exceptional thinness of the defense on this sector held by the British Fifth Army. But that explanation does not stand up under analysis. The divisional fronts where the breakthrough occurred on 21 March were no wider than those of the Third Army at Arras, where the Germans' next heavy blow was repulsed a week later on 28 March. (On both sectors the forward divisions had fronts of about three miles apiece—which was considerably narrower than the average of the German and French.) The most significant difference in the assault conditions was the fog that cloaked the first assault, and the absence of fog when the Arras assault was launched.

But once the breakthrough was made, the Fifth Army was handicapped in checking it by having a lower ratio of reserves than the Third Army at Arras and the two other British armies farther north. There were only three divisions in reserve (apart from three cavalry divisions) behind the Fifth Army's sector of 40 miles, whereas 15 were in reserve behind the remaining 80 miles of the British front. That was the basic flaw in Haig's dispositions.

Once the German attacks of the spring and early summer had been checked, the scales of battle were decisively turned in the Allies' favor by the swelling stream of American reinforcements. Summing up the failure of the German attacks and the autumn success of the Allies, the British Official History of the campaign on the Western Front reached the conclusion that:

Even against the right wing of the Fifth Army, where the numerical superiority of the Germans was greatest, it was not sufficient to break through. … Armies even of the highest fighting capacity cannot make up for inadequacy of numbers by the valor of their troops or by the novelty and brilliance of their tactics; in a conflict between forces of the same standard of skill, determination and valor, numbers approaching three to one are required to turn the scale decisively, as they eventually began to do in the autumn of 1918. … The German efforts with insufficient numerical superiority only produced dangerous salients.

A large local superiority was often achieved during that war—even as high as 16 to one (by the British at Neuve Chapelle)—but there was no existing means of maintaining momentum long enough to attain a complete breakthrough. In the autumn of 1918 the Allies' over-all superiority of three to one in fighting strength enabled them to develop a multiple leverage and push the Germans out of successive defense lines, taking large quantities of prisoners in each assault. Yet even at the time Germany was driven to appeal for an armistice, and the Allied commanders discussed its terms, Haig frankly admitted:

Germany is not broken in a military sense. During the last weeks her armies have withdrawn fighting very bravely and in excellent order. Therefore … it is necessary to grant Germany conditions which she can accept.

World War II

On 10 May 1940 the Franco-British forces available to defend the 400-mile stretch of the Western Front amounted to the equivalent of 111 divisions—*a ratio of one division to three and one-half miles of front.* That was a more favorable ratio of force to space than when defense prevailed over attack early in World War I. The German attack on Belgium added a further 22 divisions to the Allies' total, raising it to 133 without lengthening the front. Moreover, the Germans employed eight divisions in their subsidiary and divergent attack on

Holland, so that their total for the offensive on the main front was reduced to 128—a total slightly less than that of the Allies.

However, the Allied High Command, under Gamelin's direction, reacted and retorted to the German offensive in a way that threw its own dispositions off balance. Immediately putting into operation Plan D (which had been framed in the autumn, and dubiously accepted by the British), Gamelin rushed the Allied left wing far forward into Belgium. The force originally assigned in Plan D for this advance had been two armies (the French First and the British Expeditionary Force), but Gamelin had recently added another (the Seventh), while using one-third of the general reserve to back the advance. The total of about 30 divisions in these three armies included five of the six mechanized divisions and 15 of the 17 motorized divisions that the Allies possessed.

Weak Point

The hinge of the advance was left perilously weak—the two armies holding the French center having a total of only 12 divisions to hold nearly 100 miles of front facing the Ardennes. Worse still, they were ill-equipped in antitank guns and artillery, while the front itself was poorly fortified.

Four armies were kept on the right wing behind the heavily fortified Maginot Line. Together with the garrison of the line, and the part of the general reserve placed in this quarter, they amounted to the equivalent of more than 50 divisions. Only about 10 divisions of the general reserve actually were disposable—*and they were not a mobile reserve.*

The fatal miscalculation by which the weak French center was left exposed to attack by the strong German center (46 divisions in three armies) was due to:

1. The Allied High Command's longstanding delusion that the Ardennes was "impassable" for mechanized and motorized forces.
2. The confident belief that if the Germans did try to advance along that unlikely path, they would have to pause on the Meuse line to bring up heavy artillery and the mass of their infantry, and thus could not mount such an assault until the ninth or tenth day—thus allowing the Allied High Command ample time to move reserves to that point, and repel the German assault when it came.

Two factors were instrumental in upsetting these calculations.

1. The Germans recently had decided to use three mechanized spearheads (comprising seven of their 10 panzer divisions) in this difficult sector as likely to be the line of least expectation.
2. Those spearheads attacked the Meuse line as soon as they reached it, on the fourth day (13 May), and two of the three succeeded in forcing a crossing immediately (although the German High Command had previously shared the Allied High Command's view that an effective assault could not he mounted until the ninth or tenth day). The principal and decisive thrust was that of Guderian's corps of three panzer divisions at Sedan which was supported by a massive divebombing attack from the Germans' much superior air forces.

Once the Meuse line was pierced, and the spearheads broke out to open country, *their mechanized mobility formed the means of maintaining momentum* in exploitation, until the Channel coast was reached and the Allies' lines of supply cut—thus producing the collapse of the Allied left wing armies, and leading to the collapse of France.

At each stage of this exploiting drive, the Allied countermoves were ordered too late and carried out too slowly to have a chance of saving the situation. It was the Allies' failure to realize the tempo of mechanized operations, rather than a deficiency in the means, that proved the decisive factor.

An understanding of this new *tempo* could easily have foiled the German breakthrough—for the Allies at the start had six mechanized divisions (with two more available) and 17 motorized divisions against the Germans' 10 mechanized and seven motorized. There also had been ample time beforehand to block the German approach routes with mines, or even by the simple device of felling the trees along the forest roads. through the Ardennes to the Meuse—a proposal that was urged on the French High Command but rejected on the ground of keeping the routes clear for their own cavalry's advance.

It was not the Germans' superior concentration of numbers on this sector that produced the result. That fact is very clear. Both the break-in and the breakthrough were achieved by the small fraction of mechanized divisions *before* the mass of the German infantry divisions, marching on foot and with horse transport, came into action.

Moreover, although mechanization and motorization offered a *potential* advantage in rapid redeployment of force to achieve local superiority of force, that type of strategic mobility did not play any important part in the 1940 breakthrough. No such sudden relocation of force took place until after the Meuse line had been pierced, and then only by two mechanized divisions which had been transferred from the German right wing to reinforce the seven that had already broken through and were sweeping on to the Channel coast in their exploiting drive.

Subsequent Developments

With the understanding of the tempo and conditions of mechanized warfare, it soon became evident that no radical change had occurred in the basic trend of land warfare in this century and the last toward a growing material ascendency of defense over attack, *pari passu*, and thus toward a diminishing ratio of force to space required to hold a front securely.

The first evidence was provided in North Africa by Rommel's frustration in his attacks on Tobruk in April and May 1941. Here, the 9th Australian Division, with one extra infantry brigade and two small tank regiments—a total of 24,000 fighting troops—held a poorly fortified perimeter of 30 miles (only 800 men to the mile). Yet it succeeded in repelling an attacking force of two German divisions (both mechanized) and three Italian divisions (one mechanized).

In the attacks launched by the British and Axis forces, in turn, during the next 12 months of the North African campaign, there was always an open desert flank for outflanking maneuver. In that way only was success achieved—while several times reversed by counterstroke.

A very clear test of defense against attack, without a wide open flank, was provided by the Battle of Alam Haifa at the end of August 1942, and the 2d Battle of Alamein in October.

In the first case, Rommel's attack suffered a severe repulse from Montgomery's defense with a force of similar strength.

In the second case, Rommel defended a length of nearly 40 miles with a fighting strength of 27,000 Germans and 50,000 Italians—a ratio of 2,000 to a mile of front. In terms of normal-scale divisions, the ratio was equivalent to one division for every eight miles of front (and for those in the line, a ratio of one to every 16 miles).

Montgomery, now greatly reinforced, attacked this thin (but well-mined) front with a superiority of eight to one in fighting troops over the Germans—three to one over the Germans and Italians combined—and six to one in effective tanks. Yet even with this immense superiority, the attack succeeded only after 13 days' struggle, and by sheer attrition—losing three times as many tanks as the defender in the process of wearing down the defender's tank strength to the vanishing point.

Normandy

In the Normandy campaign, analysis shows that Allied attacks rarely succeeded unless the attacking troops had a superiority of *more than five to one* in fighting strength, even though they were greatly helped by complete domination of the air (which at least doubles the value of ground forces, and in some staff calculations has been reckoned as trebling it). In some cases, attacks failed with odds of nearly 10 to one in their favor—as in Operation *Bluecoat*, the ably planned breakout attempt by the British Second Army near Caumont on 30 July 1944 to coincide with the American breakout thrust at Avranches. The 10-mile sector attacked was held by one depleted German division. Yet the massive blow failed to overcome the thin defense except on the western part of the sector, and even there it was checked on the third day when meager tank reinforcements at last began to arrive on the German side.

Captain B. H. Liddell Hart, one of the world's most prominent military authorities and writers, was born in Paris and received his education in England, first at St. Paul's School and then at Corpus Christi College, Cambridge, where he began to study history. Entering the King's Own Yorkshire Light Infantry at the outset of World War I hostilities, he went to France in 1915 and took part in the battles of Ypres and the Somme where, in 1916, he was seriously wounded and a victim of poison gas. He was placed on retired pay in 1924 and has been military correspondent of the London *Daily Telegraph*, London *Times*, and military editor of the *Encyclopaedia Britannica*. As advisor to the War Minister in 1937-38, he planned the modernization of the British Army and the redistribution of the Imperial Forces. He is the author of numerous volumes dealing with military history, strategy, tactics, and the general policy of national defense.

During much of this time the defender's ratio of force to hold the 80-mile stretch of the Normandy front was only equivalent to one normal-scale division to eight miles on the average. Once the breakout was eventually achieved, after eight weeks' struggle, the German reserves were so scanty and the space for outflanking maneuver so wide that the Allied armies were able to advance almost unhindered, especially on the right or inland wing. Their progress was all the easier because the bulk of the German divisions, unlike the Allied divisions, were not even motorized. However, when the approaches to the Rhineland were reached, the Allies were brought to a halt and kept at bay by the heterogeneous forces that the German Command scraped up. These improvised forces succeeded in holding frontages wider than had ever before been thought practicable. Thus the war was prolonged unexpectedly for a further eight months.

Eastern Front

On the Eastern Front the Russian armies, in their turn, had been disrupted by the deep and swift thrusts of the panzer forces in the summer of 1941. Before the year ended, however, they were learning how to check these thrusts, and in 1942 developed the appropriate countertechnique.

When the Russians' renewed and increasing reserves enabled them to change over to the offensive, they were faced by opponents who knew the technique. Even though the Russians benefited from the exceptionally wide space of the Eastern Front, the defense repelled attacks delivered with a superiority of seven to one, or even more. Moreover, the German panzer divisions, by virtue of their mechanized mobility, often succeeded in covering and defending frontages up to 20 miles against very heavy odds.

Analysis of the basic data of the campaigns in World War II point to conclusions very different from the surface appearance of events. They have an important bearing on the present defense problem of the North Atlantic Treaty Organization (NATO) in face of the Soviets' great superiority of numbers.

Other Factors

It is, of course, obvious that any numerical calculation of strength—in divisions or men—is subject to a variety of other important factors, particularly equipment, terrain, area, communications, training, tactical methods, leadership, *and* morale. These factors are far more variable, and thus more difficult to calculate, than numbers or length of front.

The obvious difficulty presented by such "variables" was always brought up as an insuperable objection by the general staff whenever the idea of operational research, based on the method of quantitative analysis, was urged in the years before World War II. Yet once it was accepted and belatedly started, its value came to be appreciated amply—first by the air staff, then by the naval staff, and eventually by the general staff. The practical benefit of quantitative analysis of the quantitative factors became very clear and was not impaired by the "variables" in any such degree as had been imagined.

It is worth bearing this experience in mind when considering the possibilities of a "force to space ratio" analysis. Everyone who has to make plans in war or exercises, from the Supreme Command down to the platoon leader, actually works on a "force to space" calculation—but it is a rough "rule of thumb" calculation in which the *norm* is apt to be a product of custom and habit. It is desirable to replace that hazy proceeding by a norm derived from scientifically analyzed data—a better basis on which to make suitable allowance for, and adjustment to, the variables.

If such a basis had been worked out before the last war, it would have been a check on such a fatal miscalculation as was made in the distribution of the Allied forces on the Western Front in 1940 and apportioning the fraction that covered the Allied center on the Meuse.

By the middle of the war the need for a norm as a basis of calculation came to be recognized, and a broad guidance on force ratios was formulated in the official manual on *Umpiring*. However, it needs to be reexamined, clarified, and more fully defined.

Important Qualifications

In calculating the scale of force required for defense, it is necessary to emphasize, and keep in mind, three important qualifications to the evidence about the comparative power of the defensive and the offensive—as a safeguard against overoptimistic estimates of what will suffice.

The first qualification is that the offensive potentially carries one unique advantage. If the attack is made unexpectedly and with sustained speed of followthrough,

it may split a slow-responding defense so deeply and disintegratingly as to *paralyze* resistance, annulling the comparative balance of numerical strength. Defense, however effective, can never produce such a catastrophic collapse of the enemy as does this tactical and strategical "fission-effect" of a sustained speed attack.

The second qualification, arising from the first, is that any calculation of numbers is dependent upon the standard of *performance*. The basic advantage of defense can be ensured only if a defense has adequate flexibility and mobility—the primary condition being that the defender has a clear understanding of the attacker's technique and its tempo. Lack of such understanding was the principal cause of the Allied disasters in 1940. The time factor is of crucial importance in relation to the ratio of force to space.

The third qualification is that the wider the front, relative to the forces, the more scope the attacker has for maneuver and thus the more chance to find gaps that he can penetrate in the opposing network of fire. Although on the Eastern Front the Germans often defeated setpiece offensives on sectors where the Russians had concentrated a seven to one superiority of force, the Russians usually succeeded in finding penetrable stretches somewhere on the front when their *over-all* superiority had risen to about three to one.

NATO

With the NATO forces it would be unwise to reckon that they could hold their own with as low a ratio as that on which the Germans managed to do, particularly in view of the NATO mixture of nationalities, different training systems, and other handicaps. However, if their forces had a ratio of two to three, that should be a safe insurance against a sudden attack, provided that they attain adequate mobility and flexibility. At present they are not adequate in these essential qualities, and this deficiency is more important than lack of numbers.

To have any real chance of repelling a sudden high-speed attack, the "shield force" must be composed of fully mobile divisions, always ready for immediate action, and highly trained. It is folly to imagine that it would be possible with forces of short-term service, even if their numbers were doubled or trebled. The need cannot be fulfilled unless the "shield force" is composed of professional troops or long-term conscripts—two years' service would be the minimum for the purpose. It would be best, and probably more economic, that all the divisions in the "shield force" should consist entirely of long-service Regulars.

The Soviet forces in Eastern Germany comprise 20 mobile divisions. Therefore, a NATO strength of about 13 ready-for-action Regular divisions should be able to check a sudden attack by this force without resorting to nuclear weapons or yielding ground. It would be better able to check such an attack than the present NATO shield force of 21 divisions which is handicapped by its large proportion of short-service conscripts.

Intelligence experts consider that the Soviet forces might possibly be raised to 40 divisions within about 10 days, although it would not be easy to bring up such a large reinforcement without being detected, thus giving NATO warning and time for countermeasures. Even if the Soviet striking force was thus doubled, a NATO force of 26 Regular divisions should suffice to keep it in check; or alternatively, 20 Regular divisions and a German citizen militia equivalent to 10 divisions, organized and trained for static or locally mobile defense.

Such a combination would be a much better shield than the 30 present type divisions of short service conscripts, mixed with Regulars which the existing NATO plan aims to achieve. It could be more immediately ready for action, more efficient in performance, and more truly economic.

If a surprise attack were promptly checked, it is unlikely that the incursion would be continued. Its chance of success in producing a *fait accompli* would have vanished, while persistence in it would hour by hour increase the risk of detonating a nuclear war which would nullify the aggressor's *object*. Moreover, according to authoritative estimates, the maximum strength to which the Soviet force on this front could be built up logistically, even after a month, is 60 divisions. In defense a NATO force of 40 divisions should suffice to keep that number in check and *without the use of nuclear weapons*. Such a strength can be attainted within a month of mobilization even under present NATO arrangements.

Therefore, there is a good insurance against the most unlikely contingency of a massive invasion if the training and organization of the NATO forces matches that of its opponents. The basic requirement is an improvement of qua1ity rather than an increase of quantity.

It may be argued that a shield force on a two to three ratio, although a good insurance in relation to the Soviet forces on the NATO central front, would not be adequate with regard to space because of the width

of that front. A fuller examination of this aspect of the problem may help to clarify the issue. In such an examination there are two key questions:

1. What is the *tactical minimum* of troops necessary to cover and control a given space?
2. What is the *strategical minimum*?

Tactical Minimum

The first question turns on a calculation of the extent of space that troops armed with modern weapons, other than nuclear ones, can cover with a closely interwoven network of fire. In examination, it soon becomes evident that the ratio of troops to frontage customary in recent wars, and in conventional military doctrine, does not correspond to the ratio of development in weapons during the last 100 years, and in their capacity to cover an area with a sustained downpour of fire.

Nearly a century ago, in the later stages of the America Civil War, Lee's army kept Grant's greatly superior numbers in check for many months until its strength fell below 1,500 men to the mile. More than half a century ago the Boers with a strength of only 600 to 800 men to the mile repeatedly succeeded in repelling attacks by British forces which vastly outnumbered them. Weapons have developed so immensely since then in range and power that it is hard to see why the *tactical minimum* considered necessary and customary in practice has not been adjusted proportionately.

Is there any reason other than custom fostered by caution? The surmise that this is the real explanation tends to be confirmed by examination of operations in both the First and Second World Wars. It is evident that attacks were often checked by small detachments or remnants that were heavily outnumbered, whereas attacks succeeded in many cases where the defenders were far more numerous relatively to the frontage. The contrast suggests that a buildup of the defense to the level suggested by custom and caution often aided the attacker by presenting him with a much increased target and one easier for him to destroy by concentrated fire.

There is abundant evidence from the last war to show that German divisions of depleted strength often successfully defended frontages of 20 to 25 miles (30 to 40 kilometers). There also are some notable examples on the Allied side of similar performance. So it is reasonable to consider a frontage of 25 miles (40 kilometers) as within the defensive capacity of a fully mobile division of present strength as is now coming to be recognized in high military quarters. Taking account of the corps and army troops available to support a division, it represents a basic scale of about 1,000 men to the mile (600 men to the kilometer).

That scale is not much less than what proved adequate for effective defense in the later stages of the American Civil War, and more than the scale with which the Boers maintained their defense nearly 60 years ago. Thus it might be further reducible after a more thorough scientific analysis of recent war experience and weapon capabilities. Such a reinvestigation is very desirable. For a reduction of the *tactical minimum* considered necessary to provide an effective curtain of fire and "control a given space," would reduce the problem of providing the *strategical minimum*—especially in mobile reserves—to maintain a forward defense of the NATO front as a whole.

For the time being, however, it is safer to take a scale of one mobile division for 25 miles (40 kilometers) of front as the *tactical minimum*. On that basis, 10 such divisions would be needed to cover the front—between the Baltic and the Bohemian mountains—that is threatened by the Soviet forces poised in East Germany. Beyond this number, adequate mobile reserves should be available to counterbalance the attacker's power—and inherent advantage—of concentrating his effort along a particular line of thrust.

Strategical Minimum

Here we come to the question of the *strategical minimum*. Views on the subject still tend to reflect the habit of thought and its doctrinal legacy that developed in World War I. The continuous trench front that came to be established in 1914 on the Western Front, and persisted throughout the war, left a lasting impression. It was deepened by the low mobility of forces at that time. Since then there has been a tendency to assume that the entire stretch of a frontier should be provided with the tactical minimum for effective defense of every sector for their support both in forward troops and in local reserves. Thus the *strategical minimum* requirement has come to be regarded basically as no different from the *tactical minimum*.

This is a view which amounts to visualizing the extreme case, highly improbable, of having to meet a heavy attack on all sectors simultaneously, and demanding forces strong enough for defense everywhere. Its influence is apparent in suggestions and arguments that,

without the use of nuclear weapons, NATO would need a standing force of as many as 70 divisions on its central front, even against Soviet forces of lower strength.

Such a view is contrary to the facts and lessons of war experience. In all wars previous to this century, the forces engaged were very small in proportion to the front as a whole—much *smaller* than they became in the last two wars, although *denser* on the battlefield. In the wars of the 18th and early 19th centuries, a battlefield strength 20,000 men to the mile was normal, yet, countries were successfully defended with a ratio of merely 250 men to the mile, or less, on the front as a whole—a strategical ratio of forces to space that was barely more than one percent of the tactical ratio.

The following examples from the wars of the 18th and 19th centuries, when weapons were of very short range and defensive capability depended mainly on mobility, illustrate the concept of strategical minimum.

War of the Spanish Succession

In 1709-13, when the French were on the defensive, they had a field force averaging only about 100,000 men to cover their frontier of approximately 400 miles (250 men to the mile *strategically*).

Seven Years' War

In the early stages, 1756-57, Frederick the Great covered his southern front of about 400 miles with nearly 100,000 men (250 men to the mile *strategically*) against enemy forces double his strength.

Later, the enemy coalition brought its total forces in the field up to nearly 400,000 while his total rarely exceeded 150,000 (and diminished from losses during each year's campaign). With that total strength he had to cover an all-around frontage of about 1,500 miles (100 men to the mile *strategically*). Although suffering several bad reverses, offsetting his riposte successes, he succeeded in holding out until the enemy coalition dissolved in 1763.

Napoleonic Wars

In 1814, when Napoleon was thrown on the defensive after his defeat in the Battle of Leipzig, he had only 70,000 men to cover his 400-mile front in the north and northeast (180 men to the mile *strategically*). The Allied armies which crossed the Rhine to invade France amounted to 370,000 men—more than five times his strength—yet he succeeded in keeping them in check for three months.

During this period he inflicted nine sharp reverses on them before fate turned against him—when an intercepted letter revealed his plan, of moving round onto their communications, and thus encouraged them to move down the temporarily open path into Paris where their arrival produced the collapse of his regime.

American Civil War

From 1861 to 1864 the Confederates covered a front of 800 miles between the Atlantic and the Mississippi with a field force averaging about 200,000 men (250 to the mile *strategically*) and kept at bay an enemy double their strength.

The fact that it was possible to maintain an effective defense of a wide front with a *strategical ratio* of only 250 men to the mile, or less, is all the more significant because the *tactical ratio* for effective defense in open country was considered to be about 20,000 men to the mile (including local reserves) with the short-range weapons (smoothbore muskets and cannon) of the Napoleonic Wars and earlier, and about 12,000 to the mile with the improved weapons of the mid-19th century.

The immense difference between the *tactical* (battlefield) ratio and the *strategical* (entire front) ratio shows that the crucial factor in the defense of any wide front is the *time* factor. This turns not only on the relative mobility of the attacking and defending forces, but on the defender's correct appreciation of the attacker's lines of advance and the degree in which the attacker's mobility is restricted by natural obstacles, fortifications, and counterthreat.

The capability of covering a wide front with such small forces, while bringing sufficient tactical strength into action against the enemy's strategic line of advance and concentration, came from the ability to make a good appreciation of the enemy's likely routes of advance and objectives so that adequate forces could be moved there to bar his path.

It is difficult to see any good reason why this should be considered impossible now. The means of information, intercommunication, and movement are much better than in the past, and on balance they favor the defending side, increasing its chances of countering the attacker's initial advantage in surprise.

On NATO's central front it should not be too difficult to gauge an attacker's likely objectives and routes of advance. Although that front is 440 miles (700 kilometers) in extent, only the more northerly stretch of about 250

miles (400 kilometers) is suitable for surprise attack *and* rapid advance by the Soviet mechanized divisions in East Germany. Even within that northerly stretch the suitable routes are limited, and the direction of the enemy's main effort should become clear once he starts crossing the rivers near the border. Therefore, it should be possible to check him in the forward *zone*, by timely countermoves, with a two to three ratio of forces, if the NATO covering force is composed of fully mobile and highly trained divisions, and is organized with more strategic flexibility.

The more northerly stretch of nearly 250 miles embraces the front from the Baltic to the valley of the Frankische Saale inclusive, so that a forward defense of the suggested scale (10 divisions) would not only cover the northern plain of Germany, but go well-around the westward bulge of Thuringia, and cover the routes to Frankfurt across the Thuringerwald.

Behind that end of the main front is posted the bulk of the US 7th Army, and it would be natural to continue such a disposition of the mobile reserves ready to counter a thrust either toward the valley of the Main and Frankfurt, or into Bavaria. Consequently, there would be a good insurance against a circuitous approach by the Soviets across the Thuringia-Bavaria frontier. Moreover, such a dog-leg move—first southward and then westward—would entail a loss of time and diminish the Soviets' chances of sustaining the speed-surprise required for success in a sudden coup. Another drawback, from the Soviets' point of view, is that Bavaria offers no objectives comparable in importance and accessibility with those between Frankfurt and the Baltic.

Conclusion

Analysis of recent war experience tends to show that the higher the ratio of the mobile reserves to the troops holding the forward position the greater is the prospect of defeating a concentrated thrust. In past practice the divisions in mobile reserve, not tied to a particular sector, often have been less than a quarter of the entire force. Analysis of operations suggests that a half of the force would be a better proportion, even where it entails thinning the forward defense to a hazardous degree.

This is the basis I have adopted in calculation, and from it comes the suggested figure of 26 mobile divisions as the NATO requirement for a shield force capable of meeting both force and space conditions. That number would provide a defense of two to three ratio against the possibility that the 20 Soviet divisions in East Germany might be raised to 40 within 10 days. It also would provide NATO with the requisite tactical minimum of 10 divisions as forward defense there, and three for a mobile screen along the mountainous Czechoslovakian border, with 13 more as mobile reserves for the front as a whole. That would be a reasonably good insurance against sudden attack in any direction.

The required number of divisions would be somewhat less if there were a citizen militia, of the Swiss type, available to man a deep network of defense posts in the forward zone as a means of helping to delay the enemy's advance while the divisions of the mobile reserve converged upon the threatened sector. This militia would need to be so organized that the posts could be manned at short notice by militiamen living or working nearby. It also would be desirable to have such a militia available in the rear areas as a check on an enemy airborne descent to seize key points there and block the countermoves of the NATO mobile divisions.

If a militia force of this type were available for local defense, the requirement for the main shield force might be reduced from 26 to 20 divisions—that is, a one to two basis *versus* the enemy's possible maximum in a surprise offensive on the Central Europe front.

To view "The Ratio of Troops to Space" as it was originally published in April 1960, visit https://www.armyupress.army.mil/Portals/7/military-review/Archives/English/JF-22/Original/Hart.pdf.

Nuclear Weapons Employment Training

Major DeBow Freed, *Infantry*

The training of officers in nuclear weapons and their employment has fallen far behind technological advances in the nuclear field. Over 14 years have passed since the first combat use of nuclear weapons. It has been seven years since the Army achieved significant nuclear delivery capability. Yet today, such a small percentage of our Army officers have been trained as nuclear weapons employment officers that thorough and critical analysis of the policies and procedures pertaining to nuclear weapons training appears warranted.

The War Department plan for the "complete integration of atomic energy instruction into our training and school system" was outlined at the Conference on Atomic Energy held in Washington in 1946. The instruction was to be divided into three general phases:

Phase I—Orientation of senior commanders and War Department planners.

Phase II—Training of instructors at major commands and service schools.

Phase III—Instruction of personnel throughout the Army and planning for additional training as needed in the future.

Phases I and II were completed in 1946. Phase III was never initiated. This probably can be attributed to:

1. The "civilianization" of the entire atomic energy program which began in 1946.
2. The organization of the Armed Forces Special Weapons Project (AFSWP), and assigning to it the responsibility for training individuals and units for all services.
3. Continued national emphasis on the production of strategic rather than tactical weapons.
4. The absence of Army controlled nuclear delivery systems.

These factors also tended to downgrade the Army's position in the nuclear field and contributed to the general lack of urgency for nuclear weapons training.

From 1947 to 1952 the AFSWP training program, in which the Army participated, constituted the primary training effort in the nuclear weapons field. Few individuals and units of the Army were trained by AFSWP. This could be justified on the basis that the Army at that time had no nuclear capability and, therefore, required only a small number of trained personnel. In addition, the curriculums of Army service schools did not include adequate nuclear weapons instruction; they contained fewer hours on nuclear subjects in 1952 than were prescribed in 1946.

In early 1952 at Sandia Base, New Mexico, the AFSWP initiated a nuclear weapons employment course (NWEC) designed to teach the data, techniques, and procedures necessary to employ nuclear weapons. Later that same year the first Army-run employment course was conducted at the U.S. Army Command and General Staff College. The Army course was patterned in detail after the AFSWP course and incorporated directly the AFSWP system of target analysis. The course

Training of all officers in essentials of nuclear weapons employment can be facilitated by thoroughly integrating nuclear weapons instruction as a necessary and normal element of their professional education.

was eight weeks long and was relatively technical with respect to the average officer's background and probable future needs. It emphasized the technical details of nuclear weapons and target analysis rather than the broad basic knowledge of nuclear weapons and their effects. Such a curriculum did much to engender the feeling throughout the Army that nuclear weapons employment was a technical subject, filled with pitfalls for the average officer, and properly a sphere for a modern-day specialist with his slide rule.

Development of Weapons

The development of nuclear weapons and associated delivery systems progressed rapidly after 1952. By 1956 the Army could deliver nuclear weapons against an enemy with the *Corporal, Honest John*, 280-mm gun, and 8-inch howitzer. The number of employment officers available, however, was far short of that required to use the increasing numbers of nuclear weapons effectively. Additionally, a high percentage of the officers who had completed the NWEC were not assigned to tactical units or were too senior to occupy the personnel positions designated to be filled by trained employment officers. It became evident that our employment capability was being impaired seriously because the training program was lagging so far behind weapons availability.

The first substantial broadening of the nuclear weapons training program was planned for Fiscal Year 1957 when the United States Continental Army Command directed that selected branch schools expand their nuclear weapons employment coverage. The objective was to prepare combat arms officers, who were attending advanced level professional courses, to perform the duties of employment officers at division and corps level. This program was the first significant step toward training officers in sufficient numbers, at the right age, and while still in the right rank. Initially, there were problems such as the lack of adequate training literature, shortage of well-qualified instructors, and restrictions arising from security requirements. However, the program was successful and was further expanded for Fiscal Years 1958 and 1959. In Fiscal Year 1959 instruction was being presented at six branch service schools and the USA CGSC.

This review of past nuclear weapons employment training reveals that the training was essentially of a stopgap nature directed toward filling the urgent need for more employment officers. Little emphasis was placed on the broader problem of what employment training all officers should receive. Solution to this important problem requires that we take an over-all view of the training program to determine what training is, necessary and how this training can be obtained.

Level of Training

Employment training to date has affected officers at the advanced schooling level and above. The current program, which also affects this group only, is far more effective than any previous training effort. An estimated 2,200 employment officers were trained during Fiscal Year 1959, or about 40 percent of the number trained in all previous years. This rate of training for Fiscal Year 1959, if continued for three more years, should provide enough trained officers to meet the projected minimum requirement. This requirement, however, is based on a compilation of the number of staff positions designated to be filled by trained nuclear weapons employment officers. Thus it is a requirement only for employment officers considered as staff specialists. It does not include officers needed to fill the far greater numbers of command and staff positions where a high level of knowledge concerning nuclear weapons and their employment also is necessary.

Present Concepts

Under present concepts the nuclear weapons employment officer, as a staff specialist filling a designated position, accomplishes most of the planning for nuclear weapons employment. For this procedure to be successful it must be assumed that the staff effort involved in the employment of nuclear weapons can be restricted to the few officers occupying these positions in each headquarters. This is not the case. Nuclear weapons have such an

To view "Nuclear Weapons Employment Training" as it was originally published in April 1960, visit https://www.armyupress.army.mil/Portals/7/military-review/Archives/English/JF-22/Original/Freed.pdf.

influence on operations that their employment requires detailed considerations by almost all individuals involved in the command and staff process.

Virtually all Army planning is based on a greater scale of use of nuclear weapons and control of these weapons at lower levels. These trends indicate that all officers assigned to a battle group or larger unit staff should be trained to employ nuclear weapons effectively. To meet this requirement, it is believed the training program of the future must have as its underlying objective the training of *all* officers in the essentials of nuclear weapons employment. This instruction should be regarded as a normal and necessary part of the officer's professional education, not a special subject for relatively few of the officers.

The preparation of officers for the employment of nuclear weapons can be facilitated by thoroughly integrating nuclear weapons instruction into the curriculums of the service school professional courses. At the present time the nuclear weapons instruction is presented in one block at the beginning or end of the course in four of the six service schools which provide employment training. This increases the tendency to treat it as a special subject. Also, presenting the nuclear instruction after the main portion of the professional course virtually eliminates teaching practical employment considerations during that part of the course. Much teaching value is lost under these conditions.

Integrating nuclear training in the professional courses generally requires that instruction in weapons, effects, and target analysis be taught near the beginning of the course. Normally, the most advantageous time for this is during the part of the course on staff procedures and techniques, since the end product of the basic instruction—target analysis—is a staff technique. The applicatory phase of the nuclear weapons instruction, which requires use of information gained in earlier instruction, then can be included in the tactical portion of the course which follows. Such an arrangement provides opportunity for ample application of target analysis procedures, and repetitive application is necessary for student learning.

If there is a "most" important part of the nuclear weapons instruction, it is attaining realistic, practical application. Integrating applicatory instruction into tactical exercises so that the student is required to use weapons and effects knowledge previously acquired and to apply target analysis techniques is difficult. It necessitates tight curriculum control, close coordination between the agencies presenting basic nuclear and tactical instruction, and many more faculty members who are trained employment officers. Such an approach will, however, pay rich dividends in increased student understanding of the subject and should improve the student's ability to make logical decisions concerning the employment of nuclear weapons. This ability is the desired end product of the nuclear weapons instruction.

Officers from branches other than Armor, Artillery, Infantry, Chemical Corps, and Engineers have a difficult time obtaining nuclear weapons employment training. The only course such officers can attend is the NWEC and only a very small number can attend it. This lack of effective employment training is a big problem; its magnitude is indicated by the fact that officers from other branches constitute about 48 percent of the officer corps. A high percentage of these officers require knowledge of nuclear weapons employment for branch assignments in tactical units. All should have the training as an element of their professional education.

Expand Instruction

A limited amount of nuclear weapons instruction is included in the advanced level courses for the other branches at the present time. Expansion of

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this instruction at each service school appears to be the most practical and economical way of covering this void in training. The objective of the expanded training would not be to make a target analyst of each technical and administrative service officer, but, rather, to ensure that he has sufficient knowledge concerning nuclear weapons and their employment to perform his normal duties properly when the weapons are used. This requires fundamental instruction roughly comparable to that included in the current employment courses, with the applicatory phase emphasizing technical and administrative service aspects of the employment. Administrative service officers require less applicatory instruction due to the nature of their normal duties.

An important feature of any program designed to broaden the knowledge of nuclear weapons and their employment must be the desire of officers to gain the knowledge. Removing nuclear training from the specialist field and making it a practical, desirable subject is a preliminary step toward encouraging officers to train themselves. Self-teaching is an essential element of an officer's professional growth and is particularly applicable to this field. It is obviously desirable, but not essential, for an officer to attend a nuclear weapons employment course; he can train himself using the excellent current training literature available.

A large number of officers who have completed the advanced level schooling have not had an opportunity to attend an employment course. Since many of the senior officers for the next 15 to 20 years will come from this group, it is particularly important that they have adequate nuclear weapons knowledge—at least equal to that of the employment course graduates who will serve under them. This requires more than attendance at an orientation course or passing familiarity with nuclear weapons terminology. Designing and presenting a course especially for these officers is impractical. Many would not be available to attend such a course. Their needs vary greatly. Some have very limited knowledge of employment. Others—because of assignments, attendance at numerous short nuclear weapons courses, and previous self-study—have extensive knowledge in the field. The most practical way of accomplishing the training would be a positive self-teaching program monitored by a designated agency. Such a program would be more effective if supplemented by short supervised courses similar to the current refresher instruction.

Increased Requirement

Nuclear weapons for employment at battle group, or comparable level unit and lower, are expected to be available in large numbers within the next five years. The planned high density of these weapons in tactical units and the lower level of control indicate that a greatly increased number of officers will make decisions concerning their use. Consequently, many more officers, including combat arms senior lieutenants and captains, must be trained to employ these small weapons and they must be trained prior to the time the weapons become available.

The requirement for training additional personnel has to be met by an entirely new training effort since present programs do not provide for training nuclear weapons employment officers below the advanced schooling level. It is believed the best method of accomplishing the training would be to expand the nuclear instruction now included in the company/battery officer course at the combat arms service schools and selected technical service schools. The limited amount of instruction presently taught in these courses is not designed to train personnel in weapons employment. The training required is that necessary to prepare the officer for employment of the small-yield weapons. This is a lesser amount than is necessary for employment of other weapons or for staff duty at higher levels. A sample training program is shown in Figure 1.

Noncommissioned Officers

Detailed target analysis is the principal feature of the staff procedures involved in nuclear weapons employment which is not an integral part of the decision-making process. Many elements of the analysis closely parallel current noncommissioned officer functions. Detailed target analysis is an appropriate noncommissioned officer function and one which likely will evolve in the relatively near future.

Noncommissioned officers, acting as target analysts, can reduce the over-all time required to place a weapon on a target by making the detailed analysis while staff officers are involved in the decision-making part of the process. Noncommissioned officer analysts, if added to staff sections, could relieve employment officers of many functions they are now performing and permit them to concentrate on their primary duties. This would also increase flexibility of operation in normal

OUTLINE OF EMPLOYMENT TRAINING
FOR
COMPANY/BATTERY COURSES

Subject Content	*Estimated Number of Hours Required*
Army Nuclear Weapons and Delivery Systems Characteristics, capabilities, and limitations of Army systems; functioning and practice firing of battle group support weapons.	20
Nuclear Weapons Effects Coverage of effects for each type burst; response of personnel and materiel to the effects; damage criteria; medical aspects; protective measures.	14
Radiation Monitoring and Survey, Fallout Prediction Procedures used in radiological monitoring and survey; practical exercise using detection instruments; radiological prediction techniques for battle group support weapons.	10
Analysis and Selection of Targets Techniques and procedures used in the analysis and selection of targets for battle group support weapons; troop safety considerations; analysis of own vulnerability to nuclear weapons attack.	12
Staff Procedures for Nuclear Weapons Employment Staff coordination and procedures; supply and control of battle group support weapons.	3
Tactical Employment of Nuclear Weapons Tactical exercises requiring the employment of nuclear weapons under varying conditions; emphasis is placed on use of battle group support weapons.	30
Miscellaneous Foreign nuclear capability; training techniques for using either classified or unclassified data; nuclear weapons procedures above battle group level.	10
TOTAL	99

FIGURE 1.

times, and improve the ability to continue operations if hit by an enemy nuclear attack.

The training of noncommissioned officers as target analysts should begin in the service schools. The initial program should be both selective and on a modest scale. This training would require an expansion of the basic nuclear weapons instruction presented in the professional noncommissioned officer courses at the combat arms service schools. Emphasis should be placed on the techniques of detailed target analysis. A sample program is shown in Figure 2.

Training Literature

Training of personnel in nuclear weapons employment is closely related to the training literature available. The USA CGSC recently has made great strides in reducing the mass of effects data to a simplified and more usable form. Target analysis techniques and

OUTLINE OF TARGET ANALYSIS TRAINING
FOR
SELECTED NONCOMMISSIONED OFFICERS

Subject Content	*Estimated Number of Hours Required*
Nuclear Weapons and Delivery Systems Characteristics, capabilities, and limitations of weapon and delivery systems with the emphasis on Army systems; detailed instruction on fuzing and delivery accuracy.	12
Nuclear Weapons Effects Coverage of effects for each type burst; response of personnel and materiel to the effects; medical aspects; protective measures.	18
Radiological Monitoring and Survey, Fallout Prediction Procedures used in radiological monitoring and survey; familiarity with detection instruments; fallout prediction.	16
Target Analysis Fundamentals of target analysis; techniques and procedures used in analysis; practical exercises in target analysis; troop safety considerations; analysis of own vulnerability to nuclear weapons attack.	40
Staff Procedures for Nuclear Weapons Employment Staff coordination and procedures; staff record keeping; internal functioning of staff sections for nuclear weapons employment.	6
TOTAL	92

FIGURE 2.

related procedures also have been made easier. All of these improvements have been incorporated in the training literature on nuclear weapons employment. For the present, the improved training literature permits teaching the effects and target analysis portions of the employment course in about the same time required to teach them in the past, despite the approximate tripling of effects data available in the last five years and the addition of several elements in the analysis of targets which were not previously considered. For the future, the simplified data and procedures, when further refined, promise relatively large saving in time and will make the material much easier for the student to understand. The improved training literature probably will contribute more to the teaching of nuclear weapons and to simplifying their use in the field than any other development in recent years.

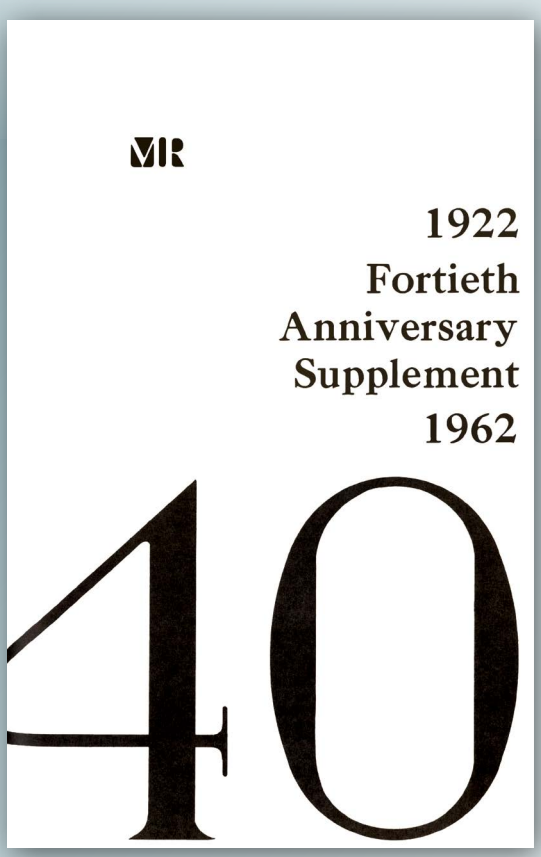
The time required to train a nuclear weapons employment officer has been reduced from eight to five weeks during the last four years. This reduction has been made in the face of an increasing number of weapons in stockpile and much more data concerning effects with which the student must become familiar.

Trends indicate the training can be accomplished in still less time in the future. The nuclear weapons systems are approaching a height of complexity and, during the next two to five years, will begin to be simpler. Training literature not only is being vastly simplified, but also much more of it is available in unclassified form.

Expansion of the training effort in four areas has been discussed:

1. For officers who have completed an advanced course but are not qualified as employment officers.
2. In advanced level courses other than the six which now include sufficient employment instruction.
3. In company/battery officer courses.
4. For selected noncommissioned officers of the combat arms.

On the surface this apparently amounts to the familiar plea for more, more, more training in the subject being discussed. It is believed that more training is necessary in the next five years since we *must* have an adequate number of persons trained to employ the weapons we now have and those we soon will have. Over a longer period (next 15 years) the proposals outlined herein should require less total training than is necessary under our present system. The training will be started earlier in an officer's career. This, when combined with frequent application of the knowledge in normal training exercises, will permit less formal instruction at the advanced level and above. As more of the material becomes common knowledge because of broader dissemination, less repetitious instruction will be necessary. The greatly improved training literature and simplified data and procedures also should contribute significantly to the long-range reduction of the over-all training effort.



The February 1962 issue of *Military Review* contained a fifteen-page "Fortieth Anniversary Supplement" featuring an article titled "The First 40 Years" by Arvid Shulenberger. To view interesting facts and milestones included in the first forty years of *Military Review*, visit https://www.armyupress.army.mil/Portals/7/military-review/Archives/English/40th-Anniversary.pdf.

Cultural Engineering

Theodore R. Vallance
Charles D. Windle

In earlier days individual combat skills frequently played the decisive role in warfare. But war has grown in size and magnitude, evolving from conflict between individuals to battles between tribes, to combat between nations, to global warfare between alliances. Technology has developed more effective mechanisms for firepower, communications, and mobility. Man has had to mediate his skills through larger organizations, and by means of more complex equipment.

Almost since the end of World War II, the United States has been in a technological race with the Soviet Union, a race that has focused primarily on the development of equipment with ever-increasing capabilities.

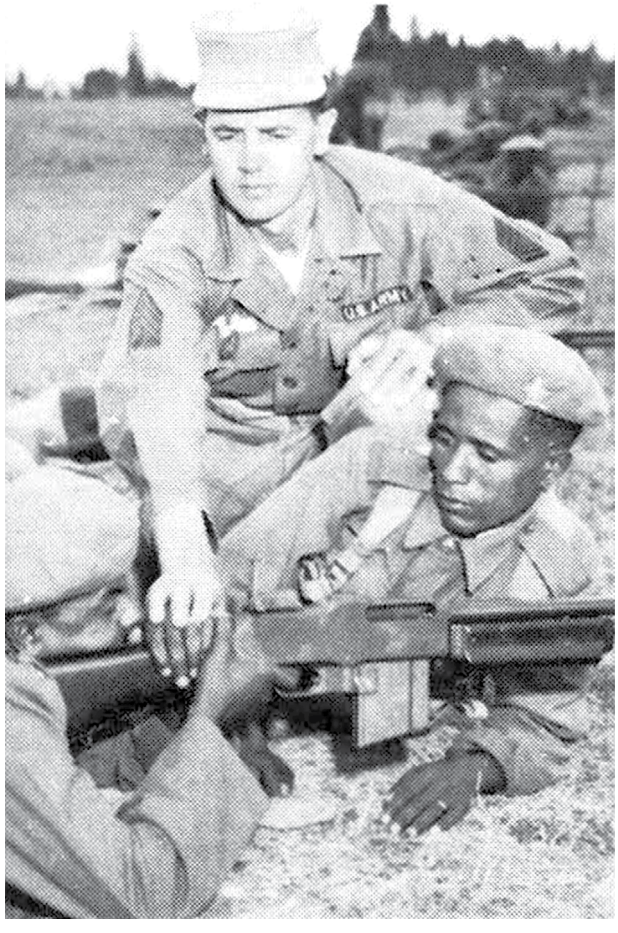
Unfortunately, the improvements in equipment were not accompanied by similar developments in the utilization of human beings. The increased complexity of weapons systems aroused dismay that the skills required to operate the systems might exceed the capabilities of the available personnel. A new type of specialist, the human engineer, has emerged to cope with these problems.

Just as human engineering arose in response to the increasing complexity of military equipment, so a new function—cultural engineering—is today being required because of the growing complexities involved in the worldwide Military Assistance Program. The complexities stem less from an increase in the extent of the military assistance operations than from a shift in the character of those operations.

Military Assistance Program

In general, the Military Assistance Program has gone through five distinct phases since the end of World War II:

- Immediately after the war, from 1945 to 1947, foreign aid was directed largely toward providing countries relief from wartime damage. The first of the military assistance postwar programs was begun in the Philippine Islands in 1946, and this was only a modest program designed to complement the war damage aid.
- The intensification of cold war hostilities during 1948-50 led to the extension of foreign aid from relief to recovery, from consumption to productivity and investment. Geographically, the program centered in western Europe. Due to the spread of communism for reasons which seemed primarily



nonmilitary, the economic aspects of foreign aid were emphasized. Thus the Mutual Defense Assistance Program was designed primarily to furnish tangible support for NATO.

- The beginning of the Korean War saw a great rise in the military assistance aspects of foreign aid. In contrast to the mainland China experience, our vulnerability in Korea seemed to indicate that economic aid was in itself insufficient to counter external attack. Therefore, the Mutual Security Act of 1951 gave primacy to military considerations, still mainly to the European Continent.
- From 1955 to 1961 we saw the era of "competitive coexistence." There was a reduction in the level of military aid. Throughout this period, too, there was a shifting of emphasis from Europe to the underdeveloped countries of the world, and from advanced weaponry to materials usable by those countries for conducting limited wars. In 1961, some 8,400 United States military personnel were involved in the Military Assistance Program.
- Since the advent of the present administration, greater emphasis has been placed on counterinsurgency and other unconventional warfare capabilities, including the use of military forces for civic action. The Military Assistance Program itself has shifted to give a larger role to civic action. Much of the change in orientation, though, seems reflected by a buildup of special, unconventional warfare forces which advise and train in matters similar to Military Assistance Advisory Groups (MAAG's) and military missions. This includes those personnel sent to countries in southeast Asia after six weeks' training in the Military Assistance Training Advisor Course at Fort Bragg, and a more than doubling in the authorized size of Special Warfare Forces to serve as "paramilitary support forces" throughout the world.

Changes in Requirements

There has been, then, a reorientation in the objectives of the Military Assistance Program and of relationships with foreign troops. The reorientation is sometimes difficult to distinguish from the providing of military assistance alone. And this evolution has changed the job requirements of the Army officers who are, or will be, involved in providing the requisite military assistance.

The task of constructing conditions to encourage the security of less-developed nations differs greatly from that involved in assisting European countries to rebuild their military strength. Establishment of new institutions is a much more complex process than merely providing funds and equipment to rebuild, or just to modernize. Too, the major long-range task in the underdeveloped countries appears to be of internal security, technical development, and political development.

These needs are closely interrelated in the minds of the peoples of the underdeveloped countries, and military personnel influence all three areas as they attempt to provide military assistance.

Proper Understanding

One must understand the novelty of the functions involved in rendering military assistance if he is to understand those functions as being a part of the larger strategic picture of nation-building toward democracy rather than as small efforts designed only to communicate particular military skills.

Western cultures have many social as well as equipment systems to export. But few of the Western systems can be incorporated into underdeveloped cultures without major modifications of both the indigenous cultures and of the Western systems themselves.

It is generally agreed, even by the citizens of the underdeveloped countries, that many of the traditional indigenous customs, capabilities, and values should be changed, that is, low educational levels and low standards of living. There is also general agreement that it

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Emphasis is now given to unconventional warfare capabilities. (U.S. Army)

is unrealistic, and probably undesirable, to make their own cultures into mirror images of Western societies.

Cultural Adaptations

With different religious and historical backgrounds, it is fairly certain that different cultural adaptations will occur. Accordingly, the social and technological systems which serve our society should also be subject to redesign, a redesign that must go beyond merely adapting equipment to match the anthropometric and educational characteristics of the peoples of the underdeveloped countries.

It is not enough to make weapons more appropriate for men of smaller stature; to provide vehicles that can be better operated in terrain with more jungles than roads; to minimize the dependence on manuals and on other written material. It is also necessary that we recognize the implications which characteristically different social relationships and values may have on the functioning of all types of systems.

To illustrate ways in which foreign cultural values may require differently designed systems:

- Roger Hilsman has described how the mountain tribes of Burma, because of their seminomadic way of life, see no point in taking or holding ground in war.* During World War II, Office of Strategic Services tactics and weapons had to be adapted to the Burmese customs of ambush and lightning raids.
- The problem of face-saving, so notorious in oriental cultures and not unknown in the Western World, often impedes instructors from discovering how well students understand the subject matter. Tests which could damage prestige are not tolerated, or they are reduced to being a mere formality. New instructional systems must be developed in which an individual's "face" may be "saved" without loss of efficiency. Self-instruction systems, as represented by teaching machines which minimize the opportunity for error, may have special value in oriental cultures.
- Westerners prefer personnel systems which treat employees as individuals, each of whom must demonstrate job competence. Nepotism is viewed as a violation of efficiency. In underdeveloped countries,

however, family, clan, and tribal ties are close. People cannot live in relative economic independence but must, as a part of the social security system, help to care for members of their extensive families. Nepotism represents one of these security mechanisms. Because members of the same clan are interdependent, they cooperate on jobs to an unusual degree, and, perhaps, achieve more effective subsystems. But these same people often lack broader identification than with their clan or tribe. Members of different tribes may be too antagonistic to work together cooperatively. These considerations of group identification suggest that personnel systems devised for use in underdeveloped countries may be more efficient and less disruptive of social relations if hiring and assignment includes the factor of group cohesion, even at the expense of individual abilities.

- It is often easier to introduce new ways of doing things than to reeducate people concerning the basic ideas which underlie a new procedure. New techniques may be introduced most easily by grafting them onto existing beliefs. Medical treatment may be designed and explained in terms compatible with folk medicine. Herbal teas may be prescribed when large quantities of boiled water are to be ingested.

The task of cultural engineering is difficult even for specialists in the field. To military personnel oriented toward direct applications of military technology, the subjectivity of the bases for action and the indirection often necessary to accomplish change presents a considerable challenge. But the needs of the times, rather than the ease of accomplishment, define the missions of the military establishment.

Cultural engineering is now being added (at least as a requirement, if not yet an accomplishment) to the already extensive repertoire of military skills.

*Roger Hilsman, "Internal War—The New Communist Tactic," *Military Review*, April 1962, pp. 11-22.

US MAAG's and the Military Assistance Program are the backbone of mutual security. A major portion of this mutual security requirement rests on the capability of Army forces, US and allied, since … the key to Free World success in Pacific-Asia is winning in Asian land areas. I think we sometimes underestimate the amount of US *Army* effort and strength that is necessarily—and desirably—committed to military assistance for our allies.

General James F. Collins

To view "Cultural Engineering" as it was originally published in December 1962, visit https://www.armyupress.army.mil/Portals/7/military-review/Archives/English/JF-22/Original/Vallance.pdf.

Why They Fight

Lieutenant Colonel George S. Patton, *United States Army*

What forces lie within a man that forge the will to fight? What drives a particular being into a bloody and sometimes hopeless contest of arms? Historical studies and personal accounts of leaders great and small have provided us with examples of what must be done to make soldiers fight and face death in war—conventional war.

Today, the world sees an unconventional warrior who lacks formal identification but vigorously pursues his country's apparent goals. Our forefathers knew the Apache brave, the Confederate cavalry irregular, and the Philippine revolutionary of Emilio Aguinaldo. But the effectiveness of the Vietnamese Communist fighting man, or Viet Cong, far exceeds that of any guerrilla warrior heretofore confronted by this Nation.

All phases of Viet Cong training blend political and military indoctrination. Brigadier General Samuel B. Griffith II, US Marine Corps, Retired, explains it this way:

In the United States, we go to considerable trouble to keep soldiers out of politics and even more, to keep politics out of soldiers. Guerrillas do exactly the opposite. They go to great lengths to make sure that their men are politically educated and … aware of the issues … [A guerrilla's] indoctrination begins even before he is taught to shoot—and it is unceasing. The end product is an intensely loyal and politically alert fighting man.

The fusion of political and military factors reaches deep into the total guerrilla structure. To illustrate, let us study a hypothetical child of revolution who was destined to become a main force insurgent. His name is Nguyen Tho Luong or Luong for short.

Luong was born in 1932 in a small village a few kilometers west of the port city of Haiphong, North Vietnam. His environment was colonial. Everywhere the French were better dressed, better fed, and better informed of the world than he. He was taught by a French-guided school system, but, during the hot evening hours, his parents spoke of his country's history.

They covered its heritage from the earliest times—the heroic Trung sisters who led an uprising against the Chinese in A.D. 40, established a shortlived kingdom, and committed suicide on its destruction; the Chinese period; and the occupation of Vietnam by France.

They dwelt hard on the French aspect, probably since it was the most recent colonial experience, saying that someday Vietnam would be free because somehow the French would leave. They did not mind the French so much, but they did not like being occupied by them and working for them. Somehow it was not right for the French to be in the Red River Delta, but they really did not understand why all of this was so.

Luong was closely tied to his family and to his ancestors. His house was the house of his grandfather who had built it with his bare hands. His grandfather was still there, too. Luong knew that because, "A house is more than a home; it is the sanctuary for the altar of the ancestors, the place of … rituals."

Ancestral Influence

Throughout his early life, Luong's primary educational and developmental contacts lay within his family and the ancestral influence. Occasionally, the French would try to change this by resettlement of certain neighbors who were partially hostile to the regime, but, by and large, the family influence prevailed. In the rapidly changing world, Luong clung to the familiar. His primary concerns were his family and his home. His world was the village in which he lived, where he would marry and probably die, and become another of the ancestral spirits who had watched over his family for centuries.

When the Japanese came to Indochina, Luong saw the French defeated and replaced by Orientals who looked something like himself. What is important is that he did not hear of it or learn of it from others; he saw it himself. He reasoned that here were new masters, and he was disturbed in 1945 when he watched the return of the French, whom he knew had not defeated these other Orientals in war. In fact, he was so disturbed that he said so one day during the afternoon siesta at the small plantation where he worked.

After the French foreman had chastised him for being a trifle slow, he muttered to the other workers:

Why are they still here? Why and how did they come back? I'm tired of seeing them about, and I wonder why we can't get some of the good jobs on this plantation.

No one answered. The group just finished their tea and returned to work.

First Step

A week later during a similar break, an older man, Thai, approached him and asked if he really wanted to improve his lot in the world. When Luong said yes, Thai explained that if Luong would come to a meeting at Number 121 Avenue Pasteur that night he might learn more about this new future. All that was involved, Thai said, was listening to a few simple lectures by Vietnamese men just like Luong, after which he would be asked to follow some basic rules. If he did not like what he heard this night, he could leave and nothing more would be said.

His reaction was moderate. He did not understand all that had been said except that he could not forget one message about "national resistance" that was repeated over and over again: "It is time to mobilize and arm the people to rid our land of the French master." Luong liked that. He had told Thai at the meeting that he hoped someone would get rid of that French foreman who was a bad man with a harsh tongue and had eyes in the back of his head.

Although Luong did not especially like the group's rules, he complied reasonably well, and, when he had failed to carry them out properly, he confessed this dereliction to Thai. At first, Thai would try to help him by suggesting ways in which to improve. Later on, Thai was more stern, even threatening to report Luong to one of the speakers.

Many meetings and more rules followed. Luong learned all the rules and even brought some friends to work with Thai and attend meetings. Then one night, following another bad exchange with the foreman and fortified with some mild encouragement from Thai, Luong slashed the tires of the foreman's car with his machete.

Although Luong feared apprehension by

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the French *gendarmerie*, somehow Duc, the houseman of the plantation owner, was charged with the crime, fined, and beaten. Luong knew and liked Duc and wanted to turn himself in, but Thai talked him out of this "silly gesture," stating that Duc had grown rich while working for the French and had gotten what was coming to him. Besides, he was still employed inside the big house.

Instead, Thai convinced Luong that he should take another approach and attempt to convince Duc to attend the meetings. "It would be good to have one of our groups of patriots in a French house. We could learn much about what is going on," he reasoned.

Pattern is Set

So, at 16 years of age, Luong became a revolutionary. The year was 1948. He had been lured into a revolutionary cell by a trained party worker. He had been subjected to repetitive propaganda, had engaged in self-criticism, and had caused an incident from which he was protected by the organization. He had assisted in the recruitment of several individuals, one of whom was on the "inside." The pattern had been set. The system had spared Luong, and he now had about six years in which to prepare to join the hard-core cadre of the National Liberation Front.

During the next five years, Luong worked for the unification of Vietnam. He worked as a nationalist to unite a "downtrodden people" to resist oppression.

Although Luong is a hypothetical person, the following passage is an extract from the diary of Do Luc, a Viet Cong soldier who was killed at Dak Trum in late 1961. Luong could have been this soldier:

I answered the call of the Party when I was very young and what did I do for the people of my village? I devoted myself to the people. I took part in propaganda and aroused the people to carry out the policy of the [Lao Dong] Party and the Government and helped organize village defense and fighting forces. On March 25, 1954, I began my fighting career and I contributed my part in fighting the French. ... With the Army of Interzone 5, I saw the end of the war on July 20, 1954, and then on April 26, 1955 I left ... to go North as a victorious fighter. Since that day, my spirit has matured together with that of the regular army.

This, then, was the story of the transformation of Luong, a personal history based on what happened to many young Vietnamese. It demonstrates how early indoctrination gives way to political indoctrination and clears the way to main force status.

Motivational Factors

To help determine those factors which motivate the main force Viet Cong, I solicited by questionnaire the views of 147 Americans and Vietnamese who served in or had been associated with the Vietnam operation. Of the replies received, 76 percent were furnished by officers and enlisted men from sergeant through general; 13 percent were from selected Government personnel, including one former Ambassador to the Republic of Vietnam; and 11 percent came from others, including General Nguyen Khanh and certain US press representatives and allied officials.

From a list of 15 items, addressees were asked to select three factors which best explained the motivation of the Viet Cong. The list included:

1. Communist ideology. (A truly dedicated product of the international Communist movement.)
2. Communist propaganda. (Not a dedicated Communist, but strongly influenced by propaganda.)
3. Nationalism. (Loyalty and devotion to a nation; really believes in the unification of Vietnam under North Vietnamese rule.)
4. Hatred of the United States.
5. Hatred of the present Republic of Vietnam Government.
6. The spirit of adventure.
7. Personal economic gain.
8. Effectiveness of his leaders.
9. Personal political gain.
10. A desire to remedy longstanding (historical) grievances.
11. Cultural heritage.
12. Racism. (A belief that race is the primary determinant of human traits and capacities and that racial differences produce an inherent superiority of a particular race.)
13. Xenophobia.
14. The Viet Cong are not highly motivated, and there is no significant motivational factor worth mentioning.
15. Other.

Addressees were further asked to comment on Viet Cong "willingness to close with and destroy the enemy" and to discuss exploitable weaknesses.

Predominant Reasons

The questionnaire results offer depth of data and professional opinion and are confirmed by other studies. The motivational factors named most frequently were:

- Communist propaganda. There were 49 choices for this factor, by far the most frequently selected. Opinions were nearly unanimous that propaganda which contains the "big promise" never openly admitted that the Viet Cong were Communists. On the other hand, it strongly implied, by envisioning future conditions of freedom and unification, that the end was in sight. This technique is well described by one officer who wrote:

They [the Democratic Republic of Vietnam] offer a promise, a dream of land, of fair treatment, of a non-corrupt, unified government. Thus they gain another recruit who is far from being a Communist and really doesn't even know what the word ... means. After joining the Viet Cong the propaganda doesn't cease but rather it is intensified.

In addition to the long-range cure, the "promise" also offers the immediate reward. This is done regionally or locally and is skillfully tailored to fit grievances which are applicable to the target group. These immediate themes are not always economic or political but may be directed to the ego, racial or religious prejudices, sexual drive, even spirit of adventure and, particularly, group loyalties. Thus, selective, tailored propaganda, driven home by a host of repetitious techniques, emerges as a significant motivating factor of the main force Viet Cong.

- Effectiveness of his leaders. Chosen 38 times, this factor ranked second in importance. The words which most frequently appeared in the answers were "effective," "dedicated," "experienced," and the "product of the law of survival." The ability to combine leadership techniques and discipline were often mentioned as being characteristic of the Viet Cong leader in the field.

Several extracts are worth repeating. Tran Van Dinh wrote that:

More than anything else they [the Viet Cong] know how to combine persuasion with terror, administration with oppression, democratic practices with strong party discipline.

A Viet Cong patrol crosses a jungle stream.

General Nguyen Khanh referred to their "scientific system" and the fact that leader selection is "very strict and delicate." In explanation of this "scientific system," General Paul D. Harkins, US Army, Retired, identified the leaders as "the proven hard core" who have ascended "the ladder proving devotion to the cause. They have so many hidden agents one has to be careful to live." An experienced senior noncommissioned officer had this to say:

The VC is commanded by a leader that has proven himself ... capable by the fact that he has survived. He is, in most cases, prepared to do whatever is necessary to carry out his mission of ultimate victory. ... It has been my experience that he has been able to influence his troops by a balanced use of propaganda, hatred, terrorism and the many traits of any good leader. Generally, the average rank and file has no strong convictions to the cause but is held in line by strong leadership, these leaders being promoted through the ranks by their proven abilities.

The "why" of leader effectiveness lies in the adage, "Success breeds success," clearly identifying the Viet Cong movement as a continuation of the successful Viet Minh campaign of 1954.

- Nationalism and personal gain. The actual counting of selections was discontinued here since most replies considered economic or political gain to fall in the realm of "personal gain." The consensus was that the nationalism factor was a manifestation of effective propaganda. It is seen in the word Vietnam, as opposed to North or South Vietnam, and lies in the principle of reunification through continuation of another phase of the Indochina War. David Halberstam, American war correspondent, spoke of the application of the nationalism factor as:

... the idea of driving the white colonial ruler out; the Viet Minh were [thus] identified ... and it was a very popular force. There is some xenophobia and race here, but I think it is primarily the legacy of the colonial war, the second step ... and they have been very successful in making it appear as though it is all one war, that there has never been a break and that the sides and forces have not changed.

The "personal gain" factor covers the entire spectrum of either long or short-term political, economic, military, or social advancement. Anything to improve his lot is considered "gain" by the Viet Cong, and this is carried as a significant motivating factor. An Army educator described the gain factor:

The Viet Cong movement seems to offer the common man a chance for political participation, economic betterment, social equality, rewards according to merit and

identification with the nationalist struggle. We suffer from the misfortune of appearing to be the successors to the French colonial regime.

Therefore, when one has little or nothing, "gain" by the Viet Cong interpretation will be a motivating factor.

- Other factors. Hatred, long grievances, racism, xenophobia, and adventure were all occasionally selected as motivational factors, but analysis always revealed them as broad manifestations of either the propaganda or nationalism themes employed by effective, understanding leaders operating close to the people. Desire for group identification was listed along with security, fear, and terrorism. But again, the analysis led back to the three leading factors. Communist ideology was not a significant motivating factor other than being the force which has developed the propaganda that has emerged as the primary weapon of this conflict.

The questionnaire consensus clearly indicated the willingness of the Viet Cong "to close with and destroy the enemy," but only when victory is reasonably assured. This was repeatedly pointed out as accepted guerrilla doctrine. Several replies declared "deep respect" for this trait and described the Viet Cong as "tenacious" and "able," especially when well commanded. On the other hand, there was the inference that his fighting ability is "exaggerated" and "overrated"; that his mission is not to close but only to harry and tire his foe, always avoiding decisive engagement.

Former US Ambassador to Vietnam, Frederick E. Nolting, Jr., remarked:

While this question can be answered better by those who have been in combat, my own impression is that the VC were generally willing to 'close' only when the tactical situation was very favorable to them, otherwise not. Also, I think their objective was not so much to 'destroy the enemy' as to demoralize him, weaken him, and destroy his will to resist. In other words, theirs is a political as much as military objective.

Ambassador Nolting's remarks were complemented by a statement on leadership from a former corps G3 advisor:

This willingness varies directly with the Viet Cong's tactical chances for success. Viet Cong units will not normally close unless chances for success are in their favor. Therefore this willingness is closely related to the judgement and experience of small unit leaders. This is another expression of the importance of effective leadership.

Selective tailored propaganda is the most significant motivating factor of the Viet Cong.

Again, the subject of leadership returns. The answer given by Colonel Serong, Chief of the Australian Army Training Team in Vietnam, is applicable here and to any army:

What makes a soldier fight? If one may omit the arrant conscript who goes into battle with the Sergeant Major's gun at his back, the answer is the same for all soldiers. The soldier fights because he is one of a group of a dozen men, and the most precious thing in his life is the esteem in which he is held by the other eleven. This desire for esteem can be harnessed. ... This act of harnessing ... and

directing it to a military target is called leadership. … The VC leadership is excellent. It comes from, understands and is identified with the peasantry from whom the VG battalions are raised. The GVN leadership is lousy. It comes from the Saigonnaise Bourgeoisie, who neither understand nor want to understand the peasantry from whom their battalion is raised.

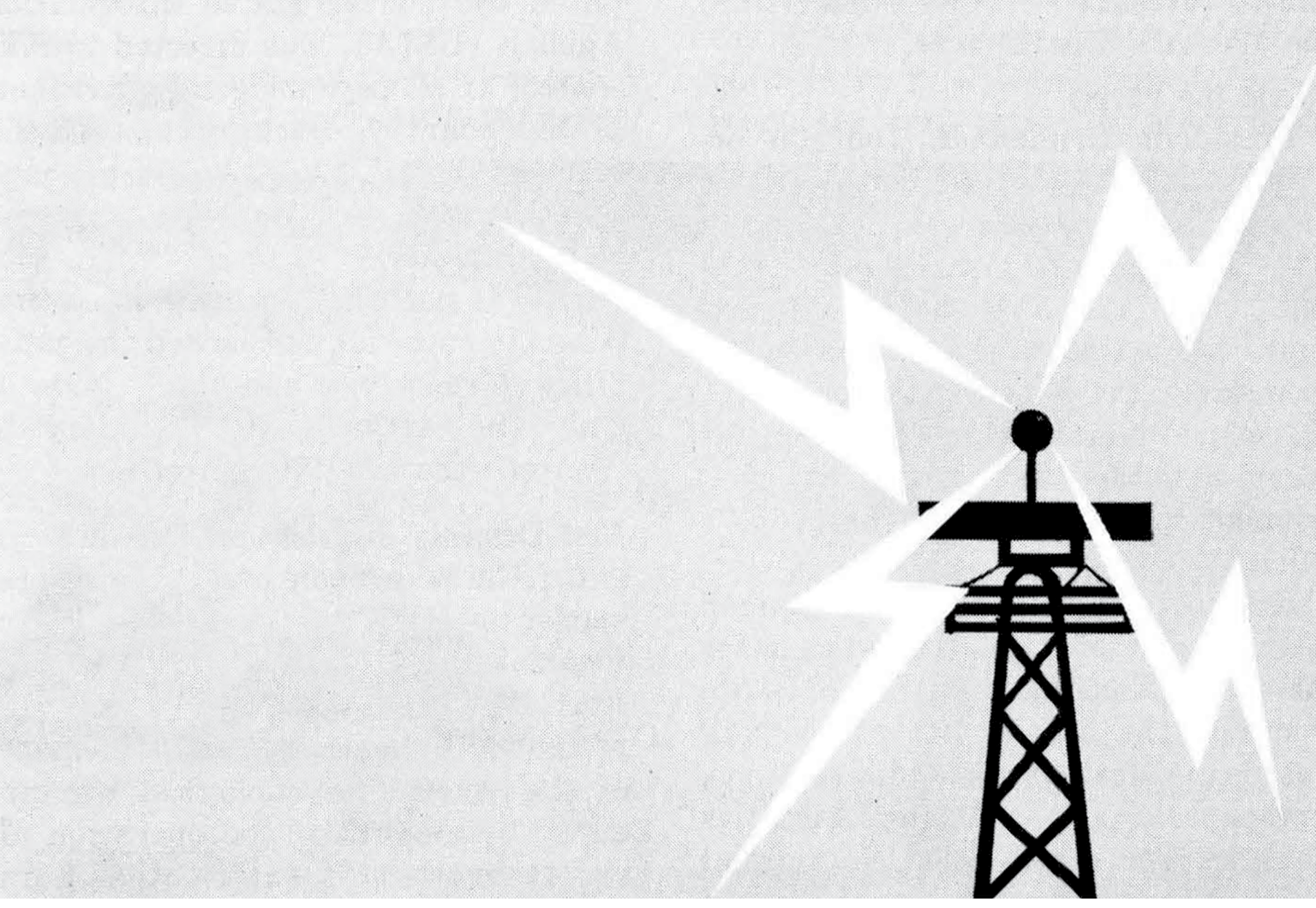
This analysis develops the thesis that the Viet Cong's "willingness to close with and destroy" is a function of the commander's ability to impose his will on his unit in action. When the commander has demonstrated his ability to command and win—when he has, for example, accomplished the required groundwork for battle with marked emphasis on a successful outcome—his guerrilla subordinates will display that confidence in him which is essential for success in war. They will follow, and they will close to kill.

In the event of faulty planning or intelligence resulting in a poor estimation of the odds, they will function and perform in direct proportion to the type of leader they deem him to be. If he is competent, they will remain to conquer, withdraw in order, or die. If he is marginal, they will deteriorate rapidly, perhaps more rapidly than comparable conventional forces. If he has simply been lucky (and this is sometimes the case), the final reckoning is only deferred, and the leader will either be replaced or defeated.

These remarks extracted from a portion of the questionnaires are aptly summarized by a statement of another soldier from another war, General George S. Patton, Jr.:

Wars may be fought with weapons but they are won by men. It is the spirit of the men who follow and of the man who leads that gains the victory.

To view "Why They Fight" as it was originally published in December 1965, visit https://www.armyupress.army.mil/Portals/7/military-review/Archives/English/JF-22/Original/Patton.pdf.



Key to a Crisis

Lieutenant Colonel Wallace J. Moulis, *United States Army*
Major Richard M. Brown, *United States Army*

On 24 April 1965 Santo Domingo in the Dominican Republic was a deceptively peaceful scene—inert, parched from an extended drought, torpid from the tropical heat that emptied life from the dusty streets.

Then, like a galvanic shock, came the call to revolution. "Citizens, to arms! Citizens, for the Constitution, for the people!" Long-smoldering discontents sent mobs surging into the streets.

From a beginning typical of the Latin-American pattern of revolution, a new and uglier design began to emerge. On the second day, a large minority of the armed forces joined the revolution and threw open the arsenals to arm the populace. This indiscriminate issue of weapons quickly brought new turmoil to the already disorderly scene. Armed mobs were out of control. Chaos and anarchy resulted. Horrified at the

monster they had created, many of the troops defected back to the loyalists.

As uncontrolled firing, murder, and looting plunged the city into a furious reign of terror, only one group retained organization—the Communists. It was these scavengers of chaos, and not the original revolutionists, who began their thrust to power.

Intervention was deemed necessary to restore order and save innocent people, to protect the lives and property of Americans and other aliens, and to forestall a second Cuba within the Western Hemisphere.

Inform the People

President Lyndon B. Johnson ordered Marines and airborne troops into the beleaguered area. But getting troops ashore was not the only problem. There was also the need to explain this action to the people—to let them know the aims of US policy, the US desire to assist them, the need for order, and the need to ensure a government that represented the people's will.

But how are such actions explained to the people of a country when mass communications have failed? In Santo Domingo the normal life of the city was dead. Most of the radio stations, newspapers, and printing facilities were in the rebel zone. No normal channel for communication with the people was left open.

This was the picture facing the psychological operators charged by the President with explaining our national policy in the Dominican Republic.

Hewson A. Ryan, Associate Director of the United States Information Agency (USIA), was directed to take control of all psychological operations in the country. Backing him was a team of Latin-American information specialists who were skilled in radio and printed media operations. But this team was not enough. They could prepare the material, but lacked the capability to reproduce and disseminate it. Only the Army had the ability to transmit the message.

First Elements Dispatched

On the afternoon of 1 May, in response to Mr. Ryan's request, the 1st Psychological Warfare Battalion at Fort Bragg, North Carolina, was directed to dispatch the first elements of the Army's psychological warfare effort in support of the operation directed by the US Information Service (USIS).

Operational elements of the 1st Psychological Warfare Company (Field Army)—reinforced with radio broadcast and light, mobile audiovisual teams, as well as language experts—were readied for a midnight departure. A liaison officer was dispatched to join Mr. Ryan with the mission of coordinating military support and assisting the over-all operation in any way possible. The battalion's van-mounted radio broadcast was prepared to follow shortly by heavy airlift.

Almost before the roar of their aircraft had left their ears, the radio teams with Ray Aylor, Voice of America radio engineer, were rehabilitating a 1,000-watt transmitter to begin relaying Voice of America transmissions from Greenville, North Carolina. Production of leaflets by mimeograph began even before arrival of the light, mobile presses. Loudspeakers took position along the Ozama River to bring the voice of the United States to the people.

Operating initially from a command post in the bullet-pocked US Embassy, psychological operations rapidly took form as an interdepartmental effort with USIA, Army, Department of State, and other agency personnel operating together in a single, cohesive effort. Each agency, realizing its own shortcomings in the task, as well as the necessity for fast-moving response, contributed its resources to the fullest to meet the national requirement. Equipment, talent, logistic resources, and personnel were pooled in the overriding drive to get the

Lieutenant Colonel Wallace J. Moulis and **Major Richard M. Brown** are assigned to Headquarters, 1st Psychological Warfare Battalion (Broadcast and Leaflet), Fort Bragg, North Carolina.
Colonel Moulis assumed command of the battalion in October 1964 and saw action during the Dominican crisis. He served in Europe during World War II, and with the Military Assistance Advisory Group in Indochina in 1955. He holds an M.S. in Nuclear Physics from Tulane University.
Major Brown holds a B.A. from the University of Arizona. He served in Europe during World War II and in Korea. During the Dominican crisis, he was advisor and military liaison officer to the Associate Director of the United States Information Agency.

A wide variety of leaflet appeals supported the aims of the US and the Organization of American States, and informed the populace of the true situation they faced.

job done. Administration was minimized and operational channels kept short and flexible.

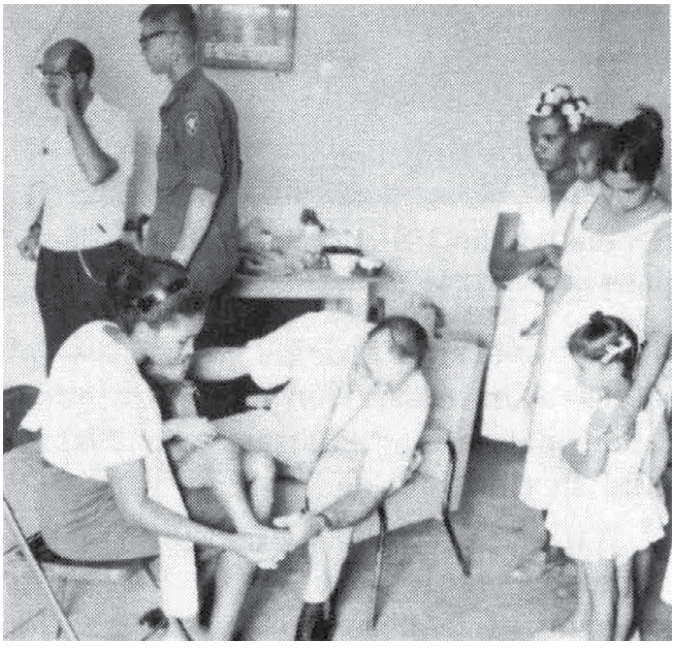
With the arrival of light, mobile printing equipment on 3 May, production of leaflets took a great stride forward. The Air Commandos provided two *C-47* aircraft in support of the operation; within two hours, they were orbiting the stricken city, showering it with leaflets and broadcasting messages to the populace through powerful loudspeakers. Meanwhile, operation of loudspeaker trucks, which also distributed printed matter along the corridor, had begun.

Mobile Broadcasting Station

By the afternoon of 5 May, the 1st Psychological Warfare Battalion's mobile broadcasting came on the air—a record-breaking 60 hours after the decision to

Crowds seeking information collected rapidly at each stop of the loudspeaker and leaflet trucks.

Using the antenna of a destroyed transmitter, the Army mobile radio broadcast station came on the air only 60 hours following the decision to move from Fort Bragg to the Dominican Republic.



To meet a critical need, a dispensary was organized by the radio teams of the psychological warfare battalion. It immunized over 6,000 Dominicans and cared for over 2,000 outpatients.

commit it—with a 5,000-watt signal capable of reaching deep into the country's interior. It was the first locally programed radio—"The Voice of the Security Zone." Later, the network was augmented by two additional mobile Army transmitters and a fixed station assembled on the spot.

Meanwhile, mobile radio and radio-teletype receivers had been flown in from Fort Bragg. These gave the propagandists a capability of monitoring the output of the rebel radio, which began broadcasting on 5 May, and of receiving radioteletype from the USIA in Washington. With the arrival of heavy, mobile printing equipment, the volume and quality of production were greatly enhanced. Under the direction of Conrad Manley of the USIS in Miami, Florida, a newspaper was begun—the first to publish since the revolt began. Produced at a rate of 75,000 copies per issue, it soon gained wide readership both in the city and in the interior.

The backup for the Army's printing was provided by the USIS facilities in Mexico City which produced posters and pamphlets that were beyond the capabilities of the mobile plant.

Although initially the majority of propaganda development was done by USIA area and language experts with wide experience in Latin America, the military propagandists soon began to function in this area. Intelligence teams monitored military sources and conducted interrogation of detainees. Research and analysis teams worked to sift the effects of the propaganda and to locate usable vulnerabilities while the creators worked to achieve a meaningful product.

Crisis Eases

Indications of success were not long in appearing. Posters created discussion along the corridor; loudspeaker trucks drew crowds of hundreds seeking the latest information; and leaflets, when distribution points ran short, were sold on the streets by enterprising youngsters who hawked them for a nickel a copy. A radio program for passing family news to distant relatives drew thousands of requests. The crisis had begun to ease.

Cooperation had been won, not only by the staunch efforts of the American troops to restore order, feed the hungry, aid the wounded, reactivate vital utilities, and restore normal life, but by the psychological units whose role was intermingled with both the political and military tasks of the operation. By explaining, informing, and coaxing, they had brought the American message to the people, and the message was understood.

Military psychological operators produced and distributed over two and a half million printed propaganda items, conducted 600 hours of loudspeaker operations, broadcast over 900 hours of locally produced programs, and relayed Voice of America transmissions continuously for 35 days.

Among the many lessons learned was the effectiveness of psychological operations in gaining the cooperation of the people and reducing the confusion and bloodshed. These operations played a major part in restoring order, bringing essential services back to life, and enabling a more rapid return to normal. They reduced the impact of our actions not only upon the Dominican populace, but upon other sensitive audiences as well. They were a primary tool of national policy.

The responsive interplay between military and civilian organizations in this field opened new possibilities for future effectiveness in stability and counter-insurgency operations. It demonstrated that agencies in this field have the flexibility to merge into a single, coordinated operation under centralized control, each contributing essential elements to the task.

The pattern has been set. The agencies which functioned together in an *ad hoc* structure in the Dominican Republic have begun to reappraise their roles, to plan together rather than alone, and to view their role in a crisis in the light of joint capabilities rather than their own limitations. Santo Domingo has driven home the lesson of coordinated psychological operations—the key to a crisis.

To view "Key to a Crisis" as it was originally published in February 1966, visit https://www.armyupress.army.mil/Portals/7/military-review/Archives/English/JF-22/Original/Moulis-Brown.pdf.

Combat in Cities

Anthony Harrigan

Conditioned by the combat experience of World War II, which involved large-scale conflict on open battlefields or across beaches, Americans have tended to ignore the problems associated with fighting in cities. The basic assumption has been that military action would not take place in an urban environment. The United States has no Stalingrad in her national past—no epochal battle fought within the confines of a city. Struggles such as the Warsaw rising, the Hungarian revolt against Communist rule, and the internal combat of the Algerian cities in the 1950's are alien to our operational history.

However, recent happenings—chiefly the sensitive operation in Santo Domingo—have pointed up the necessity of taking a fresh look at combat in cities. Experiences such as terrorism against Americans in Saigon to subversive warfare in friendly Latin countries indicate the range of conflict situations with which the United States and her allies may be confronted in an era of revolutionary strife.

Historically, combat in cities has gone from one end to the other of the scale of intensity. Stalingrad—which led to the capture by the Soviets of a large German Army—was the largest battle fought in a city in modern times. The struggle of the Hungarian freedom fighters against Soviet armored formations in Budapest in 1956 is not usually treated as a military operation. The French attempt to hold cities in Algeria in the 1950s likewise has usually been discussed from the political standpoint rather than its military aspects.

The fact is that many of the key conflicts of the last 20 years of cold war have taken place in towns and cities rather than in the countryside which is supposed to be the home of revolutionary forces. The late 1940s, for example, saw governments in Rome and Paris threatened by organized mob strife that was a form of war from within. Vast crowds, bent on the overthrow of anti-Communist regimes, were regularly deployed in Europe in this period to give the Soviet Union a political breakthrough in the West. Fortunately, the French and Italian police and armed forces managed to contain the destructive demonstrations and prevent the spread of violence.

Urban Revolutionists

Latin America continues to be an area in which Communist revolutionaries commit sabotage in cities and generally carry on a part-time guerrilla war in an urban environment. In Venezuela, the National Liberation Front moved in from the countryside in September 1965. Guerrilla-terrorists killed eight policemen and wounded two others in Caracas during a 10-day period. In October these urban terrorists blasted two major crude oil lines and sabotaged pumping equipment.

Earlier in the summer the existence of a highly secret Communist subversion guide was revealed in Guatemala. The document called for student strikes in Guatemala City, occupation of the universities and colleges, and the carrying out of demonstrations and strikes. It stated that urban revolutionists must organize meetings at the university, provide acts of support, paint the walls, write and distribute leaflets, and flood the city with expressions of support of the guerrillas. Shortly after this document was revealed, the Guatemalan armed forces swooped down to capture a bomb and grenade workshop and a guerrilla training school in Guatemala City. Captured in the raids was a large cache of weapons.

It seems clear that urban terrorism is a growing problem for the troops of allied and friendly nations, as well as for US Armed Forces. Organized mob action is an equally serious military problem.

Police Methods

In dealing with terrorists, troops have much to learn from police methods. The most important element in successful antiterrorist action is intelligence. Careful interrogation of suspects, use of informers and rewards, and reliance upon identification papers and other records—standard police methods the world over—have to be utilized by troops confronted with a problem of terrorism.

Intensive, surprise searches of a given area, with interrogation of all the occupants of an apartment

house on a particular block, can yield rewards. The police dragnet procedure is a part of this type of combat in a city. Inspection, performed either on a regular or random basis, can achieve results. In Saigon, for instance, terrorists sometimes have placed explosives inside the tubular frames of bicycles. The aim of counterterrorist military action in cities should be to separate the terrorist from his base in the population—to make the populace unwilling to give him refuge.

In dealing with mobs the basic rule is to employ a minimum of force rather than the maximum at a unit's disposal. This rule for one type of combat in cities is contrary to the training soldiers receive for more conventional types of action, and special training is necessary for mob handling. Of course, delay in the use of force, when it is needed, can persuade a mob that it has control of a situation. But self-discipline on the part of troops remains the key element. The aim of riot control training is to remove emotional, spontaneous reactions so as to eliminate the sparks that can ignite a mob.

Large Force Required

There are many aspects of military operations in cities that need to be discussed among soldiers and in the public arena. It is understood that a large force of troops is required to track down a comparatively small force of guerrillas in the countryside. But there should be better understanding of the need for large numbers of troops in a situation such as that in Santo Domingo. Patrolling, establishing roadblocks, manning machinegun positions at key points—these and other responsibilities require considerable manpower in a city conflict.

Anthony Harrigan,
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Beyond such military actions—or police actions as they are sometimes called—there is the condition of allout combat in cities. One such urban battle was the struggle for Seoul in Korea. The arduous character of the fighting should not pass from the consciousness of the US soldier. Any city offers tremendous opportunities for defense. In Seoul, US forces moved into the city down main thoroughfares. The Communists fought at almost every intersection, using roadblocks of rice bags filled with sand and backed up by antitank guns. Burke Davis, in an illuminating account of warfare inside a city, describes how the troops moved forward:

Barricades grew larger as they advanced and the infantry worked out a pattern with the engineers: Riflemen crawled to windows and roof tops and alleyways and drove defenders behind the barricade; engineers ran into the streets, located mines. ... Troops took cover as explosions rocked the street. Then tanks came in. The enemy broke from the roadblock to flee wildly down the street—only to fall before the machine guns and heavier tank weapons. The troops spent about 45 minutes on each barricade in the process.

In front of this ground assault force, American aircraft flew at rooftop level, blasting the enemy with bombs and napalm.

Studying all types of combat experiences in cities can produce valuable lessons. For example, it should not be thought that cities can endure modern warfare for only short periods. The story of Reims, France, in World War I illustrates the endurance of an urban population in a war zone. For nearly four years Reims was under enemy fire as the French and Germans contested the city. Of Reims' 14,000 houses, only about 60 were immediately habitable at the end of hostilities.

Although there were short respites, Reims led the life of a besieged community for almost four years. The Germans increased the caliber of their shells and varied their modes of bombardment, sometimes firing for a few hours, sometimes 24 hours a day at the rate of one shell every three minutes, or again only at night. Sometimes three-inch shells would be used exclusively. At other times, the Germans fired eight-inch, 12-inch, and 15-inch shells. Explosive and incendiary shells were used, as well as bombs and poison gas.

On Good Friday 1917 almost 7,500 shells fell in the city. During this period of warfare, a considerable portion of the population persisted in staying in Reims. Work continued in the bombarded city with the people courageously adapting themselves to the danger. Municipal courts and other public services

Most acts of terrorism in a city, such as this bombing of the US Embassy in Saigon, are part of a coordinated program. (US Army)

were installed in cellars that also served as barracks for the populace.

The Spanish Civil War of the 1930s continued for a long period because of loyalist control of and resistance in the city of Madrid. The key move was the dispatch of six loyalist battalions to Madrid under command of General Valentin Gonzalez, known as *El Campesino*. In his autobiography, he states:

The decisive days were Nov. 6-9 (1936). But many people in our own camp did not realize that they might be decisive, because they had given Madrid up for lost. The world expected the fall of Madrid from one hour to the next. And the world should have been right; Madrid was ripe to fall. It should have fallen, if the men, women and children had not united to save it, as no civilians had ever united in defense of their homes.

Urban warfare has produced unique weapons such as the high-pressure water tanks the East Germans have used to control crowds and the homemade armored vehicles Greek Cypriots fashioned from farm tractors. Students of combat in cities can find a lode of treasure in obscure conflicts. One of these is the Lithuanian resistance to the Soviet People's Commissariat for International Affairs (NKVD) military formations in 1945-46. The Lithuanians built bunkers inside towns and cities, fired on NKVD garrison buildings, ambushed Soviet city officials, and conducted a remarkable activist campaign until submerged by a tide of Soviet military manpower.

It behooves Americans, who face an extraordinary array of military challenges in the various regions of the world, to study anew the art of warfare in cities—whether waged in conventional or terrorist-guerrilla fashion.

To view "Combat in Cities" as it was originally published in May 1966, visit https://www.armyupress.army.mil/Portals/7/military-review/Archives/English/JF-22/Original/Harrigan.pdf.

Military Review 50th Anniversary Edition

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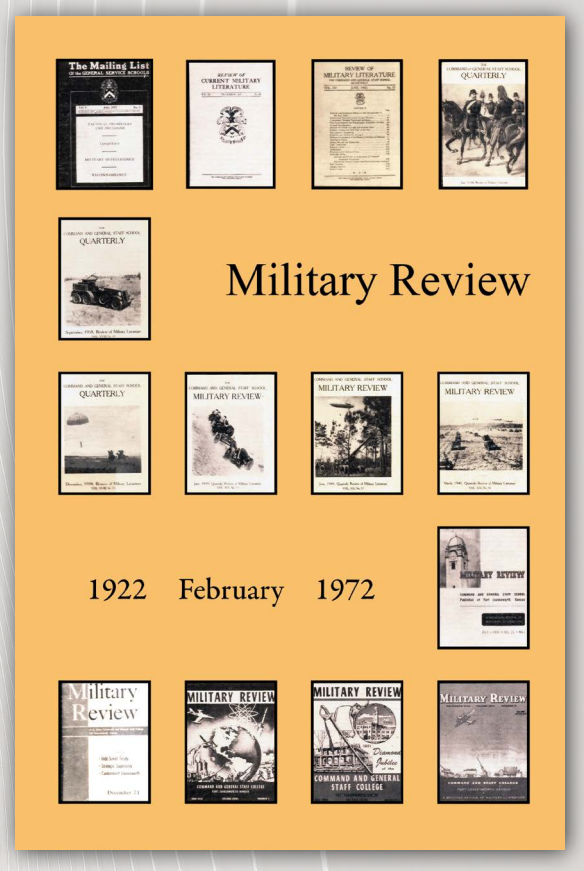

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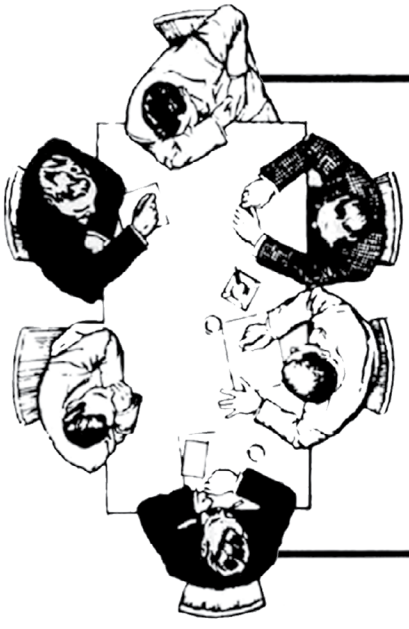
The All-Volunteer Armed Forces



Status, Prospects and Alternatives

William R. King

For most of its history, the United States has supported its peacetime defense establishment on a volunteer basis. However, within most of the lifetime of most living Americans, peacetime military conscription has been the accepted practice.[1]

The United States returned to its traditional peacetime practice when, on 27 January 1973, Secretary of Defense Melvin R. Laird announced that the armed forces henceforth would depend exclusively on volunteer soldiers, sailors, airmen and marines. This termination of more than three decades of military conscription came after nearly a decade of study by the Department of Defense (DOD) and other interested parties.

The decision to move to an all-volunteer force (AVF) was made prior to 27 March 1969 when President Nixon appointed an advisory commission on an all-volunteer armed force under the chairmanship of The Honorable Thomas S. Gates Jr., former secretary of defense. The President's statement announcing the formation of the commission charged it with developing "... a comprehensive plan for eliminating conscription and moving toward an all-volunteer armed force."[2]

The "Gates Commission" chose to address two general questions which appear to be of broader scope than the charge given by the President:

- Is an all-volunteer force feasible?
- Regardless of whether an all volunteer force is feasible, is it desirable?[3]

On 20 February 1970, the commission submitted its report. Its essence is summed up in two paragraphs from Secretary Gates' letter of transmittal:

We unanimously believe that the nation's interests will be better served by an all-volunteer force, supported by and effective stand-by draft, than by a mixed force of volunteers and conscripts; that steps should be taken promptly to more in this direction; and that the first indispensable step is to remove the present inequity in the pay of men serving their first term in the armed forces.

We have satisfied ourselves that a volunteer force will not jeopardize national security, and we believe it will have a beneficial effect on the military as well as the rest of our society.[4]

The administration accepted the commission's recommendation in principle, but extended the recommended timetable for two years until 1 July 1973. Congress approved a two-year extension of induction authority until that date, thus creating a "transition period" extending from 1970 until January 1973 when the draft actually ended.

The transition period was one of planning and experimentation for DOD. During that uncertain period, many officials and laymen were doubtful that the Gates Commission's conclusions were valid. The fact that the draft was ended six months ahead of schedule in January 1973 undoubtedly reflects both effective planning and the influence of uncontrollable factors such as the economy and declines in the magnitude of the war-stimulated need for large military forces. However, as Binkin and Johnston state in their 1973 study of the transitional achievements in preparing for the AVF:

Taken together, these achievements suggest that this nation can accomplish what no other nation has ever attempted—to maintain an active armed force of over two million men and women on a voluntary basis.[5]

Since the AVF was instituted fully in 1973, many skeptics appear to have been converted. The AVF is in existence and DOD routinely produces statistics which demonstrate that the military forces generally are meeting targets, that the "quality" of accessions is improving and, generally, that the concept is working.

However, disquieting rumors, magazine and newspaper articles[6] and study results[7] that had circulated widely concerning the status, viability and effectiveness of the AVF were given greater credibility in 1976 by a report of the Defense Manpower Commission which concluded that:

The sustainability of the All Volunteer Force during peacetime will depend upon the economic situation and other interrelated factors, some of which—such as public attitudes toward the armed forces—cannot be predicted with any certainty.[8]

William R. King is professor of business administration at the Graduate School of Business of the University of Pittsburgh. He received a bachelor's degree from Pennsylvania State University and master's and Ph.D. degrees from Case Institute of Technology. He performed a study of the all-volunteer force in fall 1976 and reported on the results in testimony before the Senate Armed Services Committee in March 1977. He is the author of several books, including *Systems Analysis and Project Management.*

The AVF: Its Status and Its Problems

The AVF has been in operation for four full years. Yet, despite the fact that it has been shown to be generally feasible in aggregate statistical terms,[9] it has produced consequences which serve to raise serious questions concerning its future viability, the quality of the defense that we are buying and the AVF's effect on our nation and society.

Among the most crucial issues concerning the AVF in 1977 are:

- Is the AVF solely a peacetime concept, and does it, therefore, fail to achieve some basic national security objectives?
- Does the AVF unfairly distribute the burdens of defense to various segments of the population?
- Will the AVF ultimately undermine the nation's defense capability through an erosion of public confidence in the military which leads to decreasing support for defense expenditures?
- Will the AVF ultimately undermine the level of patriotism in the American public?
- Will the AVF lead to greater isolation of the military from the rest of society?
- Does the nature of the AVF restrict the range of policy choices available to our leaders in using military forces to achieve national objectives?

Each of these broader national societal issues was recognized by the Gates Commission and dealt with on a logical basis. However, little empirical evidence was available then relating to these issues. Today, none of the issues have been resolved finally, but a greater body of experience and evidence has been established regarding the performance of the AVF, its projected future and the validity of the overall set of assumptions on which the commission's study was based.

AVF Costs

The concept of the "cost" of the AVF, as with any defense manpower cost concept, is subject to many definitions and interpretations.

The most obvious definition of "defense manpower cost" is the "defense payroll"—Active and Reserve

military personnel appropriations, costs of direct-hire civilians, costs of family housing supplied to military personnel and military retired pay. The defense payroll was $49.3 billion in Fiscal Year (FY) 1976. This represents more than 54 percent of the total defense budget—as contrasted with 43 percent in 1964.

Other definitions of defense manpower costs push the manpower proportion even higher. For instance, if the nonpay operating costs of recruiting, medical, training and commissary facilities are included in the definition, the total manpower cost becomes $53 billion, or 58 percent of total defense outlays.

Whatever the definition, the large manpower expenditure levels, the rapid rise in manpower's absolute cost and its proportion of the defense budget have led to overall concern, as well as to concern about the effect of the AVF on these costs. These concerns reflect the belief that manpower costs are increasing at a faster rate than our ability to absorb them in the defense budget. If this is so, manpower expenditures inevitably will channel resources away from weapons system procurement, thereby, in all likelihood, leading to an overall decrease in our defense capacity.

Volunteer, which included the budget cost for various pay raises, bonuses, recruiting and other expenses which clearly were associated with the "AVF decision." The approximate $3 billion annual Project *Volunteer* cost was publicized widely as the "cost of the all-volunteer force." When other personnel-related budget increases are taken into account, total costs for the AVF of as high as $5.6 billion per year may be calculated.[11]

Future AVF Costs—Future manpower costs are of grave concern to those who believe that defense expenditures will be "capped" eventually in some sense. In such a case, the mandated nature of increases in manpower costs would tend to divert resources from weapons systems and other defense needs, thus reducing the nation's overall defense capability.

The table shows Congressional Budget Office (CBO) estimates for defense manpower costs under current defense policy—that is, cost increases reflect inflation and increased retirement costs, but no policy changes. They show a potential 36-percent increase in defense manpower costs over the next four fiscal years.

These manpower cost figures are not presented as realistic by the CBO since the President's budget

Defense Manpower Costs *

FY 1977	FY 1978	FY 1979	FY 1980	FY 1981
55.8	60.9	66.0	70.9	75.9

* Defense Manpower: Compensation Issues for Fiscal Year 1977, Background Paper Number 6, Congressional Budget Office, Washington, DC, 2 April 1976, Table 11, p 37.

Certainly, the AVF represents only one element of this tremendous manpower cost increase. Other important elements were the 1967 legislation which placed the pay of Federal civilians and military careerists on a par with private sector remuneration, the vastly increasing numbers of retired military personnel and changes in the enlisted/officer composition of the force which increased unit manpower costs while the total force size was decreasing.[10]

Historical AVF Costs—For FY 1971 through FY 1974, the DOD budget cost of the AVF was expressed officially in a separate budget category, Project

expressly entertains prospects for policy changes to reduce outlays as well as real manpower costs. However, they grossly illustrate the potential magnitude of the future defense manpower cost situation under current policy parameters. However, these costs may not be so unrealistic since significantly increased manpower costs may, in fact, be one of the few ways to sustain the AVF into the 1980s.

AVF Costs for Increased Force Levels—In addition to aggregate projections of the growing magnitude of manpower costs, a critical defense manpower issue is the future cost of the AVF under increased force levels.

Since the military establishment is meant to be an instrument of US policy, it is reasonable to ask how costs will behave should it be necessary to increase force levels. This is an important question because the current apparent viability and cost of the AVF is a direct result of the vastly decreased force levels which occurred with implementation of the AVF.

This important question has been addressed[12] using a General Research Corporation model on the basis of Project *Volunteer* incremental costs (about $3 billion) and modest ($310 million) "opportunity costs" which are the savings which now could be realized from a return to the draft. While neither of these cost concepts incorporate "total economic cost," both are cost estimates which tend to make the AVF appear to be relatively more attractive than the draft in the current situation (because of the relatively modest savings associated with a return to the draft).

When the relevant incremental costs[13] are taken into account, the incremental cost of increasing the enlisted force size more than about 10 percent becomes quite large under the AVF. For instance, the study estimates that the maintenance of a force of 3.1 million enlisted personnel (the Vietnam peak level) would cost $29 billion more under the AVF than using the draft. At a force level of 4 million, the cost difference is a staggering $67.5 billion more under the AVF.

This means that, on a budget cost basis, the AVF is essentially a peacetime concept and that any emergency situation probably would require reliance on an almost immediate return to a draft.

Military Manpower Requirements

One of the important factors which facilitated the transition to an AVF was the decrease in military manpower requirements created by the end of the Vietnam War. Military manpower peaked at about 3.55 million in FY 1968 but rapidly declined to below the pre-Vietnam level of about 2.4 million by FY 1972. Currently, total military manpower (FY 1976) is at the level of 2.08 million.

Clearly, this 41-percent reduction in military manpower from the Vietnam peak was a major facilitating factor in achieving the current situation in which all services are manned at or near their strength objectives.

Enlisted Accessions—One of the acid tests for the AVF always has been considered to be its ability to generate sufficient volunteers. The military services require young and vigorous personnel, thus necessitating personnel turnover and continuing requirements for new enlistees from the 17 to 21 age group.

Much of the study and analysis which went into the AVF decision and the plans for the manner in which it would be implemented were focused toward assurance of an adequate supply of enlisted volunteers. Indeed, a primary recommendation of the Gates Commission was that military pay rates be increased to make military service relatively more attractive to this age group.

During the first year of the AVF, the Army fell more than 23,000 short of its recruiting objectives, and the DOD as a whole had a shortfall of 33,000. The services adjusted their recruiting personnel and practices, and an economic recession ensued, thus enabling the services to improve their performance in the second year.

The Future of AVF Recruiting—There is every indication that the outlook for AVF recruiting is not as bright as it has been in the recent past, even if no force size changes are undertaken. The primary reasons for this more negative outlook are declining future populations in the military-age population group, improved economic conditions and the outlook for military pay relative to civilian pay.

During the next 10 years, the United States will face a sizable decrease in the population of military-age youths. The 18-year-old male population will decline from 2.15 million in 1976 to about 1.7 million in the late 1980s and to a low of 1.6 million in the early 1990s.[14] Thus, while the United States experienced peak populations in the relevant age groups during the period when the modern AVF was being implemented, it faces a sharply contrasting population situation in the next 10 to 15 years.

While it is never easy to forecast the economy, there has been an upturn over the recent year, and forecasts are generally for improved economic conditions over the next five years.

The CBO has forecast a decline in the unemployment rate from 7.9 percent in September 1976 to 4.2 percent in 1982, with corresponding declines in the rate for 18 to 19-year-old males from 19 percent to 10 percent.[15] If this projection is valid, it means that the military will be forced to compete more directly with civilian employment opportunities for the ever-decreasing number of military-age youth.

By any measure, military pay has increased much more rapidly than civilian pay over the past decade. An Office of Naval Research study[16] suggests that, when the differential costs of living of military and civilian personnel are taken into account, the real increase in pay for military E-1s (the lowest pay grade) has been 193.4 percent from 1964 to 1973, while the corresponding civilian production and nonsupervisory (nonagricultural) worker's pay increased in real terms only 10.3 percent during the same period.

These enormous increases in military enlisted pay relative to pay for comparable civilian employment have had significant impact on enlistments.[17] Since "GI Bill" benefits expired at the end of calendar 1976, and since it is unlikely that comparable relative gains will occur in the future as they have in the recent past, real questions can be raised concerning the impact of pay and benefits on future recruiting.

This relatively unfavorable recruiting environment can be used to forecast that "... over the next five years substantial raises will have to be made to produce numbers and quality of military recruits."[18]

The magnitude of the recruiting problem facing the military is put into clear perspective by Johnston and Guy[19] who estimate that the active duty military will have to recruit one out of every three "qualified and available"[20] male youths until 1980 and that this proportion increases to 40 percent of the qualified and available pool in the 1985-89 period. When Reserve requirements of 100,000 annual nonprior service accessions are taken into account, the ratios become 40 percent for 1975-80 and 50 percent for 1985-90. This means that, by the late 1980s, the military "total force" will be faced with the problem of recruiting one of every two qualified and available males in the population.

The Reserve Forces

Unlike the Active forces, whose present strength levels give the appearance of a viable AVF, the Reserve forces are experiencing significant quantity and quality problems.

These difficulties are especially important because the "total force policy"—in which integrated plans are made for "... all the resources available to perform the various national defense missions ..."[21]—relies so heavily on Reserve forces, and the enormous cost of an AVF expansion, which creates a greater need to rely on the Reserves.

Under the total force concept, Ready Reserve components are given heavy responsibility for augmenting the Active forces in an emergency. The selected Reserve must provide units to augment Active force units, and the Individual Ready Reserve (IRR) is the primary source of individuals trained for replacement and augmentation.

Since the United States no longer has an operational Selective Service System,[22] these represent the only support available to Active forces for a perhaps prolonged period until a draft can be activated, implemented and begins to produce trained forces.

All Reserve component strength levels now are below Congressional floors, but the bulk of the shortfalls exist in the Army Reserve and Army National Guard where the shortfall is predicted to increase from 44,000 to 108,000 by the end of FY 1978. The projected reductions in IRR strengths also are serious. Enlisted strength projections show a decline by FY 1982 to 63 percent of the FY 1976 level.[23]

The changing quality of the Reserve forces is reflected by significant decreases in upper mental categories and upper levels of educational attainment. This is in clear contrast to the situation existing in the Active forces where quality levels have held up reasonably well under the AVF.

The seriousness of these quality changes is pointed out when one considers the differences in learning ability and retention ability which would seem to be required in the Reserve forces. Unlike his active counterpart, the reservist cannot spend large blocks of time to learn and practice new skills. He must learn rapidly in his short "drill" or "camp" experiences, and he must retain these skills, without the opportunity for practice, while he is undertaking prolonged periods of unrelated civilian activities.

Attrition

One of the major problems facing the active duty AVF is attrition. Enlisted attrition in the Army was 106,596 in FY 1976. This means that significantly more enlisted personnel terminated their Army service prior to the expiration of their term of service than were separated routinely at the normal completion of their term (including retirees). About 70 percent of these separations prior to the expiration of the normal term of service are classified as "adverse"—for example, trainee

discharges, misconduct, expeditious discharges, unsuitability and unfitness—and a large proportion (about 80,000 for overall DOD) involved personnel in their first year of service. These first-year losses represent about 20 percent of total accessions for the period.[24]

The impact of this attrition rate on manpower costs is direct and significant. The military expends funds to recruit, train, pay, house and clothe these individuals, and gets little in return. These separations, and the events preceding them, cannot but have negative impacts on military morale. Moreover, the social cost to the nation of creating this number of "failures," and the consequent effect on recruiting of having significant numbers of "antimilitary salesmen" influencing the choices of potential enlistees, is staggering.[25]

Other AVF Problems

Among the other areas in which the AVF has created consequences which may be of concern are combat and technical skills bonuses, physician shortages and the representativeness of the AVF.

Combat and Technical Skills Bonuses—The services have used various bonuses for enlistments and re-enlistments to fill otherwise unattractive (combat and sea duty) positions and positions requiring high levels of technical skills. DOD spent $109.2 million on bonuses in FY 1976. Of the enlistment bonuses ($67.8 million), almost 90 percent went to "combat arms" bonuses and about 10 percent to "technical skills" bonuses. Combat arms bonuses were given to more than 25,000 enlistees in FY 1976—an indication that even current high rates of military pay are not sufficiently attractive to attract adequate recruits to these high-risk jobs.

Physician Shortages—Physician shortages continue to plague the military services. Just as draft-motivated reservists are leaving the Reserve forces, the draft-motivated Berry plan is producing constantly decreasing numbers of physician accessions. Future flows of medical personnel depend largely on the services' ability to attract volunteers for this vital skill area.

Representativeness of the AVF—The AVF is reasonably representative of the overall US population except in terms of the proportion of women and blacks.

Women make up only 5.3 percent of overall DOD strength—a significant increase from the 1.1 percent in 1964 and the 3.5 percent in 1974, but not even close to their representation in the population or to the potential which many believe to exist.

The black proportion of the Army has increased to 23.7 percent as opposed to 16.6 percent for overall DOD. This contrasts with about an 11-percent representation in the population and suggests that blacks are carrying more than their "fair share" of the US defense burden.

Taking Another Look at the AVF

In the light of all of these AVF problems, it seems reasonable to consider, from the standpoint of the 20/20 hindsight of which we are all amply possessed, the assumptions made by the Gates Commission in its determination of the AVF's feasibility and desirability. This "Monday-morning quarterbacking" is unfair to the commission, but it is revealing to examine these assumptions in the light of the evidence which has been developed since.

The Selective Service System

The most apparent "implementing assumption" of the AVF decision was that of an "effective standby draft." This assumption is so apparent because Secretary Gates included it in the key topical sentence of his transmittal letter for the commission's report, and a full chapter in the report is devoted to the standby draft.[26]

Subsequent to implementation of the AVF, the Selective Service System was reduced to the level of a centralized planning activity whose basic task is to plan for the possible institution of a draft under future potential emergency conditions. All volunteer local draft board personnel have been deactivated so that the only remaining vestiges of an $80 million agency which registered, classified, examined and inducted more than 10 million men in FY 1971, with the aid of thousands of volunteers, is a small Washington, DC, headquarters and personnel who maintain reactivation plans at the state level.

AVF Turnover Rates

The Gates Commission assumed that about 265,000 enlisted accessions per year would be required to support the current force level of approximately 2.1 million.[27] In fact, DOD plans to bring in between 400,000 to 470,000 new enlisted personnel each year over the next five years in order to sustain the 2.1 million level. Thus, the actual requirements for new accessions are

more than 50 percent higher than those which were assumed by the Gates Commission.

The Gates assumptions concerning enlisted turnover were that enlisted accession requirements would be about three-fourths of what they had been in the mixed force of volunteers and draftees.[28] In fact, turnover rates have increased significantly under the AVF despite the fact that all volunteers sign up for longer tours of duty than the two-year commitments which were required of draftees. Thus, despite the fact that one of the logical premises on which the Gates turnover assumptions are based is logically valid—that is, that increased average commitments should lead to decreased turnover (all other things being equal)—turnover has risen, not fallen, under the AVF.

Re-Enlistment Rates

Current plans calling for DOD to hold the number of enlisted personnel with more than four years service to less than 40 percent of the force are in contrast to the 48 percent which was assumed by the commission. Hence, whatever may have been the underlying validity of the Gates projections, events have not borne out the re-enlistment assumptions.

Demand-Reduction Programs

Among the key implementing assumptions of the Gates Commission Report are those involving a variety of "demand reduction" programs in DOD. These are programs which, in one way or another, are expected to reduce DOD's requirements for its basic, and most difficult to obtain, resource—the qualified young man.

The basic theses of the Gates analysis were threefold: first, that conscription, with its understated total cost for conscripts, induced the military to use manpower inefficiently; second, that the increased manpower costs of the AVF would motivate more efficient usage; and, third, that there were ample opportunities for such increased manpower efficiencies, and, hence, opportunities to reduce demand for young qualified men.

A wide variety of programs have the potential for such demand reductions. Among those explicitly treated by the Gates Commission are: capital substitution, civilianization and re-enlistment rate improvement. In contrast with the Gates assumptions, DOD has pursued none of these programs vigorously.

AVF Costs

Many of the Gates cost estimates are at variance with the cost realities of today and the future. For instance, current turnover rates have added to recruiting, training and change-of-status costs while the Gates Commission repeatedly refers to significant reductions in manpower costs which would result from anticipated decreases in turnover.[29]

The precise magnitude of this cost difference is difficult to pinpoint, but the Gates Commission estimated a savings of more than $800 million from reduced accessions, training requirements, and so forth.[30] A recent CBO study estimates that $160 million could be saved by merely returning first-term attrition to 1974 levels.[31] This implies a cost difference of about $1 billion between the Gates assumptions and the actual cost impact of turnover.

Alternatives to the AVF

Since the performance of the AVF presents a "mixed picture," it is wise for us to look into AVF alternatives.

Among those which might be considered are:

- A return to the draft.
- A "reserve-only" draft.
- A "better-managed" AVF.
- Universal military training.
- National service.
  (a) Compulsory.
  (b) Voluntary.

Return to the Draft

A natural alternative to the AVF is a return to the practice of conscripting recruits into the military. This is the system with which we are most familiar, and it would necessarily avoid many of the problems associated with the present and future AVF.

However, the draft alternative cannot be justified on the basis of significant cost savings unless dramatic pay decreases in the lower ranks are undertaken. Even then, the savings would not be as great as have been the budget costs of the AVF since many of the benefits which were offered to military personnel under the AVF have been institutionalized.

The annual savings to accrue from a return to the draft have been estimated between $325 million and $2.8 billion—the former figure being that of no pay decreases and the latter being the extreme case

involving the institution of poverty-level compensation for recruits.[32]

One of the factors mitigating against the draft is public attitudes. In 1973, nearly 79 percent of Americans favored abolition of the draft, and, since many of the AVF's problems are not well known by the public, there is no reason to believe that the draft has wider public support now.[33]

Reserve-Only Draft

A mixture of the draft and AVF which would alleviate some, but not all, of the AVF problems is a "Reserve-only" draft. Under such a plan, individuals would be drafted—probably on a lottery basis—into the IRR, given the essential training and, then, after some period, assume only the modest military responsibilities of a member of the IRR.

This alternative would resolve directly many of the problems which exist for the Reserves under the AVF, and it would provide a modest "draft inducement" to enlistment in the Active or Reserve forces. It would not be inordinately costly, but it would require the reinstitution of a Selective Service System—something that we probably will do eventually to provide us with a backup draft capability.

The primary disadvantages of such a system are the "hidden" economic and social costs of any draft and the fact that the plan does not address the broad range of problems which are facing the AVF.

A Better-Managed AVF

One of the alternatives to the current system is a better-managed AVF. This does not imply that the AVF has been mismanaged. Indeed, DOD has done an outstanding job of instituting a radically new system into a huge organization.

However, an awareness of the current AVF problems and a commitment to improve them is an essential prerequisite to development of a comprehensive plan for attainment of a better-managed force. Some of the elements of such a plan should be:

- Demand reduction programs—such as capital substitution for labor, increased use of women, increased overhead reductions, civilianization, greater use of contractor support and, encouragement of higher re-enlistment rates.
- Supply enhancement programs—such as those which will attract older recruits, prior-service persons and individuals possessing civilian-acquired skills, decreased quality standards, increased paid advertising and educational incentive programs.
- Improvements in the quality of military life—to assure the fulfillment of recruiting promises and to improve the attitudes of enlisted personnel.
- Enlisted attrition reduction programs.

Universal Military Training

Universal military training (UMT) is the generic term used to describe various plans under which "everyone" would be given at least a minimum amount of military training on a compulsory basis. Such systems exist in countries such as Israel, Sweden, Switzerland and the USSR (although it is not officially recognized as such there).

Support for the UMT concept apparently is surprisingly strong among young people. However, it is interesting to note that the concept receives much higher support than do any of the several specific UMT plans which respondents were queried about in a 1965 survey.[34]

High military training costs per recruit would make the UMT concept a costly one.[35] The additional cost would be at least $20 billion annually, possibly much more depending on the necessity for increasing physical facilities, weapons, and so forth. If the military could reduce significantly its recruit training costs through increased class size or other means, the UMT concept might be less costly than it generally is perceived to be.

National Service

"National service" is another generic term which is used to describe a variety of plans having the common element of service in a variety of military and nonmilitary fields which are deemed to be in the nation's best interests.

A number of varieties of national service may be distinguished:

- Compulsory national service—in which all are required to serve in some military or nonmilitary capacity.
- Alternative national service—in which all would be required to serve, but those choosing nonmilitary service would be exempted from a military obligation.
- "Voluntary" national service—in which nonmilitary service is encouraged, but it does not exempt one from a military obligation.

- "Minimally coercive" national service—in which everyone is required to register and be evaluated, but there is no service commitment.
- "Pure" voluntary national service—in which no commitment for service (military or nonmilitary) exists but such service is encouraged and facilitated.

The United States today has a purely voluntary system of the latter variety since both military and nonmilitary service programs such as the Peace Corps are encouraged, but not required of anyone. The "voluntary" system, (#3), is something of a misnomer since it is the system which existed in the United States during the draft era.

The other options are of greater interest:

Minimally Coercive National Service—Under this system, all Americans would be required to register, to take medical and aptitude tests and to be counseled concerning the various military and nonmilitary service options which are available. Diagnosis of physical and educational problems also would be provided so that, even if the individual did not choose to serve, he or she could be referred to the most appropriate medical care or educational programs. Such a system might include a backup draft to accommodate military requirements should the voluntary choice process not fulfill them. However, evidence suggests that defense personnel requirements might be met without resort to a draft.

Alternative National Service—This national service concept would involve a commitment on the part of everyone to serve in some capacity. Those who chose to enter nonmilitary service would be exempt from military service. However, quotas or a draft for the military would be required to ensure achievement of military requirements.

Compulsory National Service—This is the most coercive form of national service. It would involve a draft into various forms of service with the forms of service and the selection of individuals to perform various services being determined "by the system" largely on the basis of national goals and priorities rather than as a matter of individual preference.

All of the various forms of national service have the advantage of enabling the nation to pursue national goals with greater effectiveness. Moreover, even the least coercive option should serve to resolve many of the current problems of the AVF because it would require registration for service (and hence facilitate the use of the draft in emergencies) and provide a greater number of youths with information about military life, thereby increasing the likelihood of their enlisting.[36]

Additionally, such systems directly address the severe youth unemployment problem[37] through providing vocational testing and counseling for all, and job training and experience for those who participate.

The registration, evaluation and counseling element of even the minimally coercive national service alternative also would serve to:

- Identify and assess the skills and deficiencies of young Americans.
- Prescribe remedial or skill-enhancing activities which the individual may wish to consider.
- Offer factual information concerning a wide range of service and training opportunities for which the individual may be suited.
- Facilitate the channeling of resources into critical areas of national need.

Of course, the cost of any national service program would be high—although it could be accomplished for much less than many believe through the cooperation of existing private service and volunteer agencies and through the use of volunteers as leaders and trainers. The benefits to the nation from such a system—in terms of work accomplished in our cities, parks, waterways and shores—as well as in benefits to the people who participate, are potentially enormous.

Summary

The current AVF has produced some undesirable consequences. Further problems can be foreseen that will reduce the AVF to a peacetime activity that can be prepared to cope with significant emergencies only at great cost and with great delays. Such a force reduces our international credibility as well as our ability to defend ourselves and to meet our worldwide commitments.

The time has come to conduct a searching and candid evaluation of the AVF, its effectiveness, its costs and its impact on our society. In doing so, we should examine various alternatives to the AVF from the overall perspective of our national goals. Only through such an analysis of alternatives will we be able to choose that system which will serve us best in both peace and war.

Notes

1. With the exception of a brief period in 1947-48, conscription into the military had been practiced continuously since 1940.

2. Statement of President Richard M. Nixon, 27 March 1969.

3. See *The Report of the President's Commission on an All-Volunteer Armed Force*, The Macmillan Co., NY, 20 February 1070, p 1.

4. *Ibid.*, p iii.

5. Martin Binkin and John D. Johnston, *All Volunteer Armed Forces: Progress, Problems and Prospects*, Report for the US Senate Committee on Armed Services, The Brookings Institution, Washington, DC, 1 June 1973, p 25.

6. For instance, see A. DeStefano, "Is All Well With the Volunteer Military?," *Intellect*, May-June 1976, pp 660-62; and D. Cortright, "Our Volunteer Army: Can a Democracy Stand It?," *The Nation*, 16 October 1976, pp 367-62.

7. For instance, see A. N. Sabrosky, *The First Two Years of the Modern Volunteer Army: A Preliminary Assessment*, Paper delivered at the 1975 Biennial Conference of the Inter-University Seminar on Armed Forces and Society, Chicago, IL, 16-18 October 1975.

8. *Defense Manpower: The Keystone of National Security*, Report to the President and the Congress, Defense Manpower Commission, Washington, DC, April 1976.

9. For example, see Binkin and Johnston, *op. cit.*; and *The All-Volunteer Armed Force: Current Status and Prospects*, Department of Defense, Washington, DC, 17 December 1976.

10. Officers and officer candidates constituted over 14 percent of the active duty force in 1975—a significant increase from the less than 12-percent proportion in 1967.

11. See Cortright, *op. cit.*, pp 357-61.

12. A. Uscher and D. Huck, *Is the AVF a Peacetime Concept?*, Office of the Assistant Secretary of Defense (Manpower and Reserve Affairs), Washington, DC, 7 October 1974.

13. Only those cost differences that would result from increasing force size using the AVF versus increasing it using the draft, and not other costs such as housing, food, and so forth which would be the same in any circumstances.

14. *Population Estimates and Projections*, Current Population Reports, Series P-25, N601, Bureau of the Census, Washington, DC, October 1975, Table 8.

15. *Employment and Earnings*, Bureau of Labor Statistics, Washington, DC, January 1976; and *Defense Manpower: Compensation Issues for Fiscal Year 1977*, Background Paper Number 6, Congressional Budget Office, Washington, DC, 2 April 1976.

16. Tulay Demirles, *Adjusted Consumer Price Index for Military Personnel and a Comparison of Real Civilian and Military Earnings, 1964-1973*, Technical Memorandum, TM-1200, Office of Naval Research Project NR 347-024, George Washington University, Washington, DC, 1 November 1974, p 9.

17. David W. Grissmer, *The Supply of Enlisted Volunteers in the Post Draft Environment: An Analysis Based on Monthly Data, 1970-1975*, RAND Conference on Defense Manpower, 3 February 1976.

18. *Defense Manpower: Compensation Issues for Fiscal Year 1977, op. cit.*, p 15.

19. John D. Johnston and Joseph Guy, *The All-Volunteer Force: Can It Be Sustained?,* Paper presented to the Washington Operations Research Council, 5 April 1976.

20. Defined as those who are not institutionalized, unqualified or enrolled in college, but including college dropouts.

21. *The Guard and Reserve in the Total Force*, Department of Defense, Washington, DC, September 1975.

22. See *Hearings on the Selective Service System*, Subcommittee on Investigations and the Committee on Armed Forces, US House of Representatives 94th Congress, Second Session, Washington, DC, 1976.

23. Data and estimates provided by the Office of the Deputy Secretary of Defense (Reserve Affairs), Washington, DC.

24. All data provided by the Office of the Assistant Secretary of Defense (Manpower and Reserve Affairs), Washington, DC.

25. There is evidence to suggest that "friends of same age group" and "former Army personnel" together constitute the single most important advisory group for enlisted personnel. See, for instance, *Survey Estimates of Opinions on Incentives for Enlistment*, DAPO-PMP Report 67-71-E, US Army Personnel Management Development Office, Office of Personnel Operations, Washington, DC.

26. *The Report of the President's Commission on an All-Volunteer Armed Force, op. cit.*, p iii and Chapter 10.

27. Based on interpolation from *Ibid.*, Table 4-VI, p 43.

28. *Ibid.*, p 15.

29. For instance, see *Ibid.*, pp 8, 13, 15 and 28, and Staff Study 1-1-4.

30. *Ibid.*, p 29.

31. *The Costs of Defense Manpower: Issues for 1977*, Congressional Budget Office, Washington, DC, January 1977, p 28.

32. *Fact Sheet: The Cost of Defense Manpower and the Volunteer Force*, Department of Defense, Washington, DC, February 1975.

33. D. R. Segal, "Civil-Military Relations in the Mass Public," *Armed Forces and Society*, February 1975, pp 215-29.

34. L. Bramson, "The High School Student, the Draft, and Voluntary National Service Alternatives," in Sol Tax, *The Draft, A Handbook of Facts and Alternatives*, University of Chicago Press, Chicago, IL, 1967, pp 177-87.

35. *Military Manpower Training Report for Fiscal Year 1977*, Department of Defense, Washington, DC, March 1976.

36. *Attitudes and Motivations Toward Enlistment in the U.S. Army*, Opinion Research Corporation, April 1974, pp xi-xix.

37. *Policy Options for the Teenage Unemployment Problem*, Background Paper Number 3, Congressional Budget Office, Washington, DC, 21 September 1976.

To view "The All-Volunteer Armed Forces: Status, Prospects and Alternatives" as it was originally published in September 1977, visit https://www.armyupress.army.mil/Portals/7/military-review/Archives/English/JF-22/Original/King.pdf.

TO CHANGE AN ARMY

General Donn A. Starry, US Army

Change is a constant for today's armed forces. With frequently shifting requirements as well as advancing technology, it is imperative that any reforms contribute to a force's ability to operate on the battlefield. The author reviews some changes that have occurred in the past, points out certain requirements associated with change and calls for creative solutions to future needs.

This article is adapted from an address made by General Starry, 10 June 1982, to the US Army War College Committee on a Theory of Combat, Carlisle Barracks, Pennsylvania.

Reform of an institution as large as our Army is problematic under the best of circumstances. The recent history of change in military systems of the world is instructive. Let us examine the story of Sir Ernest D. Swinton's invention—the tank—as well as the history of the development of concepts for mobile all-arms warfare to illustrate the challenges that would-be reformers face in trying to introduce new ideas.

In the British army, where the idea had its genesis and was the subject of much early development and experimentation, a succession of single-minded tank and mobility enthusiasts persisted in developing the concept of mobile all-arms warfare built around the tank striking force. They did so in the face of persistent opposition by most of their less imaginative peers and superiors. Most of these reformers were "loners." For the most part, they were argumentative, assertive and hardly ever in agreement—even with one another.

Despite support from Winston Churchill, they were forced to work around an organizational system which abhorred change. In frustration, many went public with their arguments and, by doing so, incurred enmity among their superiors sufficient either to bring on their early retirement from the active ranks or to relegate them to some inconsequential posting.

Although field trials were held to demonstrate the new concepts, those who benefited most from the trials were the Germans. They spawned the blitzkrieg based largely on their own study as well as their study of the writings of the British reformers, J. F. C. Fuller and B. H. Liddell Hart, and the record of the trials on the Salisbury Plain.

As war came to Europe in 1939, the British army found itself with an imperfectly developed concept of all-arms combat based on the tank, to include inadequate tactics, organizations, equipment and training to implement a state of warfare they themselves had invented.[1]

In the US Army, the pioneers were fewer in number, and the institution proved considerably more resistant to change than even the British army. Therefore, the development of a concept of mobile warfare fared even less well. A succession of Army chiefs of staff rejected the idea out of hand. Even such future practitioners of maneuver warfare as General of the Army Douglas MacArthur testified before the Congress that one should not buy too many tanks for they were terribly expensive and quickly became obsolete. Strongest among the opposition was that bastion of mobile thinking—the US cavalry. Its last chief, Major General John K. Herr, was the most strident, outspoken opponent of the idea of all-arms warfare which was built around the tank.

There were really only two heroes of this drama in our Army: Major General Adna Chaffee and Lieutenant General Daniel Van Voorhis. Without Chaffee, the US Army quite likely would have had no tanks at all in 1940. And, without Van Voorhis,

Swinton

there would not have been an operational concept for armored formations in World War II. As Edward Katzenbach concludes in his fascinating paper, "The Horse Cavalry in the 20th Century," the Army of the most mechanized nation on earth came to the threshold of World War II firmly wedded to strategy, operational art and tactics deeply rooted in the 19th century.

On the other hand, the Germans seemed to have developed, in what retired Colonel Trevor N. Dupuy calls their "genius for war," a much more impressive willingness and ability to adapt to change. Captain Timothy T. Lupfer describes well the German army's

ability to change operational concepts and tactical schemes in a matter of months in World War I.[2]

Heinz Guderian, reading reports of the armored force trials on the Salisbury Plain, demonstrated the concept with a small force for Adolf Hitler at Kummersdorf in 1934.[3] Kenneth Macksey describes well how the German tank pioneers seized on and matured the preliminary British work on all-arms warfare built around the tank.

With Hitler's blessing of the concept, Guderian, in 18 short months, produced an all-arms panzer division. The division operated within a fairly well-spelled-out doctrinal framework. It included the strategy for mobile warfare; a general operational scheme for how the larger forces would fight; and the organization, tactics and at least a preliminary array of the type of equipment needed to bring the concept from theory to reality. In his new book, *The German Army, 1933–45*, Albert Seaton describes the German army's remarkable ability to adapt to change in those very turbulent years.

How did they do it? How were the Germans different from the British or the Americans? Several facts stand out which frame the answer and outline a set of requirements necessary to effect change.

First, the Germans had a general staff element whose primary function was to examine the need for change and, when change was decided on, to draw up the necessary programs to make it happen. True, this capability became diffused as Hitler fragmented his army command into the *OKW* (Armed Forces High Command) and the *OKH* (Army High Command), an overshadowed army headquarters. Indeed, some of the bitter antagonisms that arose between those two organizations in World War II survived until recently even in the *Bundeswehr*. Nonetheless, for the critical developmental years, there existed an institutionalized framework for examining the need for changing doctrine-strategy, operational art, tactics; describing the equipment, organizational training and other changes needed; and producing the impetus for change through the office of the *inspekteur*.

Second, the German mavericks were all products of the enormously demanding and rigorous officer selection and training system characteristic of the German army to this day. Mavericks they may have been, but all had been taught to think logically about tough problems. They were all taught in the same way, in the same schools. Compelling logic to one was, therefore, equally compelling to all. This made arriving at a consensus much easier. And change simply cannot be effected without a consensus by some means.

Third, the principal instigators of reform remained for years in positions related to implementation of the changes they espoused. For example, follow Guderian through the evolution of the blitzkrieg in Macksey's book on Guderian.[4] Change was further facilitated because the senior leadership, to include most importantly Hitler himself, was quick to seize on the strategic advantages Germany could gain over its potential foes by changing the basic ingredients of its military system.

Finally, trials had been conducted—by the Germans in Russia, by the British on the Salisbury Plain and by the Germans and the Russians in the Spanish Civil War. And these closely observed lessons were fed back into the system for the further refinement of their mobile striking forces. Recounting, then, we have a set of generalized requirements for effecting change:

- There must be an institution or mechanism to identify the need for change, to draw up parameters for change and to describe clearly what is to be done and how that differs from what has been done before.
- The educational background of the principal staff and command personalities responsible for change must be sufficiently rigorous, demanding and relevant to bring a common cultural bias to the solution of problems.
- There must be a spokesman for change. The spokesman can be a person, one of the mavericks; an institution such as a staff college; or a staff agency.
- Whoever or whatever it may be, the spokesman must build a

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consensus that will give the new ideas, and the need to adopt them, a wider audience of converts and believers.

- There must be continuity among the architects of change so that consistency of effort is brought to bear on the process.
- Someone at or near the top of the institution must be willing to hear out arguments for change, agree to the need, embrace the new operational concepts and become at least a supporter, if not a champion, of the cause for change.
- Changes proposed must be subjected to trials. Their relevance must be convincingly demonstrated to a wide audience by experiment and experience, and necessary modifications must be made as a result of such trial outcomes.

This framework is necessary to bring to bear clearly focused intellectual activity in the matter of any change, whether in concepts for fighting, equipment, training or manning the force. Such a framework was recently institutionalized in the US Army. Let us briefly describe how this came about.

The Army reorganization of 1973 was aimed, in part at least, at the institutional side of the problem we are examining. In those years, the Army needed many changes. Some were purely managerial, reflecting our apprehension of a lot of structure and too little manpower. More importantly, however, the Army realized it needed to change its concepts of warfighting. It addressed the strategic problems of fighting outnumbered and winning; the matter of the operations of larger units, which units perforce would be fewer in number; and the revision of tactics, organizations, equipment and training to bring the Army out of the Vietnam trauma and to make it an effective fighting force in the last quarter of this century.

The Army found itself confronted by principle antagonists, who were almost always sure to outnumber it, and by a growing militarization and modernization of conflict in the Third World. The Soviets, impelled by their obsession with numbers, were obviously in possession of a maturing operational concept embracing mass, momentum and continuous land combat in a nuclear, chemical or conventional environment. Convinced by the realities of our then and impending resource constraints, we could not afford a like concept. We set about to look for ways to win even though fighting outnumbered. This was a crucial first step. (Russell F. Weigley might argue that that was more of a radical departure from our antecedents than others might agree.)

However, some analysts suggested history clearly endorsed the idea, and the 1973 Arab-Israeli War provided a fortuitous field trial of useful concepts. The lessons drawn from this conflict, as well as other analytical study, led to the Army's conclusion about the requisite strategy, operational concepts, tactics, organizations, equipment and training. The outcome of this intellectual activity and theoretical study was set forth in what became the 1976 edition of Field Manual (FM) 100-5, *Operations*. Its primary emphasis, at least as viewed by its critics, was on an operational concept the Army called the "active defense."

However well or not so well that work may have been done, it met with considerable criticism from within the Army and without. Some of this simply reflected institutional resistance to the notion of change. Some of the criticism, however, reflected unresolved intellectual and theoretical concerns. But the experience demonstrated that all too little consensus building had been done and that the concepts set forth in the 1976

Liddell Hart

edition of FM 100-5 needed additional maturing. The results of that realization were severalfold.

First, the Army re-examined and revised its principles of war and published them in a new book, FM 100-1, *The Army*. An early criticism of the 1976 edition of FM 100-5 was that it was not firmly founded on enduring principles and did not even recount our principles of war. This new book began to build that theoretical foundation. The principles of war, as set forth in FM 100-1, spell out fundamental principles on which we must base our military strategy, operations and tactics in order to be successful today and to meet tomorrow's needs.

While that development was under way, the Army's operational concepts evolved through a succession of changes known as the Corps Battle, the Central Battle, the Integrated Battle, the Extended Battle, and, finally, the AirLand Battle.

One lesson of that experience was that we had imperfectly designed the institutional framework to accomplish change. In 1973, the US Army Training and Doctrine Command (TRADOC) absorbed the old US Army Combat Developments Command. There were several good reasons for that amalgamation—some related to resources and others related to perceived shortcomings with the output of that command. In any event, while strong on equipment development and organizational matters, the new combat developments directorate of the TRADOC staff was weak on conceptual work. Therefore, the bulk of the concept work reflected in the 1976 edition of FM 100-5 was done by a handful of people, none of whom was assigned to the combat development staff at TRADOC Headquarters itself or in the schools.

The realization of this omission in our original concept of how TRADOC was to do its business caused us to create a principal doctrinal development staff element at TRADOC—a deputy chief of staff for doctrine. This officer was responsible for identifying the need for change and for describing the conceptual framework of the change itself. Without that orderly process at the beginning and without one agency directly responsible for it, the need for change would always be ill-defined, and the conceptual direction of change would be cloudy at best.

Now, back to the beginning. The post-1973 reforms were presented to then Chief of Staff of the

Chaffee

Army General Creighton W. Abrams. He made many amendments but supported the general direction of the changes. After Abrams' untimely death in 1974, General Frederick C. Weyand gave his support. That support from the top has continued with both of their successors, General Bernard W. Rogers and General Edward C. Meyer.

The reformers then set about designing tactics, organizations, equipment and training systems to support the new concept. This resulted in, among other things, the division restructuring study and field trials of resulting organizations and tactics at Fort Hood, Texas. Because the concept was not yet mature, and because, in the trials, an attempt was made to measure performance differentials at the margin with an instrumentation system and a test scheme not adequate to that degree of precision, the trial outcomes were much too ambiguous to gain widespread acceptance.

At this point, it was apparent that the reformers had to begin anew. It became apparent that considerable internal consensus building would be necessary as

organizational development proceeded. So, for two and one-half years, school commandants, representatives of the Army staff, major command, supporting organizations and other services were gathered at frequent intervals, and what we now know as Division 86 was hammered out at Fort Leavenworth, Kansas.

Consensus building in the Army was difficult for several reasons. In the process of bringing about change, there must first be a conceptual notion of what must be done to fight successfully in the battle environments of today and tomorrow. That conceptual thinking can only result from close, detailed and reflective study of a wide spectrum of technology, threat, history, world setting and trends. That kind of thinking can only be done by imaginative people who have trained themselves or have been trained to think logically about tough problems. That kind of intellectual development is one of the most important functions of our Army school systems, especially at the staff college level.

It is perhaps here that we have not yet fully equipped ourselves with the requisite means to achieve change. The US Army lacked that great strength of the German system—the intellectual prowess and staff brilliance of its general staff officer corps. US Army officers lacked the cultural commonality that was brought to bear through the process of the German General Staff system, and that was the most impressive, if not the most effective, catalyst in making it possible for them to change quickly—even under the pressures of wartime.

Guderian

Even though our Army has begun working on this dimension of the problem at the US Army Command and General Staff College (USACGSC), in both the long course and the course now styled as CAS[3] (Combined Arms and Services Staff School), some years will be required before the results of this effort bear fruit. The question has been raised as to whether we should consider a second year at Fort Leavenworth for selected officers to learn more about how we should prepare and plan for war and to hone the military judgment necessary to fight and win.

The USACGSC was a two-year course from 1929 to 1936 during which time some of our most brilliant staff officers and commanders in World War II were produced. The need to train more officers more quickly caused us to reduce the course to one year. Since then, subject matter related to fighting has been reduced to fill the many demands of our increasingly complex world environment. The time to logically think through tough military problems and to develop logical thought patterns was greatly reduced. But the complexities of war have increased greatly, and it is time to give the matter a new hearing.

While much remains to be done, the US Army does have in place today most of the ingredients which history suggests are necessary to effect orderly change. And we are in the throes of changes produced by that system—changes designed to move us into the last two decades of this century. We would be well served in the future if that process could include more sound thinkers in uniform and fewer academic and amateur military strategic gadflies.

We would be better served as the process matures if we could somehow focus the intellectual prowess of the operations analysis community on our fundamental rather than our peripheral needs. We would be much better served, in the long run, if we could learn how to change our institutions from within instead of creating

the circumstances in which change is forced on us by civilian secretaries of war, defense or whatever.

We would be much better served, in the end, if we could develop and refine, in our institution, the cultural commonality of intellectual endeavor and the ability to think logically about tough problems. These are necessary to develop new ideas, mature them quickly and chart relevant action programs which effect change in an efficient, orderly way.

In short, we need institutional leadership as well as individual leadership. Without a requisite combination of both, history instructs us that the need for change is difficult to define. What is to be done—the goalset of change—is virtually impossible to circumscribe, and the whole process takes so long that not much ever happens. In today's and tomorrow's worlds, we simply cannot afford the luxury of that kind of inefficiency.

The need to change will ever be with us. We may have analyzed the process, framed in its essential parameters, and made some considerable progress toward arming ourselves with systemic mechanisms to permit change to take place. But that in no way ensures either that change will occur or that it will be an easy, orderly process. And so the intellectual search, the exchange of ideas and the conceptual maturation must continue and be ever in motion.

Notes

1. Kenneth Macksey, *The Tank Pioneers*, Jane's Publishing Co., N.Y., 1981, gives a first-rate account of this whole train of events.

2. Captain Timothy T. Lupfer, *The Dynamics of Doctrine: The Changes in German Tactical Doctrine During the First World War, Leavenworth Papers*, Number 4, Combat Studies Institute, US Army Command and General Staff College, Fort Leavenworth, Kan., July 1981.

3. See Kenneth Macksey, *Guderian: Creator of the Blitzkrieg*, Stein & Day Publishers, Briarcliff Manor, N.Y., 1976.

4. *Ibid*.

To view "To Change an Army" as it was originally published in March 1983, visit https://www.armyupress.army.mil/Portals/7/military-review/Archives/English/JF-22/Original/Starry.pdf.

Space Power Is Land Power

The Army's Role in Space

Major Linas A. Roe, US Army
Major Douglas H. Wise, US Army

The views expressed in this article are the author's and are not necessarily those of the Department of the Army, the Army War College, or the Command and General Staff College.
—Editor

The Unified Space Command was activated on 23 September 1985. The Air Force Space Command was proposed as a base organization for the new command which is composed of

The US Army has several initiatives under way to determine requirements for using the new high ground—space. Although once a leader in space-related research, the authors feel the Army is currently behind the other services in this area, an area that may prove vital to success in future conflict.

elements from all three services. The new command has the potential charter to coordinate joint operational space activities to ensure satisfactory on-orbit control, battle management, satellite communications links, tasking and protection of the multiservice space systems. The Air Force and the Navy have the fundamental organizational structure and the inventory of trained personnel to aid in the transition to the new organization. The Army has not been as involved in this area. Historically, the Army has been a customer/user of space systems. This approach served the Army well during an era in which applications of space systems were being formed and tried, but the era of maturity for Army space action has arrived.

To adequately satisfy the requirements of operational and tactical commanders, future space systems must be tailored, available, dedicated and operated to support the AirLand Battle mission. Measurements of land power must take into account all of the geographic features, installations and technologies (weapons, sensors and their support systems) which enable a nation to use force on land. Any technology which plays a role in this exercise of land power, land-based or not, is an instrument of land power and, when incorporated into the commander's force structure, may have a far-reaching effect on land force operating capabilities.

The commanders on the ground cannot afford the interruption of the vital information and data flow nor be denied the use of space defense to support battle plans. The full range of beneficial space operations must be available to Army commanders to capitalize on all combat assets.

Army space operations are those actions and activities performed using space systems to accomplish the space missions of force enhancement, space support and space control. These space missions, when combined with the five battlefield functional areas of maneuver control, fire support, air defense, intelligence and electronic warfare, and combat service support, provide operational and tactical commanders with significant force multipliers to win the AirLand Battle of the future. This integration provides the foundation for greater potential for Army 21. The newly created Army Space Council is coming to grips with this challenge and is seeking to establish policy and define responsibilities. The goal is the system integration of space support for the modern operational commander.

The Soviets in Space

The Soviet space program traces its roots to the active postwar exploitation of German rocket developments. The most notable achievement of this program was the 4 October 1957 launch of the *Sputnik I* probe, followed by the successful launch of *Sputnik II* on 3 November 1957. A scant four years later, the first Soviet-manned mission heralded the entry of man into space. Doctrine paralleled technology, and Soviet planners were quick to realize that the military exploitation of space offered

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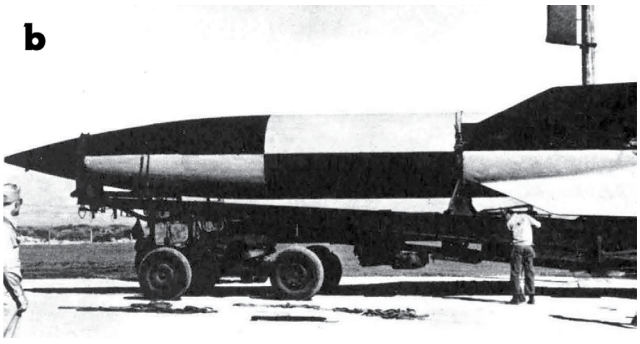

(*a*) Dr. Wernher von Braun (left) and brother, Magnus, inventors of the *V2* rocket, after surrendering to Seventh Army troops, 3 May 1945. They fled with rockets, papers and other scientists before their exper-imental station at Peenemunde was overrun by Soviet forces; (*b*) One of von Braun's *V2s* at the Army Ordnance Proving Ground, White Sands, New Mexico; (*c*) Army *Redstone* rocket hurtles first *Mercury* astronaut, Alan B. Shepard, into space, 5 May 1961; and (*d*) *Redstone* rocket being lifted into position by soldiers of 40th Artillery Group, Eckwiler, Germany, 4 December 1958.

significant potential for achieving national goals. It was not surprising, then, to find that nearly 80 percent of the Soviet space program had a military application.[1]

In recent years, a focus of Soviet space architecture has been to provide space support to operational commanders. The elements of this support have been characterized by:

- Target location, identification and characterization.
- Order of battle data.
- Force deployment/maneuver monitoring.
- Situation assessment.
- Geodetic information for tactical nuclear targeting.
- Mapping and positioning.
- Communications.
- Meteorological support.[2]

The Soviets perceive that future combat will place great stress on existing command, control, communications and intelligence systems. This will be particularly true when the integration of the operational maneuver group concept into current doctrine is complete. The space support program is to provide effective real-time assistance to the Soviet commander in the accomplishment of the operational/tactical mission. This is illustrated by reports that Soviet advisers used space assets to inform Egyptian planners of Israeli intentions and unit dispositions during the 1973 Arab-Israeli War. There are indications that orbital systems have been used to plan and conduct combat operations in Afghanistan, as well as to provide the monitoring of US exercises in Europe and the Middle East.[3]

Future Soviet space system developments are aimed at new military capabilities. The principal elements in this evolving program are reusable space vehicles similar to the US space shuttle and heavy lift boost vehicles. In conjunction with low Earth orbit manned missions, these developments are likely to lead to the establishment of a permanent manned orbital platform. It appears that the Soviets have focused on the militarization of space. Their goals, although not public, can be identified as:

- Increase the space system support to operational and tactical commanders.

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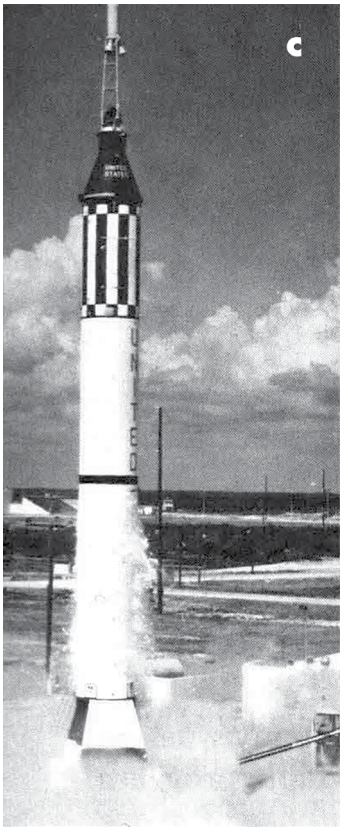

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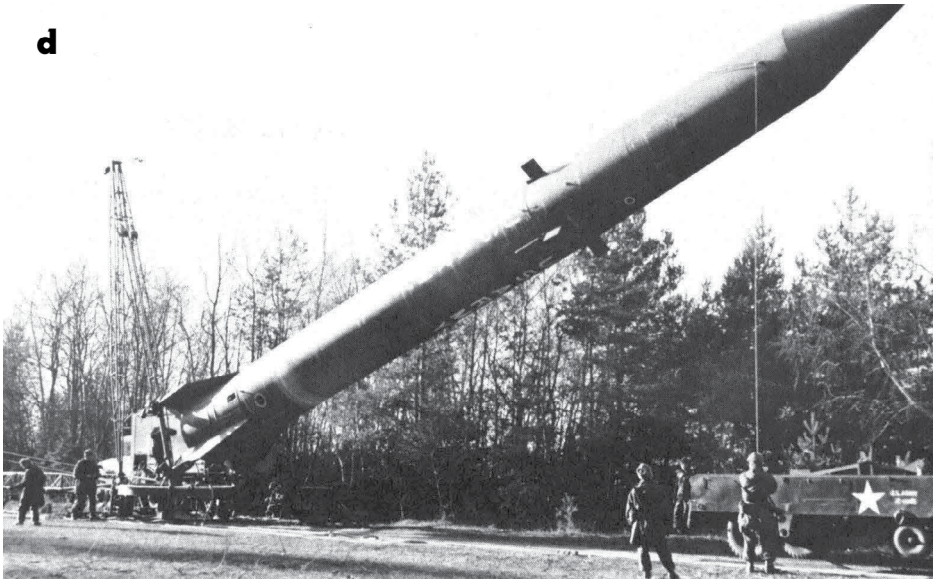

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Over the past four decades, the Army has changed from a pioneer service to a service with less than clear goals, a fragmented, organizational approach and no formal space policy.

- Enhance the strategic capability of the Soviet Union.
- Continue the evolution of offensive capabilities.

The US Army in Space

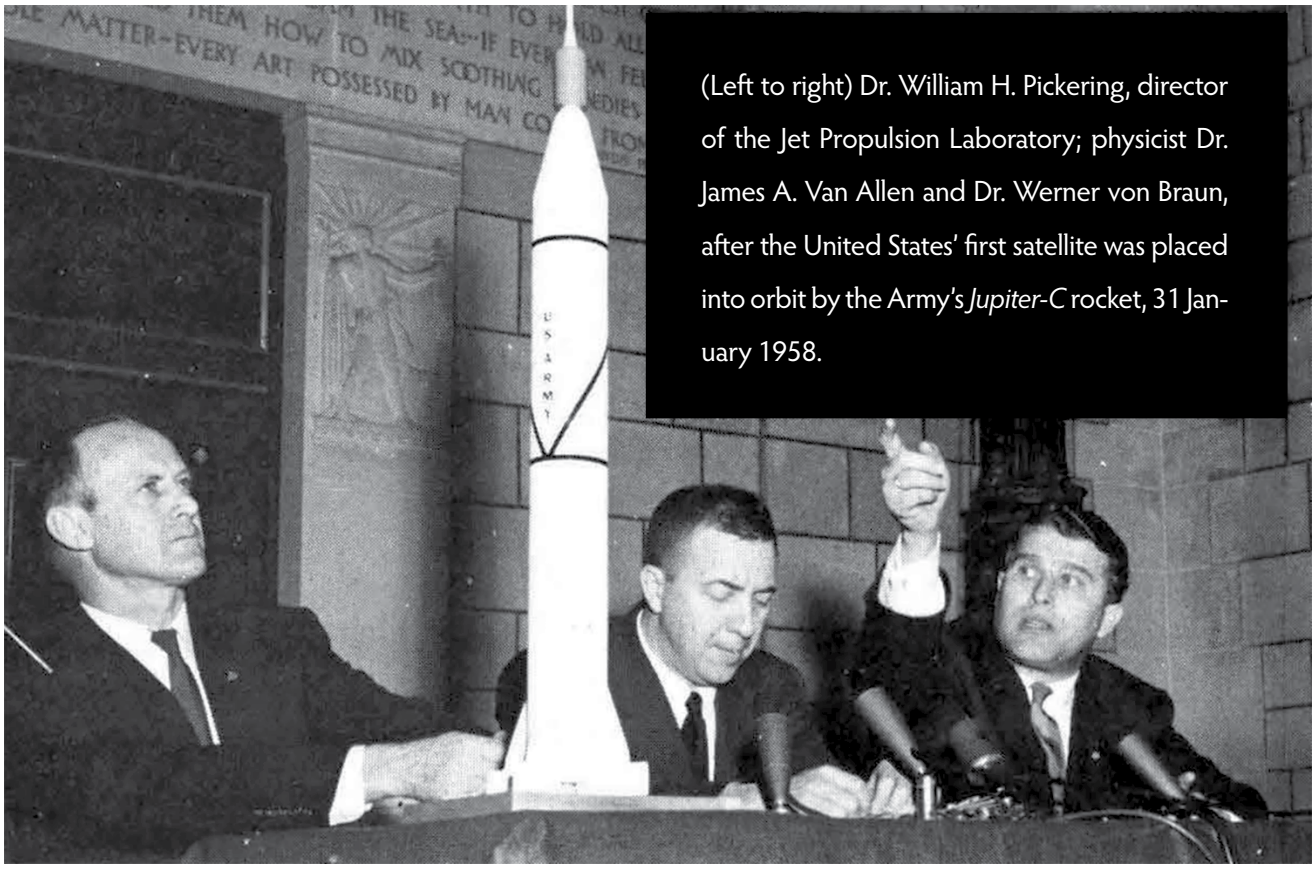
The Army has been no stranger to rocketry and has been an active participant across the broad spectrum of space-related activities. Over the past four decades, the Army has changed from a pioneer service to a service with less than clear goals, a fragmented, organizational approach and no formal space policy.

The baptism of the Army in space-related research and development occurred because of the significant threat from German rocket advances. The long-range *V2* rocket sparked concern over the vulnerability of the Continental United States. Further improvements in the German system could potentially leave US cities to the fate of the major cities of Great Britain. This concern was manifested in a study which concluded that the best defense against the *V2* was to prevent its launch. The Army, by virtue of its continental defense mission, became the primary ballistic missile defense (BMD) player.

The surrender of Dr. Wernher von Braun and his staff to the US forces in 1945 provided an insight into German developments and gave access to a mature rocket technology. The expertise of von Braun and the subsequent exploitation of German developments marked the formal beginning of the US Army's space research involvement. Early experimentation with the captured equipment occurred in late 1945 at isolated areas of Fort Bliss, Texas. This research continued until 1950 when the facilities were moved to Redstone Arsenal, Alabama, for more advanced work concerning the development of medium-range rockets.

The fear of parallel Soviet advances in rocket systems motivated continuing research in BMD. In 1955, the Army became involved with the *Nike II* study that attempted to define a common missile with variants for both antiaircraft and antiintercontinental ballistic missile missions. This effort's product was the *Nike Zeus* antiballistic-missile system.

A 1956 reorganization brought Redstone Arsenal under the control of the newly created US Army Ballistic Missile Agency. By the end of the decade, the US Army launched the first US satellite, *Explorer I*, discovering the Van Allen radiation belts. Manned missions, supported by the Army, lifted the first two astronauts into space aboard Redstone Arsenal's *Mercury-Redstone* missiles.



(Left to right) Dr. William H. Pickering, director of the Jet Propulsion Laboratory; physicist Dr. James A. Van Allen and Dr. Werner von Braun, after the United States' first satellite was placed into orbit by the Army's *Jupiter-C* rocket, 31 January 1958.

In spite of these prestigious successes, the National Aeronautics and Space Administration and the US Air Force were selected by the Department of Defense as the agencies to develop and operate future space systems. After that, the Army played a minor role in space activities, with two notable exceptions. The Army was the forerunner in developing a viable program for the operational or tactical use of space systems. These efforts established the requirements and operating procedures necessary to effectively provide AirLand Battle support. The other exception was in satellite communications where there was a defined need for reliable and flexible command and control systems at the operational and tactical levels.

The Army BMD program continued to evolve along with changing conditions of international policy, public awareness and funding. The current interest in the Strategic Defense Initiative (SDI) provides impetus in the area of BMD. This national level motivation outlines the role for the Army in, at a minimum, the ground-based portion of a space-based defense system.

While the intricacies of SDI and BMD are beyond the scope of this article, it is sufficient to note that Army BMD program funding represents approximately 40 percent of the initial SDI budget. This participation in SDI research will continue to provide opportunities for the Army to evolve as a viable partner in the development and use of future military space systems.

Future mid to high-intensity-level battles will extend over greater distances, experience a higher degree of sophistication, have higher volumes of fire and may continue longer than any military operations in history. The Army must plan for these challenges. When conducting operations anywhere on or near the Earth, the commander must secure the initiative as early as possible and exercise it aggressively. He can accomplish this by employing the tenets of AirLand Battle doctrine—initiative, depth, agility and synchronization—and employ all of the assets within his grasp.

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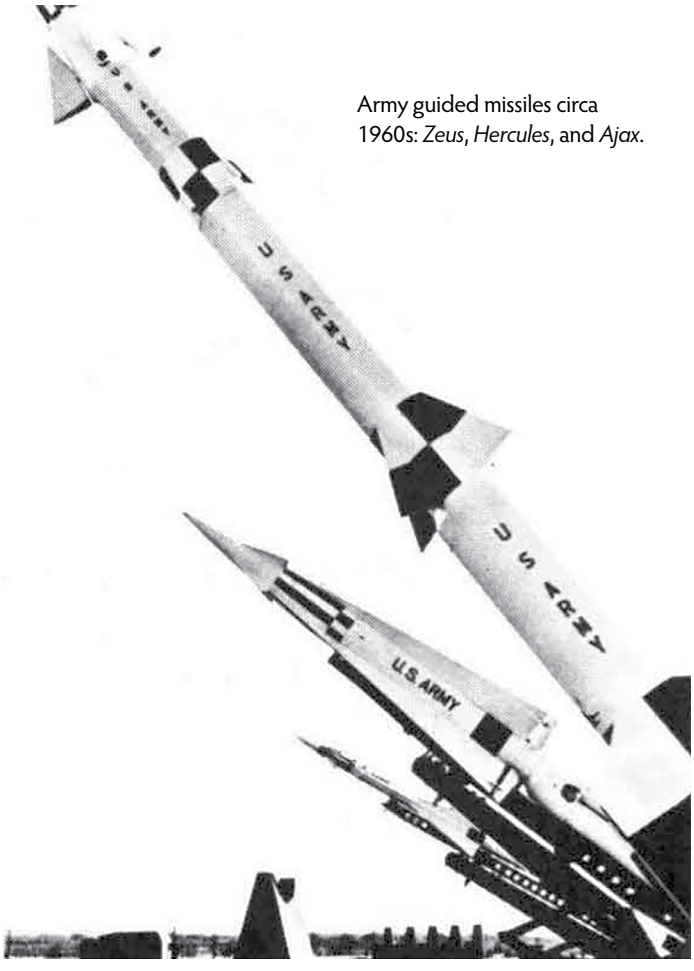


Army guided missiles circa 1960s: *Zeus*, *Hercules*, and *Ajax*.

A thorough understanding and application on the battlefield of each of the functional areas—maneuver control, fire support, air defense, intelligence and electronic warfare, and combat service support—contribute to the Army's principal charter of conducting ground operations in support of US national security interests.[4]

AirLand Battle Functional Areas

AirLand Battle functional areas provide the commander with the tools to conduct the full range of operational and tactical operations on the modern battlefield. There are near and midterm implications of developing and integrating Army space systems in support of these functional areas.

Maneuver Control

Space assets benefit the commander and operational/tactical units through accurate geolocation, tracking and navigational feedback in real time. The commander's information update and the control of maneuver actions are greatly enhanced by space systems capabilities providing the much-needed close coordination and responsiveness between the commander and subordinate units. Command and control from space assets offers additional benefits by providing the commander with a clear picture of the battlefield and the timely recognition of critical events. This permits the commander to avoid enemy strengths while taking advantage of threat weaknesses.

Real-time command and control from space gives the commander a clearer understanding of the mission objectives which are essential in exploiting AirLand Battle tenets. In the context of AirLand Battle, Army participation in space operations is essential to gain full command and control on the battlefield.

Communications space systems provide the potential for lightweight, mobile, ground networks by decreasing the requirement for vulnerable ground support equipment. This enhances friendly force mobility, is more cost-effective, improves the capability for greater communications security and provides wider access to ground forces spread over the battlefield, to include special operations forces.

The use of space assets for engineering operations support surfaces in the geopositioning and identification of enemy countermobility operations. The support of current and future operations rests with the capability of orbital systems to perform terrain analysis, geodesy and topography. These efforts serve the engineer and the commander by expanding engineer support to offensive or defensive battle plans.

Nuclear, biological and chemical (NBC) operations support in the defense enhances the capability to avoid contamination, to identify other potentially contaminated areas and the level of contamination, and the potential for early warning of NBC attacks. Space surveillance techniques could provide an improved countermeasure to threat smoke use and render it ineffective over the operations area. In the

Real-time command and control from space gives the commander a clearer understanding of the mission objectives which are essential in exploiting AirLand Battle tenets.

offense, space assets can provide the assessment of specific NBC agent applications versus the prediction of weather and terrain conditions best suited for employment under those circumstances.

The difficulties in providing secure, reliable communications between special operations units and their headquarters, as well as national authorities, would greatly alleviate command and control problems in remote areas. Space assets would also support these operations in the geopositioning and navigational roles more rapidly and responsively. This could include passage of vital intelligence and target acquisition information for small-unit operations.

Fire Support

Space assets benefit fire support by providing a continuous, around-the-clock target acquisition capability regardless of environmental conditions. Space systems can also supplement ground systems in guiding smart weapons to high-value targets in the deep attack.

Tactical Communications

Sam Orr

Space can enhance the air support of the AirLand Battle by providing the capability for long-range, secure communications to aircraft in all missions, including nap-of-the earth flying and joint air attack team (JAAT) missions for the deep battle. Space system support of air missions can include navigational aids; target-designation capabilities for close air support, battlefield air interdiction and JAAT attacks; and air-traffic management of crowded air space over the battlefield. Additionally, the potential exists for solving the identification friend or foe problems inherent in the Army air defense artillery mission.

Air Defense

Space-based detection and early warning capabilities can identify and report threat aircraft and cruise missiles entering the area of interest. Satellite monitoring systems greatly improve fire control capabilities while decreasing the electronic signatures which will flood the future battlefield. Developmental contributions from the BMD and SDI programs will provide the potential for vast improvements in these areas.

Additionally, a degree of autonomy and protection of Army space systems derived from these programs enhance the Army's chance of supporting the commander through the synchronization of available assets. This protection includes both passive and active measures, the redundancy of assets and rapid replacement capabilities. The commander should have the capability to neutralize threat space assets to protect the ground forces and ensure friendly asset availability when needed.

Intelligence and Electronic Warfare

This is a functional area where the commander in any future conflict may derive valuable benefits. These benefits, mainly at the corps level, may come in the form of improved capabilities to provide and process information from a designated named area of interest. These systems will permit the rapid collection, fusion and dissemination of vital information and data for the intelligence preparation of the battlefield plus necessary weather reporting and predictions. Additionally, these space support systems offer a potential electronic warfare opportunity to the commander in operations against second and third-echelon threat forces when there are insufficient deep battle assets to engage them.[5]

Combat Service Support

The benefits derived from geopositioning and location requirements in combat service support operations aid in the rapid and accurate distribution of logistical supplies.

It would provide for responsive and accurate logistical support requests, planning, directing, processing and delivery, as well as forecasting requirements for combat service support.

The Army's ability to carry out its charter depends increasingly on the imaginative integration of space assets into these battlefield functional areas and the vision to identify unique uses for future space systems. Three space missions offer the greatest opportunity for the Army to meet this challenge. . . . Force enhancement. . . . Space support. . . . Space control. . . .

Space Missions

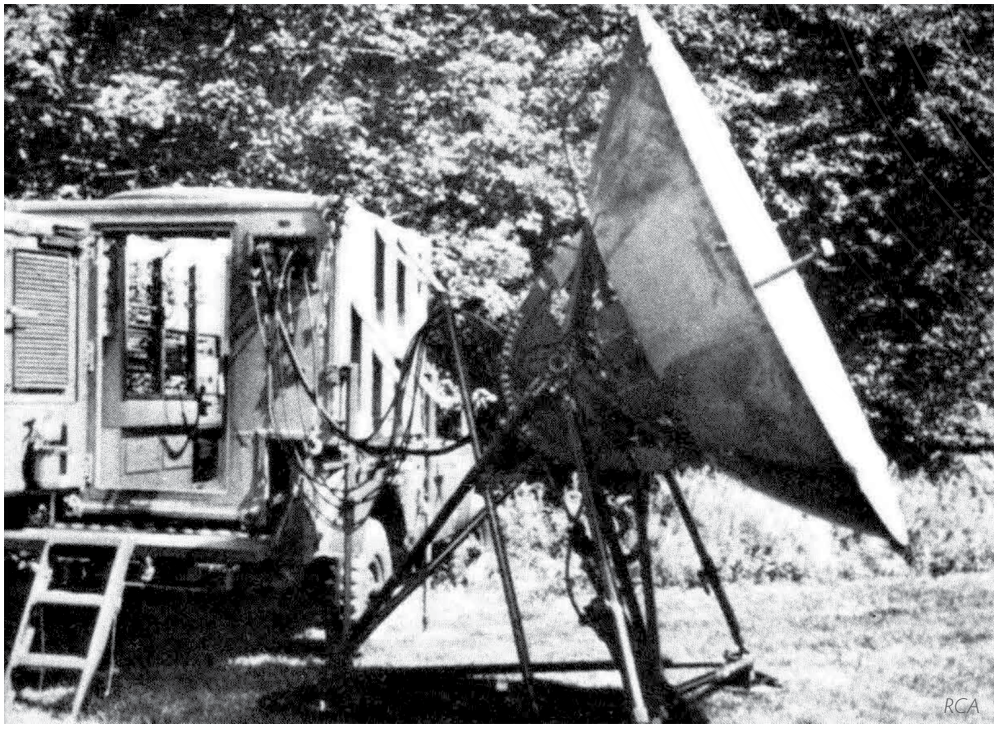
The Army's ability to carry out its charter depends increasingly on the imaginative integration of space assets into these battlefield functional areas and the vision to identify unique uses for future space systems.

Three space missions offer the greatest opportunity for the Army to meet this challenge. These three space missions are:

- Force enhancement—the use of space assets to support the operational and tactical commander.
- Space support—the activities involved with deploying and sustaining Army space systems.
- Space control—operations conducted to ensure the freedom of access to the extraterrestrial environment for Army space systems with the simultaneous denial of the same environment to the threat systems.

This area of space applications is a rapidly evolving arena, and future analyses are likely to produce changes in the precise wording of these definitions. However, the fundamentals and their potentials remain unchanged. These three Army operational missions for space systems outline the current and future uses of space to support the Army's charter.

Battlefield Surveillance



Force Enhancement

The Army's AirLand Battle doctrine characterizes the future combat environment as intense, deadly and costly. To win, "we must retain the initiative and disrupt our opponent's fighting capability in depth with deep attack, effective firepower, and decisive maneuver."[6] This concept is embodied in the AirLand Battle tenets of initiative, depth, agility and synchronization.

AirLand Battle doctrine vastly extends the battlefield for the commander. The corps attempts to gain surveillance of an area of interest large enough to see the approach of threat forces. The area of influence extends far enough beyond the forward line of own troops, permitting the corps to engage enemy units capable of attacking within approximately 72 hours. This accomplishment is a function of the capability to provide the real-time fusion of friendly and threat information and the control and execution of decisive maneuver.

A goal of the doctrine is to reduce friendly planning and execution time to "turn inside the enemy's decision/execution cycle." The pace of the deep attack, close-in battle and rear battle dictate that these requirements be satisfied simultaneously. Current technology available to the corps and echelons above corps is not sufficient to accomplish this difficult task. The principal deficiencies are identified as response time, acquisition and command, control

and communications (C^3) range, and limitations in the capability to distinguish high-value targets from many available targets.

These deficiencies are alleviated by current and evolving space-related technologies. Space systems offer extension of the range and perception of intelligence acquisition, in addition to enhancing the C^3 of offensive and defensive operations. Space systems offer the operational and tactical commander the opportunity to balance AirLand Battle requirements with system capabilities.

Space Support

The space support mission is a combat support mission involving prelaunch preparations as well as the activities involved with deploying and sustaining Army space assets. It encompasses management, planning and operations support activities such as trained personnel to operate the systems, defined safety measures to safeguard people and equipment, an educational program to ensure the technical competence of the personnel and a logistical support base. The activities in this definition include capabilities for active involvement in space launches, the recovery of specific Army space assets and the preparation, buildup, launch, deployment and use of the Space Transportation System.

This space mission is the most logical second priority for Army involvement because it can directly support the ground commander's mission in the near term. It can be supported by training programs more quickly, and the Army is becoming more active in this arena each year. The Army is participating in the astronaut program, in flight and payload integration involving the Space Transportation System, in BMD research and development activities, in Space Command participation and in Army Tactical Exploitation of National Program Capabilities and Satellite Communications Agency programs.

Space Control

Space control provides freedom of action in space for friendly forces while denying it to the enemy. This proactive defense in space safeguards and ensures that those space assets available and dedicated to the battlefield commander remain intact. It embodies the idea of

The significance of the Army's role in space can be derived from the gap needing to be filled in its capability to conduct, control and sustain combat forces on the modern battlefield in a mid to high-intensity conflict environment.

"space superiority" over the commander's area of influence just as air superiority does by employing counterair and air interdiction in airground operations. Space control, therefore, consists of two parts: counterspace operations and space interdiction.

Counterspace operations are spaceborne or terrestrial operations conducted to gain or maintain the control of space in support of Army operations. This ensures those space assets dedicated to support the Army commander have the freedom of action, throughout space, to provide that support. The action is carried out by nullifying or reducing the effectiveness of the threat's offensive and defensive space capabilities. Involving both proactive and passive defense measures, counterspace targets include space-based command and control systems, relay satellites and surface-to-space defense systems.

Space interdiction is conducted against the enemy's space lines of communication which could be used to support or participate in combat operations against friendly forces. Space interdiction includes attacking satellite control facilities, mobile ground terminals, launch facilities and space logistical and maintenance facilities. The operations also involve both proactive and passive defensive measures.

Current Initiatives

Army Vice Chief of Staff General Maxwell R. Thurman has taken steps toward identifying the Army's role in space operations by creating the Army Space Council from the Army's senior leadership. The charter of the council is to focus on the current space activities of the Army, the Army's potential role in a Unified Space Command and a future centralized Army space organization to form Army space policies, concepts, doctrine and requirements, as well as manpower, training and materiel programs. The council has identified an Army Space Working Group and its primary participants and has established a schedule for accomplishing the formulation tasks.

In addition to the aforementioned program initiatives, it began defining the Army's vital interests in the three space operational missions of force enhancement, space support and space control. In view of the Army's past efforts in space operations, the quality of these initiatives may determine the Army's future standing in space-related activities.

The significance of the Army's role in space can be derived from the gap needing to be filled in its capability to conduct, control and sustain combat forces on the modern battlefield in a mid to high intensity conflict environment. The very nature and pace of the evolution of technology and the application of space assets by the threat on the modern battlefield dictate that the US military stay in front of potential enemies in the research, development, deployment and operation of space systems. Anything less will quickly show in shortcomings to fight and defeat the enemy using all available means while denying the same to him.

The Air Force and Navy are fully committed to the establishment of a viable set of programs directed toward supporting their combat forces by applying and controlling space assets, but the Army has been constrained by its inability to envision a role for itself. The Army failed to recognize the advantages of using and controlling space assets as a combat multiplier and the requirements definition process for integrating Army space systems into the force structure.

The most recent direction from the council to try and regain lost ground surfaces in the form of two very important near-term initiatives:

- The acquisition of the talents of the Rand Corporation provides the repository of technical expertise to guide the Army toward a concrete set of concepts, realistic doctrine and training milestones, and the delivery of a master plan for Army space involvement. The first of several milestones was delivered in April 1984. It constituted the expanded version of the Army's concept statement.
- The establishment of the Army Space Initiative Study Group (ASISG). This group of officers represents the core of the US Army Training and Doctrine Command's efforts to bring together talent in all functional areas of the Army to Fort Leavenworth, Kansas, for six months of intensive investigation. It

will provide guidance to the Rand study and formulate the Army's personnel and training position and space force structure for the outyears.

These efforts substantively reinforce the Army commitment to involve itself in the employment of space assets as a future force enhancement vehicle. The efforts inherent in the SDI and the Army's involvement via the BMD program forecast long-term progress in the space control mission. The mission which appears to be receiving the least attention is the space support mission. This is possibly driven by existing joint facilities which do not enjoy Army participation.

When one thinks of nonmilitary space platforms, what immediately comes to mind is a highly integrated set of space systems for sensing the Earth environment and processing and relaying information and television pictures to other space, airborne or ground-based facilities. Thus far, only the Air Force and the Navy are in a position to take full advantage of space system capabilities tailored to meet their strategic, operational or tactical requirements.

While potential applications for space may seem obvious, the number and variety of space systems used by the Army today are actually very few. Moreover, the organization and management arrangements for determining requirements and responding to them, as well as for developing and operating space systems for combat operations, require further development and maturing.

The Army's senior leadership has recognized these deficiencies and has embarked on a broad agenda for dealing with them. The work represented by the ASISG, the Rand contract efforts, the Army Space Working Group and the council, with specific objectives to develop the master plan for the use of space systems to support the operational and tactical commanders, has started. By the year 2000, the use of the space medium and the systems operated there will determine the outcome of any future mid to high-intensity terrestrial conflict.

There is no simple formula for winning wars. Defeating enemy forces in battle will not always ensure victory. Therefore, AirLand Battle doctrine is structured around a realistic framework that is designed to draw upon every device of warfare which enhances the commander's chances of winning the battles, the campaigns and the war.

Space operations assets require full integration into the Army's arsenal. Employing the full potential of space operational missions in the form of force enhancement, space support, force application and space control will be necessary to the commander when planning the implementation of all of the functional areas of combat. There must not be any gaps in operational capabilities to support the commander's planning cycle. That is why the Army must have Army space systems tailored to the AirLand Battle commander's requirements.

The Army must develop and deploy the capabilities to properly maintain operational control of Army space assets, perform the health and welfare operations on satellites and develop an active space defense force. It must also sponsor a much accelerated design and development effort directed toward supporting Army requirements for the AirLand Battle and Army 21.

Notes

1. Colin S. Gray and Barry R. Schneider, "The Soviet Military Space Program," *Signal*, December 1984, p 69.

2. James B. Schultz, "Soviet Space Operations Stress Strategic Role," *Defense Electronics,* October 1983, p 140.

3. Nicholas L. Johnson, "Soviets Scrutinize Hot Spots From Space," *Defense Systems Review,* October 1983, pp 53-54.

4. Battlefield Automation Appraisals met in 1978, 1979 and 1980 to determine how the command and control information structure should be arranged. It was also decided that the various "battlefield functional areas" be grouped into the five "nodes" listed.

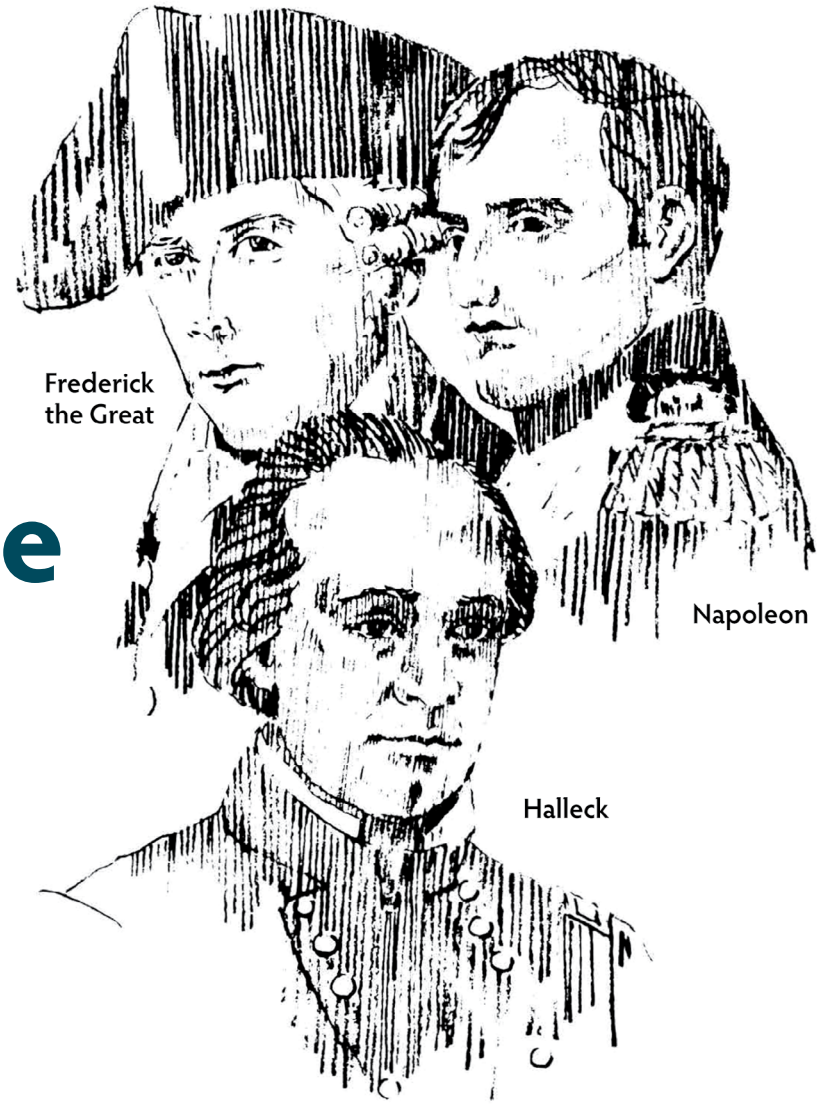
5. Walter J. Moran, et al., "The Army Role in Space, (Unclassified), Group Study Project, US Army War College, Carlisle Barracks, Pa., 1984, p 36.

6. Field Manual 100-5, *Operations*, Department of the Army, Washington, D.C., 20 August 1982, p 1-1.

To view "Space Power Is Land Power: The Army's Role in Space" as it was originally published in January 1986, visit https://www.armyupress.army.mil/Portals/7/military-review/Archives/English/JF-22/Original/Roe-Wise.pdf.

Some Vagrant Thoughts on Doctrine

Jay Luvaas



Doctrine, in the military sense of the term, is of comparatively recent origin. The word has been around since the 14th century. It originally meant "the action of teaching" or "that which is taught or laid down as true concerning a particular subject or department of knowledge," usually in the realm of religion or politics.[1]

"Doctrine" did not enter the military lexicon until a generation ago. It appears in none of the principal English or American military dictionaries of the 19th century. American doughboys trying to converse with their French Allies in World War I could not have found the word in the *French-English Military Technical Dictionary* issued by the War Department. And somehow G.I. Joe managed to fight and win in World War II without an official definition of doctrine in the 1944 *Dictionary of United States Army Terms*.

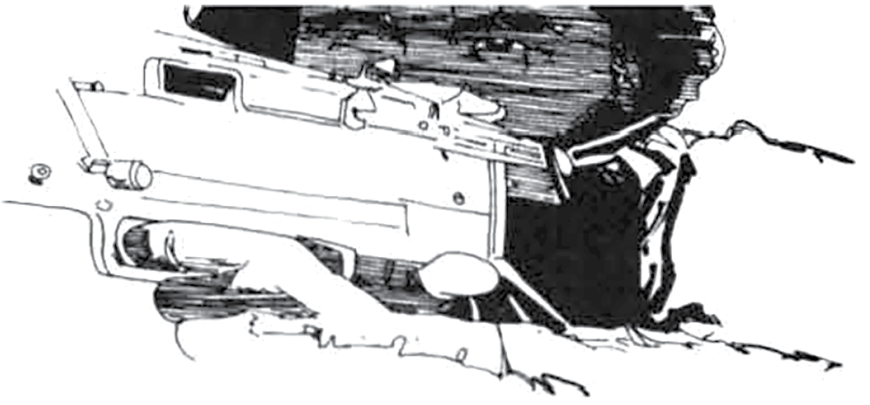
Not until the 1950 edition of the dictionary was there any specific mention of the word. It was defined as the:

... compilation of principles and policies, applicable to a subject, which have been developed through experience or by theory, that represent the best available thought, and indicate and guide but do not bind in practice. Essentially doctrine is that which is taught. ... a truth, a fact, or a theory that can be defined by reason ... which should be taught or accepted as basic truths.[2]

Although armies used to win victories without suspecting that military doctrine existed, the *concept* was clearly there. Certainly, the Romans had prescribed training techniques and organization as well as a tactical recipe that succeeded for several centuries. Their doctrine in battle, camp and on the march was understood by every officer and legionnaire and eventually was written down in idealized form by Vegetius in the fourth century.

The introduction of the standing army in the late 17th century brought the possibility of standardization. The main instruments were drill manuals and published regulations which instructed the officer in what he needed to know to train, drill, discipline, maneuver and maintain his troops. As long as armies remained small, there was little need for doctrine.

Frederick the Great was probably the first to conceive of doctrine as such. After the Silesian wars, he



reissued the regulations for the Prussian infantry and cavalry, adding his own thoughts, and wrote secret instructions for his infantry and cavalry commanders in an attempt to indoctrinate them. He preferred the case method to communicate his doctrine, creating a number of hypothetical situations to show how tested rules or maxims might best be applied. During the Seven Years' War, he wrote on the changes in Austrian tactics and the means by which these might be countered. A decade before his death, he prepared treatises to instruct his independent commanders on the principles of strategy and new ways of employing artillery.[3]

In the 19th century, doctrine came to be linked with professional military schools and the rise of the general staff. Here, the Prussians led the way, for the Prussian (later the German) General Staff was actively involved in the production of theoretical works and historical studies.

The "order of teaching" at the *Kriegsakademie* specified that, before there could be good "practice" (that is, doctrine), "there must be a true theory" which could only be acquired from sound historical analysis. Theory, therefore, did not have an independent existence; "it must always derive its sustenance from fresh contact with the historical reality of which it is the abstract." Conversely, it was assumed that "historical study that did not yield a theory would be barren and useless."[4]

Although armies used to win victories without suspecting that military doctrine existed, the* concept *was clearly there. Certainly, the Romans had prescribed training techniques and organization as well as a tactical recipe that succeeded for several centuries.

Other armies before 1870 had, at best, an informal doctrine, gleaned most often from the *Maxims* of Napoleon Bonaparte and the works of men of established reputations such as Marshal Auguste Marmont and Baron Henri Jomini. Although such books were never officially adopted in England or the United States, they were widely read. Together with popular treatises by disciples in both countries, this literature created a set of assumptions about the nature of future combat. Most Union and Confederate officers probably marched off to war in 1861 fully convinced that Lieutenant H. Wager Halleck's description of the tactics of combined arms—derived from Jomini and portraying the idealized Napoleonic battle—represented the ultimate.

They quickly discovered, however, that the increased range and accuracy of firearms had rendered such tactics obsolete and, by about 1863, a new and informal doctrine was emerging. A new role was embraced for cavalry, field fortifications, more flexible infantry formations and a different relationship in the relative importance of the combat arms. This improved doctrine was not reflected in the official regulations and drill manuals issued on either side during the war. It was developed through experience and provided a constant theme in professional military literature after the war.

The decade of the 1860s marks a turning point in doctrinal matters. If the American Civil War experience did not make an impact upon European armies, the Prussian victories over Austria and France did. For the first time, the general adoption of the rifled musket and the rifled cannon changed the tactical literature of most European armies. As a German writer observed:

Our present peaceful leisure ... must be taken advantage of to provide our ... tactics with a firm foundation based

upon the experience gained in war; to establish a system more adapted to our present requirements. ... so as to be able without prejudice to act on the field of battle as we have been accustomed to do on the drill-ground, and to be less dependent ... upon the personal inspiration of subordinate officers. ... [thus providing] an army with the cement necessary for enabling it to withstand the enormous friction of the battlefield.[5]

By 1913, the doctrine of *offensive a outrance* had permeated not only the tactical manuals but also the new regulations entitled *The Conduct of Large Formations*. By this time, French doctrine was so drenched with the offensive spirit that it was observed that "even the customs officials attack."[6] The doctrines of the Russian and Austria-Hungarian armies were likewise offensive in nature, while German doctrine stressed hunting the hostile flank to win the decision by envelopment.[7]

The British and American armies both borrowed heavily from German tactical doctrine and instruction techniques. The first Field Service Regulations, which appeared in both countries in 1905, represent an effort to develop a genuine doctrine. In both armies, the German influence was unmistakable. As one US officer commented in a lecture at Fort Leavenworth, Kansas, two years after the first Field Service Regulations were issued:

Our Field Service Regulations unmistakably show the impress of German thought. [Helmuth] Von Moltke teaches us our strategy, [Robert] Griepenkerl writes our orders, while [Kalmar] Von der Goltz tells us how they should be executed.

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Another, who had helped to write the *Infantry Drill Regulations, 1911*, asserted that German offensive doctrine was probably best suited to our national character.[8]

After 1918, military doctrine everywhere became increasingly nationalized. Reflecting perhaps their experiences on the Eastern Front and limited to a small army by the terms of the Versailles Treaty, German military leaders sought to compensate by stressing quality and the offensive spirit. German doctrine in the 1920s emphasized mobility, maneuver and surprise. The French, obsessed with heavy losses and the conditions that prevailed on the Western Front, turned increasingly to the preponderance of firepower. In both armies, tactical tendencies were strengthened by the requirements of national security:

German military doctrine in the late 1930s was offensive, innovative, and integrated with the political aspects of German grand strategy [whereas, in France,] the doctrinal parameters set by civilians, largely for balance of power reasons, reduced to zero the probability of independent military advocacy of any kind of offensive doctrine.[9]

It is, therefore, misleading to depict what happened in 1940 simply in terms of conflicting military doctrines. When civilian leaders had asserted during the course of World War I that war had become too serious a matter to be left in the hands of the generals, it followed that in peace the sources of military doctrine would reflect broader concerns.

Since 1945, armies have had to respond to the nuclear battlefield, the polarization of international politics, the accelerated pace of technology, an obvious and perpetual threat, and the rediscovered "spectrum of conflict."[10] What is needed for war in Europe may not suffice elsewhere—in one place we have allies to consider; in another, local conditions to overcome. No longer may one doctrine be sufficient. Doctrine seems destined to periodic changes in emphasis, if not in direction, as we search for solutions to achieve the right balance between the offensive, defensive and deterrence.

I Corps training at Gondrecourt, France, 15 August 1918.

… German doctrine stressed hunting the hostile flank to win the decision by envelopment. … The British and American armies both borrowed heavily from German tactical doctrine and instruction techniques. The first Field Service Regulations, which appeared in both countries in 1905, represent an effort to develop a genuine doctrine. In both armies, the German influence was unmistakable.

Doctrine can be a servant or a master. It can provide a useful context for studying past or present military operations, or it can narrow our vision by dictating the questions and forming the basis for judgment as we view military developments elsewhere. It can be used as a guide, or it can be prescriptive. We should not forget that the original meaning of the word was "teaching" and, as I look at teachers I have known, they seem to fall into one or another category. Some stress the importance of information per se; others use the tools of the discipline to guide the student in evaluating and using the information.

Doctrine has been variously described as a common way of objectively approaching and handling a subject; the "logic" of professional behavior; a common philosophy, language or purpose; as "codified common sense"; and, on occasion, even as the opinion of the senior officer present. It is not an end in itself, nor does it seek to establish rules that must always be obeyed. It is essentially a teaching tool, and the reader of the new Field Manual

82d Airborne office discusses operations with Caribbean peace force soldiers, Grenada, October 1983.

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100-5, *Operations,* would do well to recall the observation of a literary figure of the 18th century: "A book is a mirror: when a monkey looks in, no apostle can look out." The late Brigadier General S. L. A. Marshall put it another way: reiterations of doctrine cannot transform human nature or "change cockroaches into butterflies."[11] MR

Notes

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2. Special Regulation 320-5-1, *Dictionary of United States Army Terms*, Department of the Army, Washington, D.C., August 1950, p 78.

3. *Essai sur la Grande Guerre, de Main de Maître, ou Instruction militaire du Roi de Prusse Pour ses génèraux* . . ., London, Eng., 1761; and *Frederick the Great on the Art of War*, edited and translated by Jay Luvaas, Free Press, N.Y., 1966, pp 149-66 and 305-37 *passim*.

4. Spenser Wilkinson, *The Brain of an Army: A Popular Account of the German General Staff*, Macmillan & Co., London. Eng., 1890, p 99.

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6. Ronald Harvey Cole, *"Forward With the Bayonet!": The French Army Prepares for Offensive Warfare, 1911-1914*, Xerox University Microfilms, Ann Arbor, Mich., 1976, p 224.

7. Barry R. Posen, *The Sources of Military Doctrine: France, Britain and Germany Between the World Wars*, Cornell University Press, Ithaca, N.Y., 1984, pp 14 and 22.

8. Timothy K. Nenninger, *The Leavenworth Schools & the Old Army: Education, Professionalism, and the Officer Corps of the United States Army, 1881-1918*, Greenwood Press, Westport, Conn., 1978, p 87; and Captain John H. Parker, "The Military Education of the Youth of the Country for a Period of at Least One Year as

a Means of Developing the Military Spirit of the Country for the National Defense," *Journal of the Military Service Institution of the United States*, March-April 1912, Volume 50, p 224.

9. Posen, *op. cit.*, pp 138 and 179; and Captain B. H. Liddell Hart, *The Remaking of Modern Armies*, John Murray, London, Eng., 1927, pp 211-34.

10. Training Regulations (TR) 10-5, *Doctrines, Principles, and Methods: Basic*, War Department, Washington, D.C., 23 December 1921, pp 1 and 3; and TR 10-5, *Military Training: Basic*, War Department, Washington, D.C., 15 August 1928, pp 3-5.

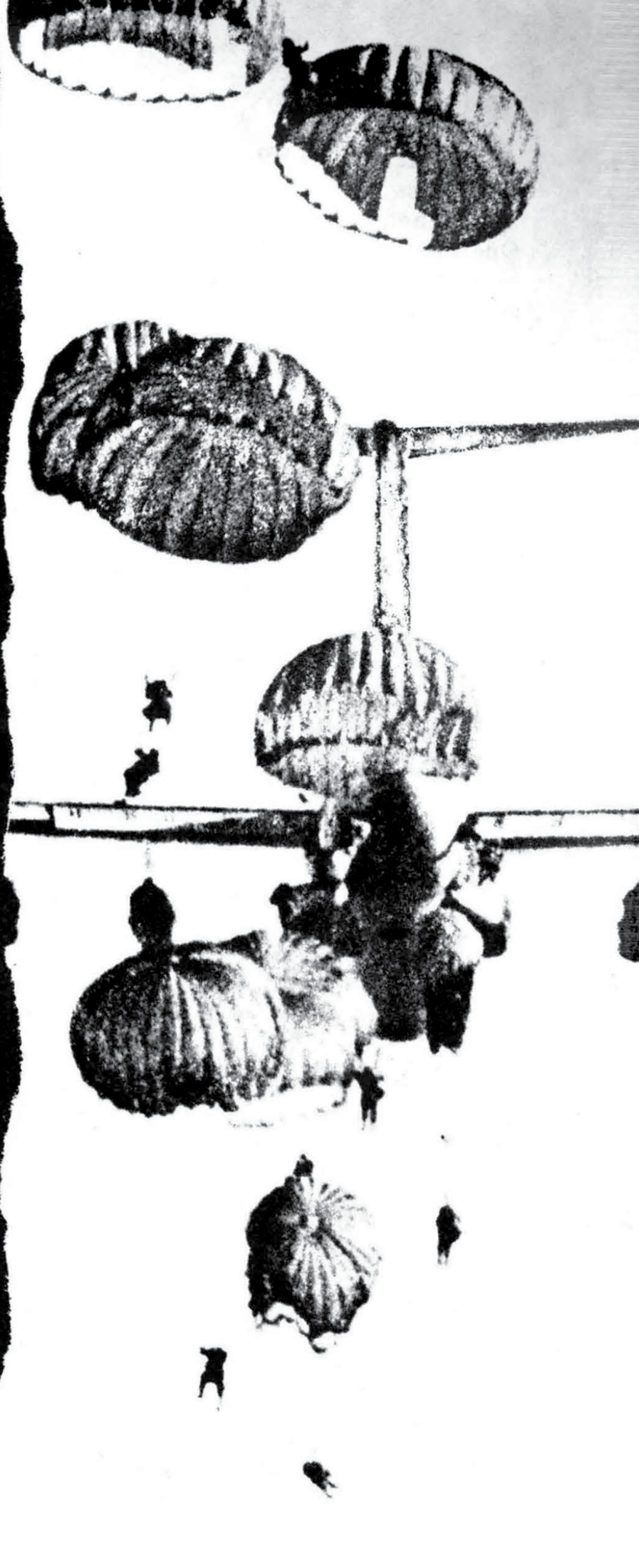
11. S. L. A. Marshall as quoted in Major Robert A. Doughty, *The Evolution of US Army Tactical Doctrine, 1946-76, Leavenworth Papers*, Number 1, Combat Studies Institute, US Army Command and General Staff College, Fort Leavenworth, Kan., August 1979, p 50.

To view "Some Vagrant Thoughts on Doctrine" as it was originally published in March 1986, visit https://www.armyupress.army.mil/Portals/7/military-review/Archives/English/JF-22/Original/Luvaas.pdf.

Operation *Urgent Fury* and Its Critics

Captain Daniel P. Bolger,
US Army

The US incursion into the island of Grenada was not a perfect military operation in anyone's estimation. Some critics even contend that, although the operation was an overall success, major flaws were uncovered in every area, including planning, intelligence, equipment and interservice cooperation. Did the operation reflect as much incompetence as alleged? This writer refutes some of these serious criticisms.



On 25 October 1983, US military forces, with several Caribbean allies, intervened on the island of Grenada. Operation *Urgent Fury* was initiated to protect the lives of US students, restore democratic government and eradicate Cuban influence on the island. Two US Army Ranger battalions, a brigade of the 82d Airborne Division, a Marine amphibious unit (MAU), the Navy aircraft carrier USS *Independence* and its battle group, Air Force transports and *Spectre* gunships, and a few Special Operations Forces combined to swiftly overwhelm the Cuban and Grenadian defenders.

The US assault commenced at dawn with nearly simultaneous assaults on the island's two airfields. Army Rangers parachuted into the Point Salines airstrip, while two Marine companies secured the Pearls Airport and nearby Grenville. The Rangers encountered heavy antiaircraft fire, but they secured the runway and a group of grateful students at nearby True Blue Campus. Reinforced by paratroopers of the 2d Brigade, 82d Airborne Division, the Army elements attacked into the thick foliage around Salines to isolate and destroy the remaining opposition.

Meanwhile, Joint Task Force Commander Vice Admiral Joseph Metcalf III left one Marine company at Pearls and sent the rest of the Marine battalion landing team (BLT) to Grand Mal beach, north of the Grenadian capital of St. George's. The Marines landed by amphibious assault vehicle and helicopter on the night of 25 October. By the next day, St. George's was in US hands, Army units had rescued the US students at Grand Anse Campus and the backbone of the Cuban/Grenadian opposition had been broken. Significant scattered resistance went on for two more days, and some isolated sniping continued until 2 November.

During the eight-day campaign, 599 US and 80 foreign students were evacuated without injury. Civil order was restored. Cuban, Soviet and various Eastern bloc representatives were removed from the island. The casualty toll was relatively light. Eighteen US troops were killed in combat, one died of wounds, 115 were wounded and 28 suffered nonhostile injuries. The Cubans lost 24 killed, 59 wounded and 605 captured who were later returned to Cuba. The Grenadian People's Revolutionary Army (PRA) suffered 21 killed and 58 captured. There were 24 Grenadian civilians killed during the operation. Admiral Wesley L. McDonald, commander, US Atlantic Command, said, "In summary, history should reflect that the operation was a complete success."[1] Not everyone agreed.

The Critics

The Grenada operation attracted the attention of five prominent members of the US military reform community. In three separate analyses, various aspects of Operation *Urgent Fury* were considered, and some rather serious complaints were presented. The accounts accepted the basic strategy set by President Ronald Reagan but noted significant faults in the execution of that strategy. Each report concentrated on slightly different subjects but, in general, all three provide harsh assessments of US operational plans and execution.

The first critique was presented at a Washington, D.C., news conference on 5 April 1984 under the aegis of the congressional Military Reform Caucus. The five-page report was prepared by legislative assistant and historian William S. Lind. Though no specific sources were given for the report, Lind remarked that he had garnered much of his information from paying close attention at various officers' clubs.[2]

A second review of the Grenada operation appeared in a copyrighted story in *The Boston Globe* on 22 October 1984. The story stated that Operation *Urgent Fury* was "a case study in military incompetence and poor execution." The authors were Major Richard A. Gabriel, US Army Reserve, and Lieutenant Colonel Paul L. Savage, US Army, Retired. These officers had written the controversial 1978 book *Crisis in Command: Mismanagement in the Army*. No verifiable documentation was included in the article; the authors stated that security strictures prevented a full disclosure of the sources.[3]

The third and most authoritative consideration of the US military performance in Grenada was copyrighted in 1984 but did not receive general attention until spring 1985. This commentary was included in Chapter 2, "How the Lessons of Defeat

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Remain Unlearned," in Edward N. Luttwak's *The Pentagon and the Art of War: The Question of Military Reform*. Luttwak, a senior fellow at the Strategic Studies Institute, Georgetown University, has served as a consultant to the US Department of State and the Department of Defense. He cited the US actions in Grenada, along with other examples of allegedly faulty US defense planning and execution. Luttwak listed the sources for his Grenada information as two articles from the May 1984 issue of the *US Naval Institute Proceedings* and news reports from October and November 1983 issues of various news publications.[4]

I do not question the patriotism, sincerity or conviction of these men. Their accounts are all built around kernels of truth. Unfortunately, each of the treatises contains errors of fact, hasty generalizations and conclusions based on shaky premises.

The 1982 edition of Field Manual 100-5, *Operations*, says: "The operational level of war uses available military resources to attain strategic goals within a theater of war."[5] This level includes the allocation of forces, the deployment of troops against selected enemy forces and terrain objectives, and the command and control of engaged combat units. Each of these operational components in Grenada received criticism. It was said that too many forces were employed, the forces were deployed piecemeal against peripheral objectives and the operation was inefficiently directed. Lind observed:

... the United States required seven battalions of troops, plus elements of two other battalions, to defeat fewer than 700 Cubans and a Grenadian army that hardly fought at all.

Luttwak also thought the United States used too much force. He called most of the Cubans "construction workers" and said that only 43 were actually soldiers. He added "those few Grenadians who were actually willing to fight" to the opposition forces but commented that the Cuban/PRA forces had no real tanks, artillery or air defenses. They had only a few wheeled "armored cars" and some light antiaircraft weapons. Gabriel and Savage stated that there were few enemy units and that the original US assault units were unable to cope with them.[6]

The US military missions in Grenada were established from the president's strategic objectives. The safety of the medical students, not the destruction of the Cuban/PRA forces, was the immediate objective. As a result, US forces were initially directed against those opposition forces posing the greatest threat to the US citizens on the island. The civilian presence discouraged the massive use of mortar, artillery or naval gunfire, and air munitions.

The second objective was the restoration of a democratic government. This necessitated the destruction of the PRA. There had to be an island left to restore, so collateral damage and civilian casualties had to be held to a minimum. Equally important, there had to be enough US troops on the ground to physically sweep and control the island to prevent any Cuban/PRA guerrilla campaign. The elimination of the Cuban presence—the third objective—implied the isolation, destruction, or capture and removal of the Cubans.

In essence, rescue operations had priority. The US rules of engagement required minimum force and minimum casualties.[7] With these constraints, the force structure had to include enough troop strength to handle the likely opposition without resorting to massive firepower.

The determination of the enemy's strength on the island was hampered by a lack of firm intelligence, but open-source military periodicals indicated a potentially sizable force. There were 701 Cuban Revolutionary Armed Forces (*FAR*) troops on Grenada. Of these, 43 advised (and, in some cases, commanded) PRA units. Ten Ministry of Interior officers provided similar advice to the People's Revolutionary Militia (PRM). The Cuban construction engineer battalion was armed and organized as a military unit. The engineers lived in barracks, carried weapons and had received defense orders from Fidel Castro and their commander, Colonel Pedro Tortoló Comas. Air reinforcement from Cuba was possible.

The Grenadian PRA was composed of two infantry battalions, an antiaircraft battery and an artillery battery. This force had trained to deal with US airborne and amphibious tactics. Its armament included six *BTR60PBs* and some *BRDM2* armored vehicles (which are still used by the Soviets), seven 130mm towed artillery pieces and six twin 23mm towed air defense guns. The PRA was supplemented by seven PRM infantry battalions which had conducted major anti-invasion maneuvers in April 1983.

Soviet, Libyan, North Korean, East German and Bulgarian contingents were on the island. The Soviets, in particular, were rather well armed for "diplomats."[8]

82d Airborne soldier in terrain typical of the island's interior.

The total possible opposition to the US operation was 10 battalions plus combat support and combat service support units. US staff planning officers had to plan for the worst case. As it turned out, both the Cubans (who had almost 12-percent casualties) and the Grenadian PRA fought hard for the first two days. The PRM did not contribute much to the island's defense.

Terrain and weather also influenced US force levels. Grenada is not a small, flat, desert island. Its area is 119 square miles (311 square kilometers). Grenada's volcanic, hilly terrain is heavily vegetated. Its population of about 110,000 occupies the land at a greater density than is found in Massachusetts or Connecticut. In the Caribbean, only Puerto Rico has more people per square mile. Almost 30,000 Grenadians live in and around St. George's. The rest are spread in small towns and clusters of farm huts. About 12 percent of the island is primary rain forest, with most of the rest either secondary forest or cultivated cocoa, banana and nutmeg groves. The central rock formations and heavy vegetation limit areas for helicopter landing zones. The hot, humid air averages 82 degrees Fahrenheit which would affect US troops. The only real coastal plain is in the Point Salines area, and most beaches are treacherous, even for small boats, let alone landing craft.[9]

Two factors influenced force planners. The large population required precision in ground operations. Foot reconnaissance would have to be used in lieu of reconnaissance by fire. Also, the defenders had many camouflage advantages. The precipitous topography would absorb a lot of infantry. Securing Grenada with vehicles or helicopter scouts would not be very effective. Too much could transpire unseen under the trees.

Troops available for the operation were limited by time constraints and mission requirements. The Caribbean area comes under the US Atlantic Command; the USS *Independence* and Navy/Marine amphibious group were already available. Special Operations Forces were selected for a few critical tasks.

US Atlantic Command planners could reinforce the MAU by sea or by air. Sea transport takes a long time,

American students after their rescue by US Army Rangers, Point Salines, 25 October 1983.

… rescue operations had priority. The US rules of engagement required minimum force and minimum casualties. With these constraints, the force structure had to include enough troop strength to handle the likely opposition without resorting to massive firepower.

and the dispatch of additional MAUs was ruled out. Air reinforcement was quicker but required the seizure of one or more runways. Army paratroopers were the logical choice, and the Army Rangers had trained to rescue hostages. Thus, the airborne Ranger battalions were added. More infantrymen were needed to complete the clearance of the countryside, and the 82d Airborne Division was the closest source of nonmechanized troops. They also had the ability to parachute into Grenada if necessary, and their normal readiness level is higher than other available Army units.

Force planners allocated the two Ranger battalions with Air Force airlift, the MAU, Air Force *Spectre* gunships and the USS *Independence* attack aircraft to the assault echelon. Air Force Military Airlift Command (MAC) planes would deliver the Caribbean peacekeeping force and two brigades of the 82d Airborne Division for reinforcements. The actual force ratios during the campaign proved adequate. However, the pace of US reinforcement indicates that the assault elements fought and won the major engagements without any overwhelming superiority in numbers or excessive use of firepower. US troop strength peaked as the Rangers were withdrawn. The redeployment schedule was dependent on the MAC airflow. The 82d Airborne Division was not flown in to meet unexpectedly heavy resistance. The first units were already en route as the assault elements landed.[10]

A second criticism of the Grenada operation concerned the disposition of the forces employed. Lind thought the plan should have been one "in which overwhelming force is used to seize all critical junctures

Ground Unit Force Ratios in Grenada
25 October-2 November 1983

	US/Caribbean	Cuban/Grenadian
25 October	1 USMC battalion (+) 2 USA Ranger battalions 1 USA airborne battalion 1/2 battalion CPF **4 1/2 battalions**	1 Cuban engineer battalion 2 PRA infantry battalions 7 PRM infantry battalions **10 battalions**
26 October	1 USMC battalion (+) 2 USA Ranger battalions 2 USA airborne battalions 1/2 battalion CPF **5 1/2 battalions**	2/3 Cuban engineer battalion 2 PRA infantry battalions PRM (snipers; fragments) **2 2/3 battalions**
27 October	1 USMC battalion (+) 2 USA Ranger battalions 3 USA airborne battalions 1/2 battalion CPF **6 1/2 battalions**	1/3 Cuban engineer battalion 1 PRA infantry battalion PRM (fragments) **1 1/3 battalions**
28 October	1 USMC battalion (+) 6 USA airborne battalions 1/2 battalion CPF **7 1/2 battalions**	1 PRA infantry battalion (fragments) **fragments**

28 October force levels maintained until 2 November, with steady erosion of Grenadian PRA units.

USA—US Army
USMC—US Marine Corps
CPF—Caribbean Peacekeeping Force
PRAF—People's Revolutionary Armed Forces
PRM—People's Revolutionary Militia

in an enemy's system at the outset." Luttwak wanted "a sudden descent in overwhelming strength that would begin and end the fighting in one stroke."[11]

Mission considerations placed the two known student concentrations at the top of the list of geographical objectives. Enemy unit positions guarding these objectives were also designated for seizure. There was no enemy "rear" area because the Cubans and Grenadians were in discontiguous locations, tied into land features and important facilities. Most of the enemy force was located in the south although aerial photographs showed a Cuban *An-26 Curl* aircraft at Pearls Airport. The seizure of both airfields would cut off any possible Cuban reinforcements.

The terrain limited the amphibious entry points to three beaches—the Grand Mal, Grand Anse and

82d Airborne troops talk with a Cuban doctor in detention area, 26 October 1983.

The total possible opposition to the US operation was 10 battalions plus combat support and combat service support units. US staff planning officers had to plan for the worst case. As it turned out, both the Cubans (who had almost 12-percent casualties) and the Grenadian PRA fought hard for the first two days. The PRM did not contribute much to the island's defense.

Great River/Conference Bays. However, the MAU could use helicopters to lift into company-sized landing zones scattered around the island. The two available airborne drop zones—the airfields—were extremely tight. Only the Point Salines airstrip could accommodate MAC *C141B StarLifter* and *C5A Galaxy* aircraft.[12] Pearls Airport would be a possible secondary site for *C130H Hercules* transports.

The US dispositions allowed Metcalf and his ground deputy, Major General H. Norman Schwarzkopf, the flexibility to move most of the Marine BLT around Grenada after Pearls was taken. The BLT attack on 26 October, combined with Army attacks at Calliste and the Grand Anse raid, broke the back of the Cuban/Grenadian resistance. It was suggested that the movement of the BLT to the St. George's area was too slow, and a "platoon or two" could have been sent by helicopter during the afternoon of 25 October.[13] This move might have run afoul of the St. George's PRA antiaircraft gunners which had downed a *Black Hawk* and two *SeaCobra* helicopters by 1200 on 25 October.

Lind preferred a scheme of maneuver involving only the Marines. The main effort of the BLT would have been a landing at Grand Anse, followed by a move across the southwestern peninsula to cut off Salines from St. George's. "… this would have isolated the Cubans from the rest of the island and made any defense on their part meaningless."[14] Unfortunately, it would have also left the True Blue and Lance aux Épines student concentrations well behind Cuban

lines. The St. George's facilities would also have remained in firm PRA control.

The single Marine battalion might have encountered slow going in the thickly undergrown Calliste/Frequente area, and the Marines' ability to contain the Cuban and PRA battalions across a mile of jungle foliage is questionable. Without an airstrip, the Marines would have to rely on seaborne reinforcement if they ran into trouble. The Cubans and the PRA, secure in their barracks and located near arms caches, could have held out for some time. This scheme might have worked over time, but the mission was to seize Grenada, not besiege it.

Luttwak desired a wholly Army operation and opined that:

... *had* Urgent Fury *been planned by Army officers competent in land warfare, their natural tendencies would have been to stage a* coup de main, *using as many battalions of the 82d Airborne Division as could be airlifted, as well as the Rangers.*

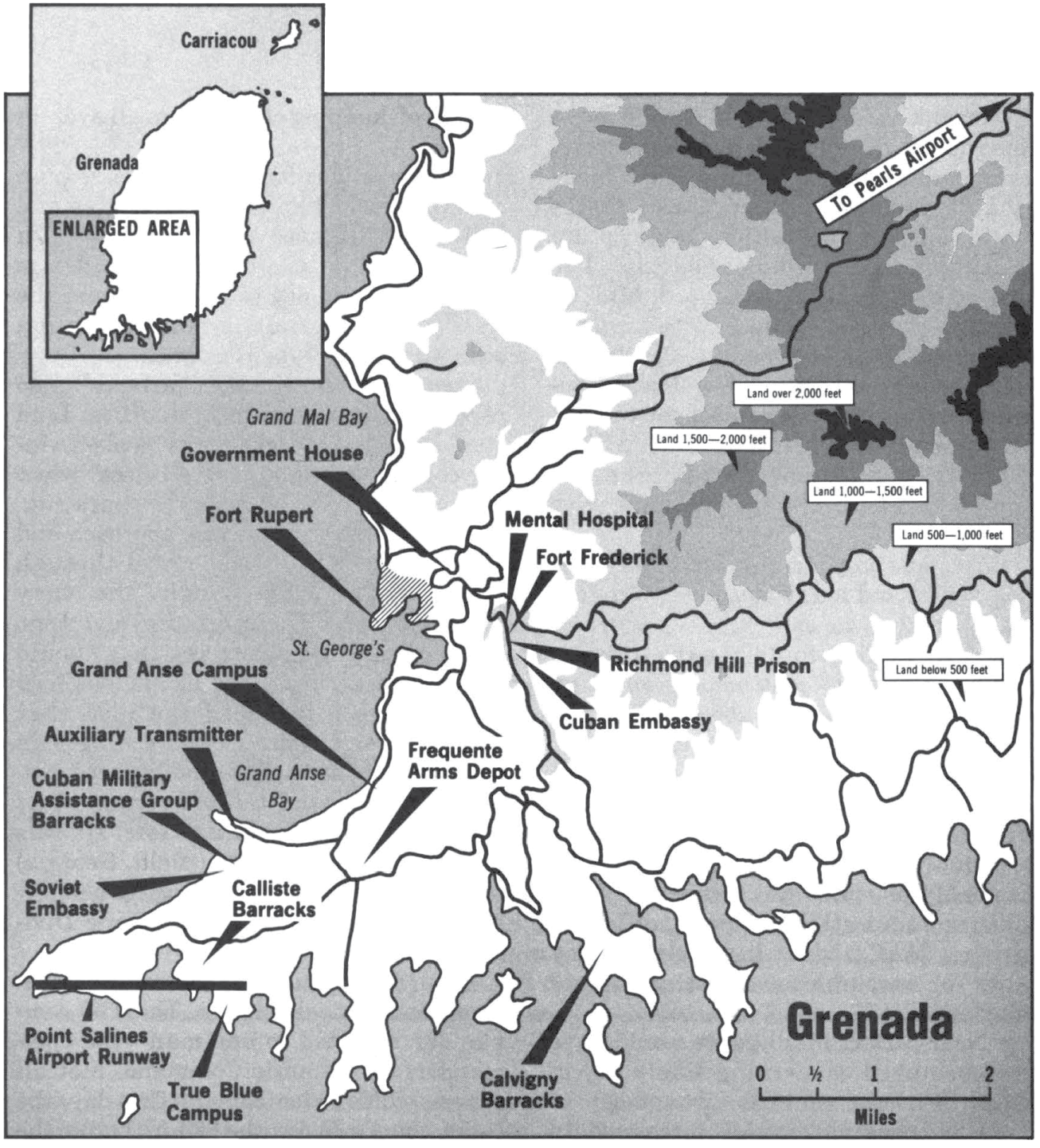
Luttwak said US troops should have come down directly on each objective, using parachutes, air landing, amphibious assault and infiltration. These forces would "suppress opposition" and capture all target areas simultaneously. The enemy command structure would be crushed at the very outset; the enemy troops would be stunned by the "sheer magnitude of the attack." Luttwak concludes: "Then there is no need for tactical movement on the ground or for airlifted vehicles, nor for coordination on the ground."[15] There are six problems with this plan:

- Grenada only has two usable airborne drop zones, and many objectives were not near these drop zones.
- MAC airlift would require time to stage to the east coast before executing such a plan. The air-space coordination over Grenada would have been difficult, especially if the drops occurred at night.
- If US forces did use amphibious techniques, the troops available would have been limited to the Marine Corps MAU. Assembly of more Marines would have taken more time than gathering and organizing a MAC airlift. Assembling Army units for amphibious operations would take longer still.
- Near-perfect intelligence would have been required concerning likely objectives. Without vehicles, ground movement or coordination, US forces would have been unable to protect the 237 students who were not near the school campuses, Pearls or the St. George's area. Enemy forces missed in the initial assaults would have been free to withdraw to the central mountain forests. This scheme would have lacked any operational flexibility.
- Airborne, amphibious, air assault and infiltration maneuvers all require careful coordination. It is not just a simple matter of dumping clots of men all over an area.
- Preparations for such a massive plan could scarcely be missed by Soviet and Cuban intelligence services. Due to an established pattern of exercises, it was possible to send out the Rangers and the first 82d Airborne Division battalion without telegraphing the punch.

Command and control "failures" also received attention from the critics. Lind stated that the operation was "a pie-dividing contest among all the services" when it should have been a naval operation. Luttwak takes the opposite approach and says the operation was "naval through and through" even though "the Navy merely provided transportation and some carrier-launched airstrikes that should not have been necessary at all." Gabriel and Savage introduced the idea that "panic" over Cuban ground strength in the joint task force (JTF) and higher headquarters diverted *C130Hs* from "Fort Stewart, South Carolina" (sic) (it was actually Hunter Army Airfield, Georgia) to Fort Bragg, North Carolina, to accelerate the arrival of the 82d Airborne Division.[16]

The terrain limited the amphibious entry points to three beaches—the Grand Mal, Grand Anse and Great River/Conference Bays. However, the MAU could use helicopters to lift into company-sized landing zones scattered around the island. The two available airborne drop zones—the airfields—were extremely tight.

The US command and control organization was relatively simple. The JTF commander reported to one man—the commander, US Atlantic Command. Metcalf supervised five elements the first day (the



Navy, the Air Force, the 82d Airborne, the MAU and Special Operations Forces), well within a normal span of control. This was reduced to four subordinate units by 1600 that day.

There was speculation that the Army Rangers wanted "in" on Operation *Urgent Fury* to justify a third Ranger battalion.[17] In fact, the Navy and Marine task forces offshore were not capable of fulfilling the special operations requirements and facing three active battalions and possibly seven militia battalions. Each of the services did things essential to their nature. The Navy secured the seas, provided carrier air power and landed the Marines. The Marines conducted three landings in seven days, both by *LVTP7* and helicopter. The Army

US Army Rangers deploying from Point Salines area, 26 October 1983.

The actual force ratios during the campaign proved adequate. However, the pace of US reinforcement indicates that the assault elements fought and won the major engagements without any overwhelming superiority in numbers or excessive use of firepower. US troop strength peaked as the Rangers were withdrawn.

seized an airfield by airborne assault and fought the bulk of the Cuban/PRA ground forces. The Air Force airlifted supplies and reinforcements and employed powerful *Spectre* gunships. Each service freed the others to accomplish their unique missions.

The charge that the operation was too "Navy" in nature ignores basic US doctrine on amphibious operations. McDonald summarized the doctrine by noting that the landing force commander controls operations until follow-up (by doctrine, Army) forces are established ashore. Metcalf, assisted by Army deputy Schwarzkopf, exercised overall command from the sea until the Army took over the entire island from the Marines for consolidation.[18] Metcalf's position enabled him to divert readily most of the Marine BLT to the St. George's area on 25 October. This action tore the heart out of the PRA resistance. That the Navy directed Operation *Urgent Fury* should come as no surprise: Grenada is an island.

The allegation that a panic in the command structure resulted in a redirection of the airflow and that "three

Members of the Caribbean Multinational Force board *UH60 Black Hawks* to take up guard positions 25 or 26 October 1983.

Each of the services did things essential to their nature. The Navy secured the seas, provided carrier air power and landed the Marines. The Marines conducted three landings in seven days, both by* LVTP7 *and helicopter. The Army seized an airfield by airborne assault and fought the bulk of the Cuban/PRA ground forces. The Air Force airlifted supplies and reinforcements and employed powerful* Spectre *gunships.

quarters of the Ranger force never left Fort Stewart (actually Hunter Army Airfield)"[19] was not true. Both Ranger battalions (minus a few headquarters people and some brand new arrivals) jumped from five *MC130Es* and 18 *C130Hs* at Point Salines and played major roles in the fighting and rescue operations. The lead battalion of the 82d Airborne Division (already in the air as the Rangers jumped) arrived aboard *C141Bs,* not *C130Hs.*[20] Rather than accelerate the deployment airflow of follow-up battalions to meet Cuban/PRA resistance around Salines, the JTF commander moved the BLT to Grand Mal beach, using darkness to cover the maneuver. It was a prudent, calculated decision without any evidence of panic except perhaps on the part of the dismayed PRA units north of St. George's.

Few military operations are free of flaws and human errors, and the operational planning and execution of Operation *Urgent Fury* were not perfect. There is plenty of room for constructive criticism of the Grenada operation based on impartial analysis of

available information. The US armed services should appreciate the sincere interest of men who provide this constructive criticism. Unfortunately, good intentions do not remedy a lack of accuracy. Nor should the final outcome be overlooked by anyone—the mission was accomplished. MR

Notes

1. Admiral Wesley L. McDonald is quoted in *Lessons Learned as a Result of the US Military Operations in Grenada, Full Committee Hearing of the House Committee on Armed Services*, House Committee on Armed Services, 98th Congress, Second Session. Washington, D.C., 24 January 1984, p 17. See also "Grenada: Will Lessons Learned Be Taught?," *Army Times*, 5 November 1984, pp 30-32 and 36; Benjamin F. Schemmer, "JCS Reply to Congressional Reform Caucus' Critique of the Grenada Rescue Operation," *Armed Forces Journal International*, July 1984, pp 13-18 and 99; *Hearings on Organization, Structure and Decisionmaking Processes of the Department of Defense: Part 8: Hearing Before the Senate Armed Services Committee*, US Senate, 98th Congress, First Session, Washington, D.C., 9 November 1983, p 337; Bruce Marcus and Michael Taber, *Maurice Bishop Speaks: The Grenada Revolution, 1979-83*, Pathfinder Press, N.Y., 1983, pp 319-21; Hugh O'Shaughnessy, *Grenada: Revolution, Invasion and Aftermath*, Hamish Hamilton, London, Eng., 1984, pp 15-16; "Grenadian Arms Cache Diverse, Substantial," *Army Times*, 28 November 1983, p 38; *D-Day in Grenada*, edited by Kesaharu Imai, World Photo Press, Tokyo, Japan, 1984, pp 21 and 82; "Paratroopers Get Gratitude, Aid," *Army Times*, 14 November 1983, p 26; "Jumping Into a Hot DZ at 500 Feet," *Ibid.*, pp 1-2, 10 and 66; Lieutenant Colonel Michael J. Byron, "Fury From the Sea: Marines in Grenada," *US Naval Institute Proceedings*, May 1984, pp 125-26; "Marines on Grenada Met Light Resistance," *Army Times*, 28 November 1983, p 29; Christopher C. Wright, "U.S. Naval Operations in 1983," *US Naval Institute Proceedings*, May 1984, pp 52-67 and 285-95; James W. Canan, "Blue Christmas Coming Up," *Air Force Magazine*, January 1984, pp 78-79; and Henry Zeybel, "Gunships at Grenada," *National Defense*, February 1984, pp 53-55.

2. L. James Binder, "Grenada Post-Mortem: A 'Report' That Wasn't," *Army*, June 1984, p 12; "Study Faults US Military Tactics in Grenada," *The Washington Post*, 6 April 1984, p A-3; "Study Criticizes Invasion Tactics in Grenada," *Christian Science Monitor*, 6 April 1984, p 1; and Schemmer, *op. cit.*, p 12, features William S. Lind's remarks on his research techniques.

3. "US Concealed Grenada Loss, Report Charges," *The New York Times*, 22 October 1984, p 10.

4. Edward N. Luttwak, *The Pentagon and the Art of War: The Question of Military Reform*, Simon & Schuster, N.Y., 1984, p 309. In a substantive footnote, Luttwak refers to the Rangers as "1st and 2nd Battalions of the 75th Infantry Brigade."

5. Field Manual (FM) 100-5, *Operations*, Department of the Army, Washington, D.C., 1982, p 2-3.

6. Schemmer, *op. cit.*; Luttwak, *op. cit.*, pp 51 and 53; and "US Concealed Grenada Loss, Report Charges," *op. cit.*

7. *Lessons Learned as a Result of the US Military Operations in Grenada, Full Committee Hearing of the House Committee on Armed Services*, *op. cit.*, p 27; and *Hearings on Organization, Structure and Decisionmaking Processes of the Department of Defense: Part 8: Hearing Before the Senate Armed Services Committee*, *op. cit.*, p 344.

8. *The Grenada Papers*, edited by Paul Seabury and Walter A. McDougall, Institute for Contemporary Studies, San Francisco, Calif., 1984, pp 43-44 and 184-85; Marcus and Taber, *op. cit.*, pp 284 and 317; Timothy Ashby, "Grenada: Soviet Stepping Stone," *US Naval Institute Proceedings*, December 1983, pp 30 and 32-33; "The Military Balance, 1983/84," *Air Force Magazine*, December 1983, p 125; *Situation in Lebanon and Grenada, Hearings Before a Subcommittee of the House Committee on Appropriations*, House Committee on Appropriations, 98th Congress, First Session, 8 November 1983, p 39; Honorable William Broomfield of Michigan Extension of Remarks, *The Congressional Record*, House, 98th Congress, Second Session, 26 April 1984, pp E1804-5; and "Grenadian Army Studied US Assault Tactics," *Army Times*, 28 November 1983, p 38.

9. National Foreign Assessment Center, *World Factbook*, US Government Printing Office, Washington, D.C., 1981, pp 76-77; *The Caribbean Year Book, 1977-1978*, edited by Colin Rickards, International Publishing Service, N.Y., 1977, pp 401 and 409; Helmut Blume, *The Caribbean Islands*, translated by J. Maczewski and A. V. Norton, Longman, N.Y., 1974, pp 350-52; and Defense Mapping Agency, Hydrographic Center, *Sailing Directions (Enroute) for the Caribbean Sea*, US Government Printing Office, Washington, D.C., 1976, pp 219-24.

10. Schemmer, *op. cit.*, pp 12-14; and Luttwak, *op. cit.*, p 53.

11. Schemmer, *op. cit.*, p 12; and Luttwak, *op. cit.*, p 56.

12. Marcus and Taber, *op. cit.*, p 321, reprinted Fidel Castro's 23 and 24 October defense orders to his construction engineer battalion. See *D-Day in Grenada*, *op. cit.*, p 82; and *The U.S. War Machine*, edited by Ray L. Bonds, Crown Publishers, N.Y., 1983, pp 186-89. The possible drop zones were evaluated by the use of calculations in accordance with FM 57-38, *Pathfinder Operations*, Department of the Army, Washington, D.C., 1973, Change 2, pp 39-40. The arithmetic assumed 64 jumpers per *C130*, with a dual-door exit at 1/2 second per paratrooper.

13. Luttwak, *op. cit.*, p 54.

14. Schemmer, *op. cit.*, p 13.

15. Luttwak, *op. cit.*, pp 54 and 56-57.

16. *Ibid.*, p 56; Schemmer, *op. cit.*; and "US Concealed Grenada Loss, Report Charges," *op. cit.*

17. Schemmer, *op. cit.*

18. *Hearings on Organization, Structure and Decisionmaking Processes of the Department of Defense: Part 8: Hearing Before the Senate Armed Services Committee*, *op. cit.*, pp 289-90; Banis M. Frank and Henry I. Shaw Jr., *History of United States Marine Corps Operations in World War II: Victory and Occupation*, US Government Printing Office, Washington, D.C., 1968, Volume 5, pp 661; and Vice Admiral George Carroll Dyer, *The Amphibians Came to Conquer: The Story of Admiral Richmond Kelly Turner*, US Government Printing Office, Washington, D.C., 1972, pp 225 and 636.

19. "US Concealed Grenada Loss, Report Charges," *op. cit.*

20. *D-Day in Grenada*, *op. cit.*

To view "Operation *Urgent Fury* and Its Critics" as it was originally published in July 1986, visit https://www.armyupress.army.mil/Portals/7/military-review/Archives/English/JF-22/Original/Bolger.pdf.

A Private's Viewpoint on AirLand Battle

Private First Class Mark T. Schmidt,
Army National Guard

Is the AirLand Battle doctrine sound, and will it work for the US Army? Before looking for answers, you must consider what the doctrine is. AirLand Battle doctrine is a refined form of combined arms operations that is highly flexible and adaptable in most battlefield environments. It normally involves more than one branch of the military service.

That established, the first place to look for answers is in the history of warfare. Although the air component of combined arms operations does not appear until the 20th century, there are many historical examples to draw upon. The other place to look for answers is in the doctrine itself.

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In *On War,* Karl von Clausewitz observed that, if an armed force does not have or is weak in one of its branches, it will be at a disadvantage when the opposing force has all branches strong and available. He also noted that, when opposing forces of comparable size meet in battle, the force that makes the best use of its combined branches in the offense and defense will be victorious, even if it is the smaller of the two.

The validity of Clausewitz's observations can be traced back to Julius Caesar's campaign in Gaul. Caesar crossed the Rhine River in 55 B.C. to show the northern tribes of Germany they were not immune from the reach of the Roman Empire. With the help of his engineers, Caesar's numerically inferior force built a bridge and repeatedly engaged the Germans. He was caught off guard many times but still emerged the victor. Why? It was because he was able to use all available forces, and all levels of his legions understood his tactics. The Germans had trouble staying organized for extended periods and tended to run for new ground at the slightest setback. Since the Germans did not have a standing professional army, it suffered defections and the loss or weakening of some of their combined arms components.

Moving to the 20th century, a good example of an air-land type of doctrine appears during World War II when German General Heinz Guderian used the blitzkrieg to roll through Poland. This offensive operation showed the devastating effects possible when air and ground forces are combined. Throughout the war, the Germans used this combination to force numerically superior forces out of the areas that were wanted by the Third Reich.

When Guderian was given the task of developing an armored force and its tactics, he knew that he

… when opposing forces of comparable size meet in battle, the force that makes the best use of its combined branches in the offense and defense will be victorious, even if it is the smaller of the two.

would need some type of covering force as mobile as the panzers. The only answer available at the time was the dive bomber. This highly mobile weapons system was able to destroy obstacles out ahead of the panzers with great accuracy. The dive bombers were allotted fighter cover so they could stay on station until their missions were accomplished.

Next, Guderian looked at mobilizing his infantry. He felt that a mobile infantry would afford protection for his panzers and thus formed a motorized infantry to operate with and support the panzer forces. The securing of newly captured territory, guarding of other supporting units and general mopping up were left to the foot infantry.

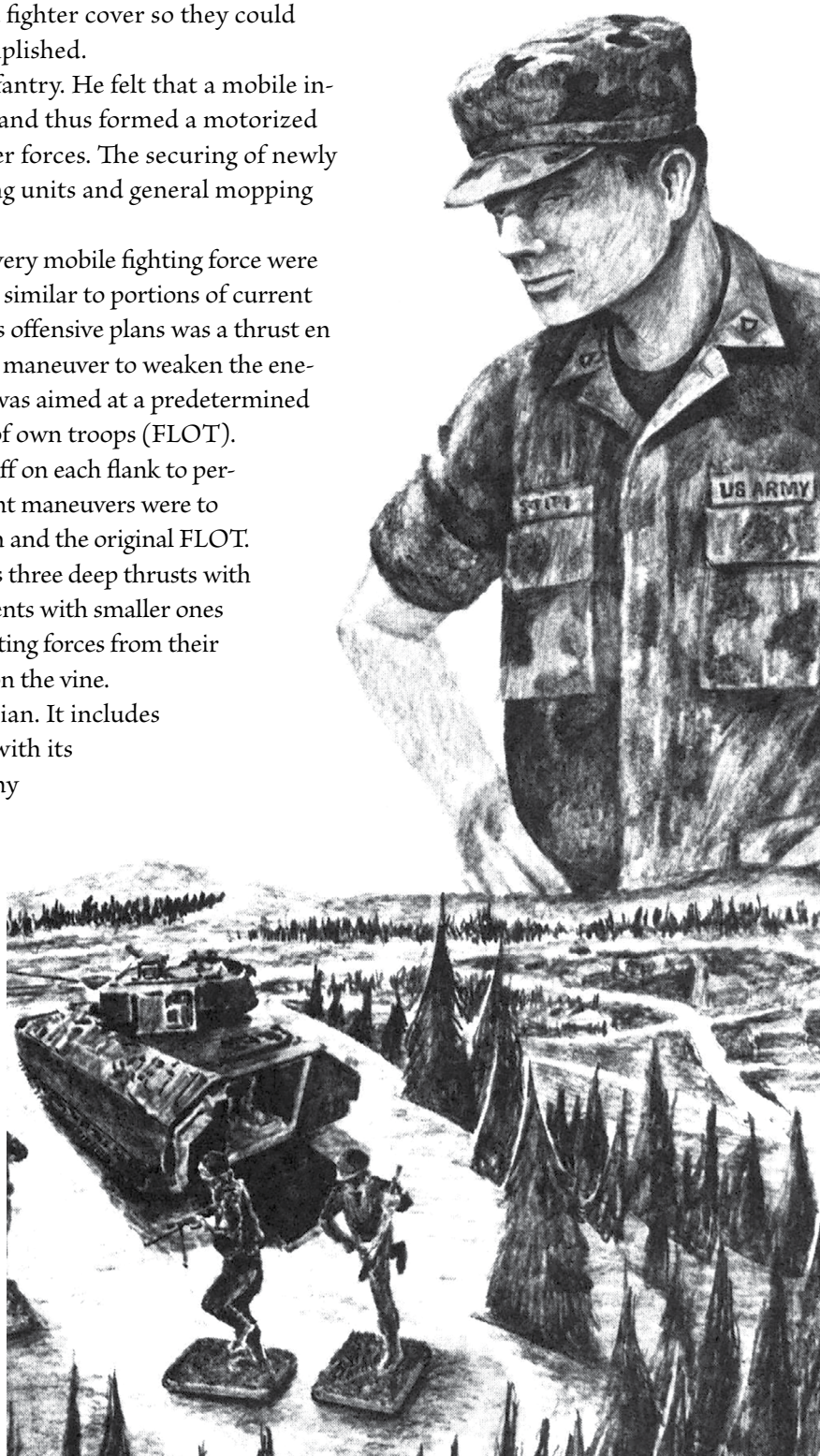
The tactics Guderian developed for his now very mobile fighting force were based on the works of B. H. Liddell Hart and are similar to portions of current AirLand Battle doctrine. The heart of Guderian's offensive plans was a thrust en masse on a narrow front. This usually followed a maneuver to weaken the enemy force at the point of attack. The main effort was aimed at a predetermined objective deep behind the enemy's forward line of own troops (FLOT).

As this drive progressed, forces would break off on each flank to perform encirclement operations. These encirclement maneuvers were to catch enemy forces between the deep penetration and the original FLOT. Guderian enhanced his plans by using as many as three deep thrusts with the same objective, thus forming large encirclements with smaller ones inside. This isolated the main body of enemy fighting forces from their supporting units and resulted in the force dying on the vine.

AirLand Battle doctrine goes beyond Guderian. It includes a very comprehensive defense plan that ties in with its offensive plan of engagement. Guderian, as many before him, failed to consider a defensive plan that would work in conjunction with the offensive plan.

This oversight proved to be very serious in some cases. Many times, it was because planners were so confident their plan of attack could not fail, they made no contingency plans for a failure. They may even have let another completely separate staff prepare the defensive plans. This situation can only lead to plans that will have problems during a transition.

AirLand Battle doctrine has its weak points as well as its strong ones. The strongest point, and the one setting it off from



that of the Warsaw Pact, is in command and control (C^2). The battlefield C^2 set forth in Field Manual (FM) 100-5, *Operations,* allows commanders from the highest to the lowest levels flexibility in executing their assigned missions. This is not a privilege extended to all levels of Warsaw Pact commanders.

US commanders have the flexibility to move their troops where needed to accomplish their mission in their sphere of influence. For a movement of troops deviating from predetermined plans, Warsaw Pact tactical commanders must seek permission from higher authority. Time used by a commander this way is wasteful and may result in the loss of any advantage they may have had.

AirLand Battle doctrine has addressed this problem by encouraging commanders to use initiative, rely on subordinate leaders and employ all available assets to defeat the enemy. Such a doctrine allows the commander to wrest the momentum away from the enemy and add to any advantage friendly forces may have.

The next strength apparent from reading FM 100-5 is how a commander can smoothly transfer from a defensive mode to an offensive one and vice versa. This transition is dependent upon commanders at all levels and their ability to have all available resources functioning. Logistical support, fire support, air support and combat intelligence must be timely and adequate if the transition is to be made with minimum cost in people and materiel.

A problem endangering any critical transition is the ability of junior leaders to execute the next command level's orders. If the subordinate cannot implement his orders in a timely manner, it could have a costly effect on the success of the transition and the overall battle. AirLand Battle doctrine has some built-in allowances to help compensate for subordinate weaknesses.

Weaknesses found in AirLand Battle doctrine may be different for each reader of FM 100-5. Some may debate whether other services will accept the doctrine; whether the doctrine is compatible with that of some North Atlantic Treaty Organization (NATO) allies; or whether

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all levels of the US Army, even down to the private level, can understand all facets of the doctrine and make it work. Such weaknesses can only be remedied by the chain of command. If commanders fail to recognize a weakness and do what is necessary to alleviate it, then AirLand Battle doctrine will be impossible to use as it was intended. This is an inherent problem with any battle plan. History has shown this, and the future will confirm it.

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Much has been written about AirLand Battle doctrine since its introduction. The views presented range from high praise to severe criticism. If history is used to judge the validity of combined arms doctrines, the Alexanders, Caesars, Wellingtons, Lees, and so forth have shown it works many times over. Thus, the continued use and refinement of AirLand Battle as the US Army's main combat doctrine make extremely good sense.

All examples of successful combined arms doctrine and subsequent operations have some common threads:

- Leaders and planners had confidence in the doctrine, and operations planned using it, to work as intended.
- All of those involved in the various branches understood the doctrine.
- All required personnel and service branches were available and ready to execute the operation at the time specified by battle orders.

AirLand Battle doctrine works in defensive and offensive situations and covers most types of engagements in which the US Army may find itself. The NATO allies' battle doctrine can work in conjunction with it. However, with all of the strongpoints of the doctrine, the most important element is the human element. All soldiers at all levels of the US Army must understand AirLand Battle doctrine and make it work when the need arises.

I believe the answer to the question, "Is the Air Land Battle doctrine sound, and will it work for the US Army?" is *yes*. With AirLand Battle doctrine, the US Army will be ready for future battles. MR

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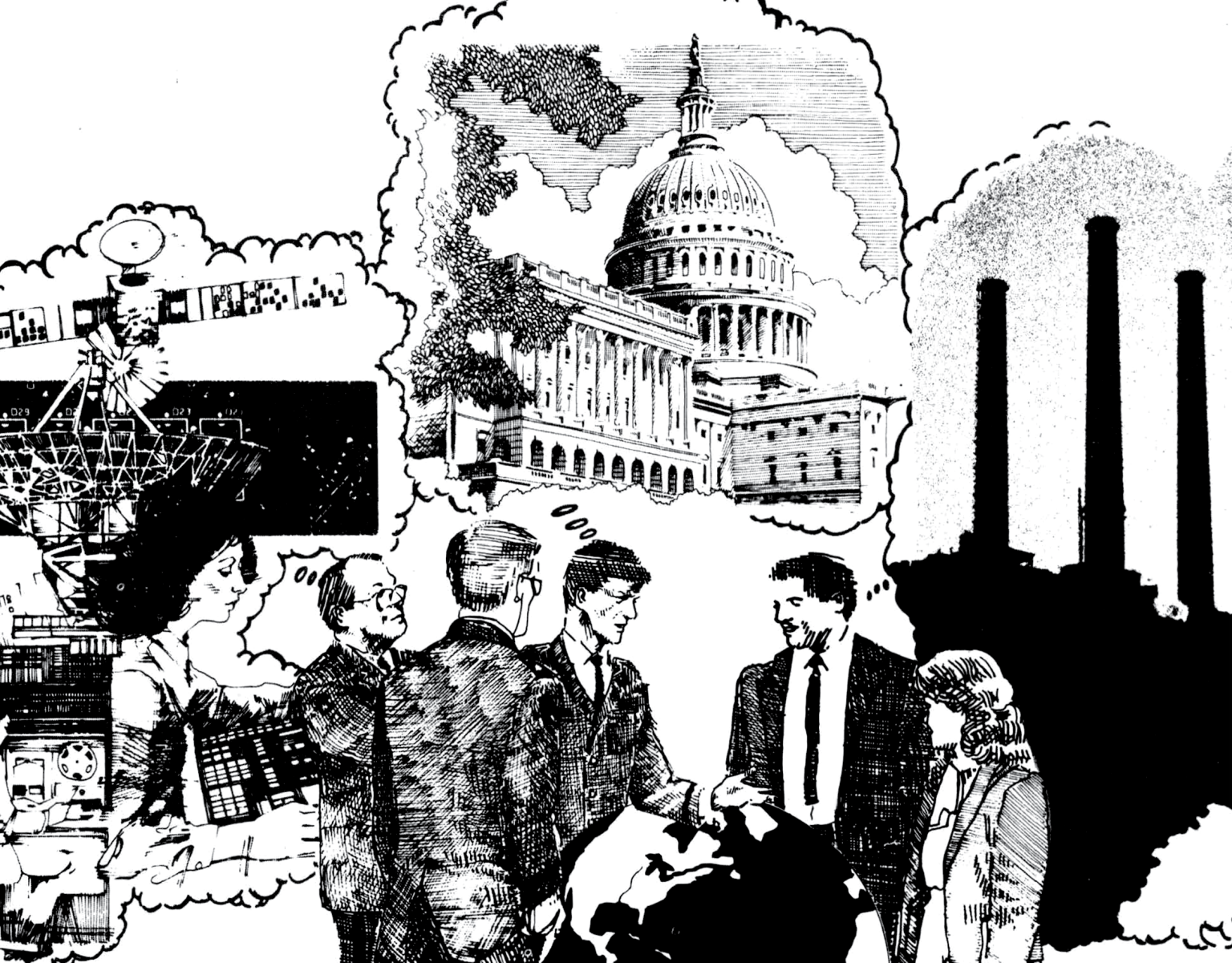

Centers of Gravity and Strategic Planning

Steven Metz

Lieutenant Colonel Frederick M. Downey, US Army

It is clear that if war starts between NATO and the Warsaw Pact, Western forces will initially fight at a quantitative disadvantage, and probably qualitative parity. This creates an overwhelming need for efficiency in the application of force. Skillful planning is one way this can be accomplished.

One definition of strategy is "the science and art of employing the political, economic, psychological, and military forces of a nation or group of nations to afford the maximum support to adopted policies in peace or war." However, the question remains against what are these national forces employed to support adopted policies, especially during war?

Recognition of this and of the ad hoc nature of much military planning and execution in US history has inspired the US Army to search for a unified theory of war, or at least for an array of concepts and theories that can assist in focusing effort and maximizing available power. This, in turn, has led to rediscovery of classical theorists of war, especially Carl von Clausewitz. However much Clausewitz has to offer the US Army, problems emerge when concepts or relationships are considered valid simply because they originated with him.

On War is a masterpiece, but there is a dangerous tendency to view it as complete and unalterable. Not only is *On War* unfinished by Clausewitz's own reckoning, but even finished passages require further development and interpretation if they are to be of use today. Thus, the Army finds itself poised between the rediscovery of Clausewitz and the development and application of his wisdom.

The concept of "center of gravity" (*Schwerpunkt*) is a perfect illustration. Clausewitz intended it as an analogy and a heuristic device to provide a focus and framework for the application of military force. The Army has recognized the need for such a device and thus has incorporated the concept of center of gravity into current doctrine. US Army Field Manual (FM) 100-5, *Operations*, for instance, gives the concept of center of gravity a prominent role. However, FM 100-5 focuses on the operational level of war and only tangentially on the strategic. It does not deal with the vital issue of how a strategic planner can accurately identify the enemy's center of gravity.

Most exercises to identify centers of gravity are performed after the fact. It is assumed that the winners of wars accurately identified the centers and successfully attained them, while losers either could not identify or could not attack the enemy's center of gravity. While individual historical studies are useful for a strategic planner, their value is eroded by the absence of any general guidelines or conclusions collated from a number of cases.

This failure to provide indicators to use in identifying the enemy's center of gravity during, or just prior, to war is a glaring weakness in existing US joint and Army doctrine. This has created a need for some sort of framework or methodology to assist strategic planners in this process. The development of such a methodology will be a complicated and important task and must begin with the clarification of the basic elements and implications of the concept of center of gravity at the strategic level.

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Alternative Conceptions

Two very different conceptions of centers of gravity exist. One approach identifies centers of gravity solely within the enemy's armed force or, more precisely, as the central concentration of his armed force. The second approach admits that the enemy's armed force is the most tangible center of gravity and the easiest to identify, but that other possible centers of gravity exist which contribute to the ability of this force to pursue the war.

Center of gravity is a principal building block in *On War* and Clausewitz argued that the "first task … in planning for a war is to identify the enemy's centers of gravity, and if possible trace them back to a single one."[1] However, Clausewitz vacillated between the two approaches.[2] On one hand, he noted that center of gravity is "always found where the mass is concentrated most densely" and he described it as "the hub of all power and movement, on which everything depends."[3] This

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At a strategic level, FM 100-5 notes that the center of gravity may be an economic resource or locality, allied cohesion, the mental and psychological balance of a key commander, or something even more intangible, such as morale or the national will. Adapting the second approach opens numerous possibilities for strategists, but also generates problems and complexities.

holds at the tactical and theater level since "a theater of war, be it large or small, and the forces stationed there, no matter what their size, represent the sort of unity in which a *single* center of gravity can be identified."[4] Even at this level, though, the center of gravity is still seen as organic to the deployment of armed forces.

Confusion arose when Clausewitz, in Book Eight of *On War*, briefly abandoned this first or operational approach to the center of gravity and described other possibilities that we categorize as strategic: "In countries subject to domestic strife, the center of gravity is generally the capital. In small countries that rely on large ones, it is usually the army of their protector. Among alliances, it lies in the community of interest, and in popular uprisings it is the personalities of the leaders and public opinion."[5]

This indicates that Clausewitz himself was unclear as to whether a center of gravity was defined solely by the distribution of military forces or was linked to the broader ability of the enemy to continue the war. Clearly, a choice between these conflicting approaches will have profound implications for strategic planning. Modern US Army thinking, at least at the operational level, generally follows Clausewitz by acceding that even though the enemy's armed force is the most readily identified center of gravity, historical cases such as Vietnam, World War II in the Pacific (where much of the Japanese army was intact) and a number of others have proven that it is not the only one.

In FM 100-5 the operational-level center of gravity is defined as: "That characteristic, capability, or locality from which the force derives its freedom of action, physical strength, or will to fight. ... [It can be] the mass of the enemy force, the boundary between two of its major combat formations, a vital command and control center, or perhaps its logistical base or lines of communication."[6]

At a strategic level, FM 100-5 notes that the center of gravity may be an economic resource or locality, allied cohesion, the mental and psychological balance of a key commander, or something even more intangible, such as morale or the national will. Adapting the second approach opens numerous possibilities for strategists, but also generates problems and complexities.

Paradoxically, both approaches to the center of gravity involve advantages and disadvantages. The first approach, which identifies the center of gravity as the greatest point of concentration of enemy forces, has the advantage of clarity and simplicity. The center of gravity becomes tangible with a physical location toward which operational plans can aim.

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Cologne, Germany 24 April 1945. A victim of the Allies strategic bombing campaign.

The American infatuation with industrial areas is clearly derived from our historical approach to war which often compensated for strategic, operational and tactical shortcomings with industrial prowess. When the enemy's industry was concentrated, as was Germany's, and to a lesser degree Japan's, in World War II, this was all the more tempting.

There are two problems with this. The first is that it is most useful for conventional warfare and has far less utility for low-intensity conflict. The second problem is incompleteness as shown by those instances where a nation lost a war with its armed force largely intact. It is important to remember that victory in war has often occurred when a belligerent concluded that the costs of continuing the war rose above the cost of ending it, not only when it no longer had the capability to continue.[7]

Even the second approach contains two variations. One considers factors outside the enemy's actual forces to constitute centers of gravity, but still deals with only tangible elements such as lines of communication and war industry. The second variation also admits that psychological factors—or anything vital to the enemy's will to resist and which can be destroyed or eroded—sometimes form centers of gravity. Victory, in this case, derives from the enemy's perception of the costs of persistence. Skillful manipulation of this perception is especially important for a belligerent fighting from a position of numerical inferiority.

This psychological angle involves thorny problems for the strategic planner. Concentrations of armed forces (as in the first approach) and lines of communication and war industry (as in the first variation of the second approach) can be identified without attempting to understand how the enemy thinks and what he values. Discovering exactly what would cause the enemy to quit with his forces more or less intact is a much more slippery process—and a more relevant one for the commander of a unified command who may have to deter a war or fight a limited war short of the conventional level. It entails total familiarization with the thought processes of the enemy elite who have the power to decide to stop the war. It involves deciding what they value and what they perceive the costs of losing to be.

General Vo Nguyun Giap led the Communist military campaigns against the French, Americans and South Vietnamese.

It seems especially difficult for US strategists grappling with an enemy of radically different ideology, religion, culture or values. Planners must attempt to think like the enemy or, more precisely, like that segment of the enemy elite having the ability to terminate the war or decide not to start it in the first place.

As vital as this kind of analysis is, it seems especially difficult for US strategists grappling with an enemy of radically different ideology, religion, culture or values. Planners must attempt to think like the enemy or, more precisely, like that segment of the enemy elite having the ability to terminate the war or decide not to start it in the first place. Values and thought patterns must be drawn from speeches, writings and analyses of potential enemies, many of which are designed to camouflage true values and priorities. In addition, the trap of "mirror image" logic, which imputes one's own values and thought patterns to others, must be avoided. Some efforts have been made in this area, as illustrated in the "countervalue" nuclear strategy described in Presidential Directive 59 (July 1980).

According to former Secretary of Defense Harold Brown, the new US strategy targets "not only the lives and property of the peoples of the Soviet Union, but the military, industrial, and political sources of power of the regime itself." The strategy thus recognizes that the Soviet elite consider the survival of the regime as important as the physical survival of the nation.[8] Unfortunately, less has been done to integrate enemy values and priorities into theater and conventional strategies. In fact, nuclear strategy may not be instructive for other types of strategies: the destructive power of the US nuclear arsenal means that there is less need for the strategist to accurately identify the enemy's center of gravity since enough weapons exist to simply destroy anything that vaguely looks like a center of gravity.[9]

Identifying the Center of Gravity

When the psychological component is considered, it is clear that no ironclad and rigid process for identifying centers of gravity can be produced. It is, however, possible to derive general rules of thumb and guidelines. The basis for this is found in Clausewitz's menu of possible centers of gravity or, more specifically, in the fuller analysis of those possibilities.

Industrial Areas. The American infatuation with industrial areas is clearly derived from our historical approach to war which often compensated for strategic, operational and tactical shortcomings with industrial prowess. When the enemy's industry was concentrated, as was Germany's, and to a lesser degree Japan's, in World War II, this was all the more tempting. However, for an industrial region to actually become a strategic-level center of gravity, two conditions must exist:

- The enemy armed forces must be heavily dependent on the products of that industrial region. In other words, the denial of the products from an industrial region must cause a very quick collapse of the armed force since it can be assumed that before or as soon as denial takes place, steps will be taken to find alternative sources of the products or ways to wage war without those products. Nazi Germany, attempting to fight an industrially dependent force, might have fit here; North Vietnam did not.
- It must be impossible to disperse the industrial capability. This could occur either when the

German III Corps and US V Corps troops preparing communications for a fire direction center.

If the alliance is seen as relatively trivial to the main power, as in Adolf Hitler's alliances, alliance cohesion does not constitute a center of gravity. For NATO, where the United States could not wage a war for Europe without European allies, alliance cohesion may form a center of gravity. For the Soviet Union, the cohesion of the Warsaw Pact may not constitute a center of gravity.

destruction or capture of a region happens so quickly that dispersal is preempted or when the nature of the industry (such as petroleum drilling and refinement) precludes dispersal.

Public Morale. To many strategic planners, especially those cognizant of the war in Vietnam, this appears to provide an enticing center of gravity, but the history of warfare shows that the US experience in Vietnam was the exception, not the rule. For public morale to constitute a center of gravity, a very special set of circumstances must exist. Clearly the government waging war must be either sensitive or susceptible to public opposition to the continuation of the war—which can only be a major factor in democracies—or deep public discontent with the government must exist prior to the war, as in Imperial Russia.

Even in democracies it is difficult to drive a wedge between a polity and a regime because of the natural tendency to rally behind a government during times of threat. Also, even democracies become less democratic, and thus less susceptible to public pressure, during a war. Historically, if all losers of wars were examined, those whose defeat was caused by a loss of public support would be very rare. Even nations where citizens suffered grievously, such as the Confederate States of America, Nazi Germany and Imperial Japan, could probably have counted on further public support or acquiescence had the elite been determined to persist in the war and had some capability to do so been present.

In general, it is not at all clear that centers of gravity determined by public morale (or its absence) have much to offer US strategists. As noted, democracies are the most vulnerable to this, but it is highly unlikely that US strategy will call for waging war against a democracy. It is difficult to imagine how US military actions could affect public morale in the Soviet Union.

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In the case of Imperial Russia, Germany clearly took advantage of the weakness of the Czar's government by assisting in the return to Russia of Vladimir Lenin, Grigori Zinoviev, Nadezhda Krupskaya and other revolutionaries in April 1917. However, actual German and Austrian military strategy only participated in this process in an indirect fashion by consistently and bloodily defeating the Russian army. This implies that public morale can form an important vulnerability in an authoritarian or perhaps even totalitarian nation, but it is a vulnerability which must fester for a relatively long time before it can be exploited.

The realities of the current US military situation do not provide the luxury of slowly developing centers of gravity before exploiting them. Since almost by definition the likely future enemies of the United States will be totalitarian regimes that can count on an extended period of public acquiescence, there is little utility in constructing strategies based on centers of gravity defined by public morale.

Alliance Cohesion. This was a possible strategic center of gravity mentioned by Clausewitz, but it is a precarious one. The determinant here is how the enemy views the alliance. If the alliance is seen as relatively trivial to the main power, as in Adolf Hitler's alliances, alliance cohesion does not constitute a center of gravity. For NATO, where the United States could not wage a war for Europe without European allies, alliance cohesion may form a center of gravity. For the Soviet Union, the cohesion of the Warsaw Pact may not constitute a center of gravity.

Even in those rare cases where alliance cohesion is a center of gravity, it is difficult for strategic planners to assess. As Joseph Stalin discovered in the late 1940s, threats can have the opposite result of what was intended and can cause friends and allies to tighten their links and their vigilance rather than disintegrate. The nature of the threat and the prethreat condition of the alliance help determine whether a given threat will cause an alliance to pull more closely together or disintegrate. Even with this, the calculations involved when alliance cohesion is considered a center of gravity are extremely tentative.

Capital Cities. Historically, after actual armed forces, capital cities have probably been the one thing most often considered a center of gravity. Union strategy early in the US Civil War is a stark example of planning based entirely on the assumption the enemy's capital constituted his center of gravity. It was only with the emergence of General Ulysses S. Grant that perceptions of the Confederate center of gravity shifted toward General Robert E. Lee's army and the economic base in the Deep South.

In World War II, the fall of France further reinforced the notion that a capital city formed the center of gravity. German strategy during the initial invasion of the Soviet Union and Soviet and Western strategy in the final years of the war placed great emphasis on capitals as centers of gravity. It is likely, however, that the role of a capital as a center of gravity is transitory. Thus, if a capital is captured quickly—as was Paris in 1940—and the government cannot physically move itself and refocus national attention, then it does serve as a center of gravity. If the capture is delayed enough to allow such a physical and psychological transfer, then the value of the capital declines.

It is likely that the capture of Moscow in the late summer or fall of 1941 would have led to Soviet defeat, while its capture a year or two later would not have. Likewise, if George McClellan had taken Richmond in the summer of 1862, the Confederacy may very well have fallen, but if Grant had done the same in the summer of 1864, it is highly possible the South could have regrouped and held out for a few more months.

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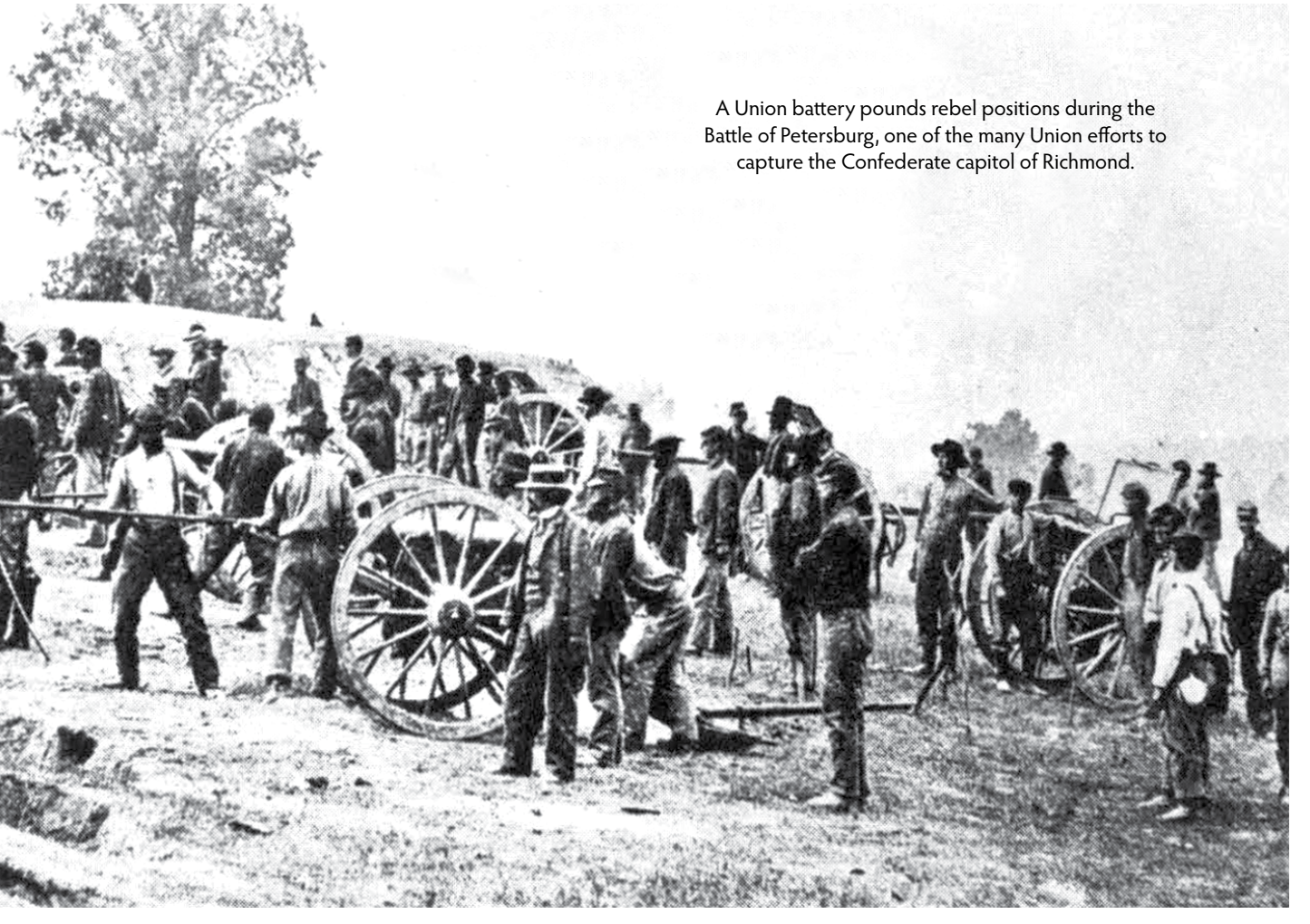


A Union battery pounds rebel positions during the Battle of Petersburg, one of the many Union efforts to capture the Confederate capitol of Richmond.

Political Elites. It is occasionally argued that the real Nazi center of gravity was Hitler and his top aides. Similarly, it is thought that if leaders such as Winston Churchill, Stalin or Lee could have been eliminated, their nations would have suffered immediate defeat. It is even more likely that the death of Napoleon Bonaparte or Alexander the Great would have brought quick victory to their opponents. This is a fascinating prospect. A possible retort might be that it is extremely difficult to remove an individual leader or a small elite under wartime levels of security. However, if a concerted effort had been made, it certainly might have been no harder to assassinate Stalin than defeat the Red Army.

Cases are rare where an individual or a small number of individuals are so vital to a nation's war effort that their death would cause defeat. The uncertainty involved means that in strategic planning, such objectives should play only a minor role.

While the assassination of key enemy leaders can be considered contrary to modern rules of warfare, it is worth noting that it was the United States that proved most successful at this when Admiral Isoroku Yamamoto was hunted down and killed by P-38 aircraft. The only general rules that can be derived from this are:

- Cases are rare where an individual or a small number of individuals are so vital to a nation's war effort that their death would cause defeat.
- The uncertainty involved means that in strategic planning, such objectives should play only a minor role.

There are several reasons that guidelines and general rules of thumb for identifying centers of gravity cannot be reduced to a rigid and mechanical methodology. Centers of gravity do not exist in isolation from perceptions and decisions, and can be created as a result of conflict. They are dynamic and often change as a conflict evolves. They must be appropriate to the nature of the conflict and the political objective.

Strategy is a creative process that, among other things, seeks to establish some form of control over an opponent. All strategists are constrained by the means they can employ, and a successful strategist must be able to do more than simply determine what a center of gravity is. In the event he identifies one that cannot be attacked, he must discover how to encourage his opponent to respond in a way that will create a different center of gravity.

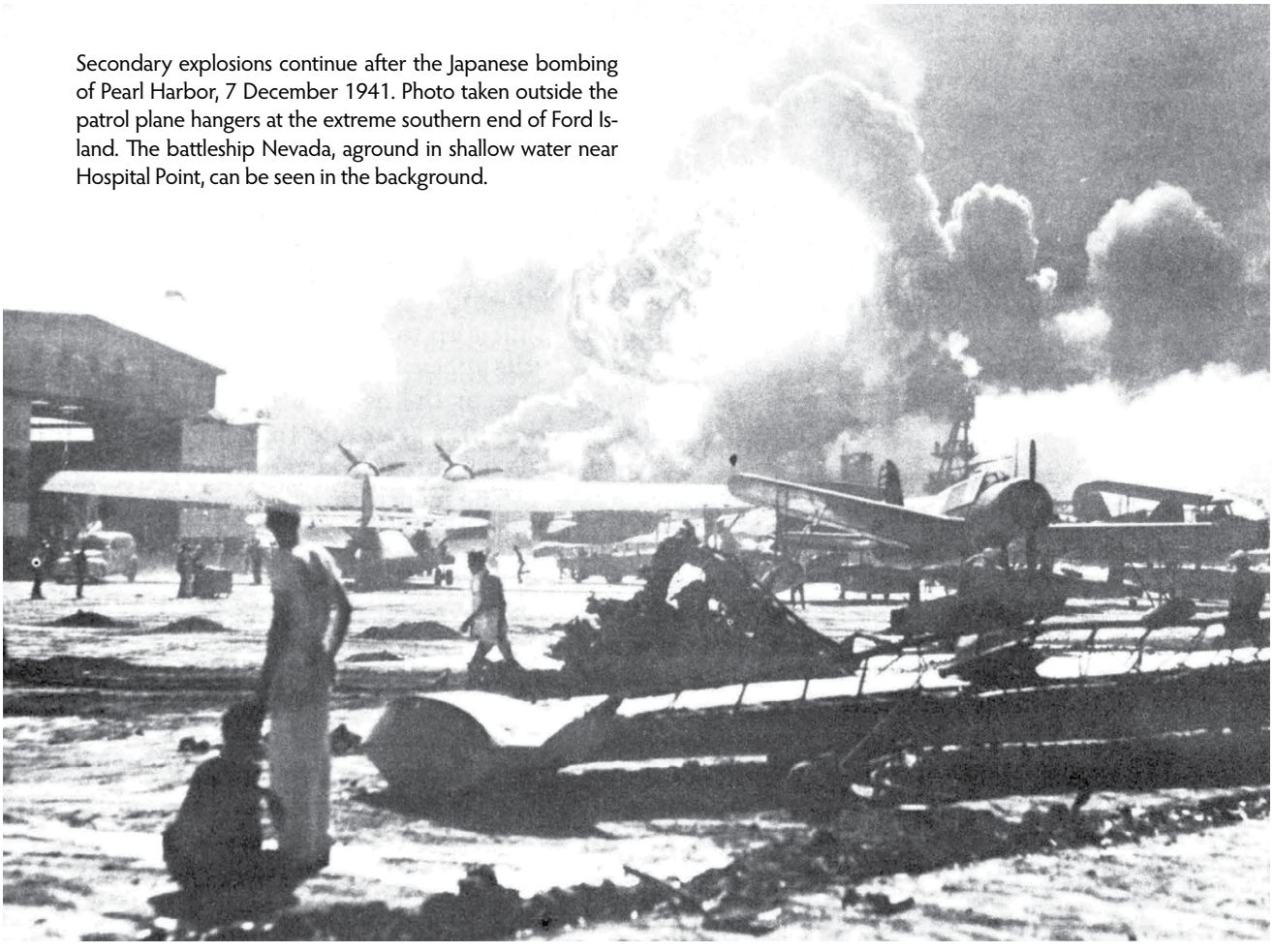
This process can be likened to a chess player creating the conditions that will allow him to predict his opponent's actions several moves ahead. Examples might be fostering reliance on a specific ally and then stripping away that ally's support. In the event this is impossible, a pressing question arises: Is the destruction of the enemy's center of gravity the only key to strategic-level victory or can a campaign not directed at a center of gravity obtain benefits?

The dynamic nature of centers of gravity is one factor that makes strategy as much an art as a science. War is not chess and modern nations are not chessboards. Nations are increasingly complex organizations and are remarkably resilient.

Strategic centers of gravity can change as conflict progresses, but not only as a result of deliberate decisions. They may change as a result of a series of apparently random defensive actions or due to changes in the nature of the conflict. The oft-articulated goal of a clearly stated strategic objective pursued with single-minded purpose may be impossible or unwise.

It is often noted that North Vietnam attained victory by its consistent pursuit of the US national will. However, until 1965 the South Vietnamese elite were more the center of gravity than US national will. As the United States increased its commitment and took over the war, the viability of the South Vietnamese government became a secondary concern and the North Vietnamese seemed to have discerned this shift. Thus, the single-minded pursuit of an initial center of gravity may generate failure rather than success.

Centers of gravity must be appropriate to the nature of the war. On one level it may be that Clausewitz menu may define the viability and vulnerability of the nation, but may have little relevance to the war or conflict. If the purpose of the war is limited and the strategy is not only to achieve control, but also to keep the conflict limited, then the appropriate center of gravity may not be one at the heart of the state's survival or viability, but one that imposes costs that do not threaten survival.



Secondary explosions continue after the Japanese bombing of Pearl Harbor, 7 December 1941. Photo taken outside the patrol plane hangers at the extreme southern end of Ford Island. The battleship Nevada, aground in shallow water near Hospital Point, can be seen in the background.

There are a number of other issues to be confronted if center of gravity is to be used in an optimal fashion by strategic planners. It is vital for a strategic planner to avoid misidentifying the enemy's center of gravity. The Japanese attack on the US Pacific Fleet at Pearl Harbor is often considered a classical example of this.

The identification of centers of gravity is only the first step in strategic planning. There are a number of other issues to be confronted if center of gravity is to be used in an optimal fashion by strategic planners. It is vital for a strategic planner to avoid misidentifying the enemy's center of gravity. The Japanese attack on the US Pacific Fleet at Pearl Harbor is often considered a classical example of this.

When using historical case studies, it is usually assumed that losers erred in this, but strategic (and operational) planning—along with chances of military victory—would be greatly augmented if there were some way of knowing when the enemy's center of gravity has been misidentified short of defeat. In other words, the use of center of gravity in strategic planning would include some sort of feedback procedure for midcampaign reevaluation.

One final issue is the most abstract of all, but potentially the most important. Edward N. Luttwak has analyzed what he calls the "paradox of strategy."[10] By this he means that since war and strategy involve conflict between two thinking, analyzing, reacting parties, what appears optimal in terms of "linear logic" is not always best. To take a simple tactical example, the easiest route of movement for a body of troops which would be optimal in linear logic is often not the best. The enemy

is more likely to prepare defenses along that route than along a more difficult path.

Thus the paradox that the poorer road turns out to be the better one. This paradoxical logic also operates when the concept of center of gravity is integrated into strategic planning. Simply put, center of gravity analysis attempts to provide a way to defeat an enemy in the quickest, most efficient manner possible, but in the long term, this may not be optimal because an enemy defeated quickly and efficiently is more likely to instigate another fight at some future date than one defeated slowly.

This might have been acceptable in Clausewitz's time when the purpose of war was an advantageous short-term settlement and it was assumed that war would occur again fairly quickly. In the modern era, quick, easy victory may not solve the root problem which led to war and can set the stage for bigger conflicts in the future. The Franco-Prussian War and the Six-Day War serve as examples. What this means is that US strategic planners must decide whether we want the cheapest, quickest resolution possible in a given conflict or, to phrase it differently, whether we seek war termination or conflict termination.

Currently, center of gravity is part of US military doctrine, but the full implications and applications of the concept have not been explored. This is particularly true at the strategic level. If center of gravity is to form part of the groundwork of our military planning, these implications and applications must be fleshed out. The guidelines and rules of thumb suggested here are intended to be the first step in this direction.

The dynamic nature of centers of gravity is one factor that makes strategy as much an art as a science. War is not chess and modern nations are not chessboards. Nations are increasingly complex organizations and are remarkably resilient.

What needs to follow is a larger project of integrating historical case studies and present and future strategic considerations into a more general methodology for the identification and use of center of gravity at the strategic level. Only when this is done will center of gravity be transformed from an alluring Clausewitzian buzzword to a useful element in US strategic planning.

Notes

1. Carl von Clausewitz, *On War*, ed. and trans. Michael Howard and Peter Parat (Princeton, NJ: Princeton University Press, 1984), 619.
2. James J. Schnelder and Lawrence L. Izzo, "Clausewitz's Elusive Center of Gravity," *Parameters*, vol. 17, no. 3 (September 1987): 46.
3. Clausewitz, 485, 59-96.
4. Ibid., 487. (emphasis in original)
5. Ibid., 596.
6. US Department of the Army Field Manual 100-5, *Operations* (Washington, DC: US Government Printing Office, 1986): 179.
7. In the nuclear age, victory could, at least theoretically, occur when the enemy was totally annihilated, but no rational strategic plan could be based on this objective.
8. James E. Dougherty and Robert L. Pfaltzgraff Jr., *American Foreign Policy: FDR to Reagan* (New York: Harper and Row, 1986), 334.
9. Michael I. Handel has argued that "One should be very cautious about applying Clausewitz to the realm of nuclear strategy." See "Clausewitz in the Age of Technology," *The Journal of Strategic Studies* (June/September 1986):83.
10. Edward N. Luttwak, *Strategy: The Logic of War and Peace* (Cambridge, MA: Belknap, 1987).

To view "Centers of Gravity and Strategic Planning" as it was originally published in April 1988, visit https://www.armyupress.army.mil/Portals/7/military-review/Archives/English/JF-22/Original/Metz-Downey.pdf.

JUST CAUSE and the Principles of War

Lieutenant Colonel William C. Bennett, US Army

In the many debates regarding future missions and doctrine for the post-Cold War Army, contingency missions such as Operation* Just Cause *must surely be examined in detail. The author uses the framework of the principles of war to analyze* Just Cause *and finds many interesting insights while describing many aspects of its planning and execution. He concludes that the principles, viewed from a broad perspective, still apply to current US doctrine.

Historically, nations and their armies learn best from their defeats. Seldom do they learn from their successes. On 20 December 1989, the US Armed Forces conducted one of its most successful operations ever. In the aftermath of such a resounding success, there is a tendency not to critically examine our performance and, hence, not to learn from it. Future knowledge and competence rest on a foundation of a thorough understanding of the past. Additionally, as a future general officer once stated, "There are those in Washington who expect us to be able to do our job, and when the time comes, they will accept no excuses."[1] This article is an attempt to critically examine our performance during Operation *Just Cause* against a known doctrinal base with the hope that we may gain in professional competence.

The method used in this article will capitalize on the technique used in Retired Colonel Harry G. Summers Jr.'s landmark 1982 work, *On Strategy: The Vietnam War in Context*.[2] A major part of that work analyzed applying the principles of war against our performance in that conflict. A telling point Summers made in that study concerned our inadequacy in doctrinally applying the principles of war during the 1960s. Since that study, our principles of war have been resurrected and refined, and are well presented in US Army Field Manual (FM) 100-5, *Operations*. But, now, in the aftermath of *Just Cause*, we must ask how well the principles of war were applied in our operations in Panama. This article addresses that question.

Objective. The military *objective* must flow from the nation's political purpose. In the case of Panama, the nation's political purpose had been clearly enunciated by two presidents: safeguarding American lives, protecting the Panama Canal and removing Manuel Noriega. Militarily, steps had been taken toward those goals. Military dependents were drawn down, and the profile of the US civilian community was reduced in Panama

City. Additionally, US forces conducted exercises to improve military preparedness for defense of the canal as called for in the Carter-Torrijos Canal Treaty. As the events of the fall of 1989 unfolded, it became obvious that merely removing Noriega as head of the Panama Defense Forces (PDF) would not accomplish the other goals. As Noriega successively purged his officer corps of those with professional tendencies, none remained who could reform the institution. Some of the potential successors to a deposed Noriega were at least as bad as Noriega, if not worse. And merely creating a "promotion opportunity for another thug," as General Fred F. Woerner, commander, US Southern Command (SOUTHCOM), phrased it, would be insufficient to solve Panama's problems or to further the US strategy of encouraging democracy throughout the region.[3]

The strategic objectives of the operation were clearly and concisely expressed in the chairman, Joint Chiefs of Staff (JCS) execution order; namely, "To ensure: continuing freedom of transit through the Panama Canal, freedom from PDF abuse and harassment, freedom to exercise US treaty rights and responsibilities, the removal of Noriega from power in Panama, the removal of Noriega's cronies and accomplices from office, the creation of a PDF responsive to and supportive of an emergent democratic government in Panama, and a freely elected GOP [government of Panama] which is allowed to govern."[4]

These strategic military objectives were translated into the mission to "neutralize the PDF." The unified command translated the overall strategic objective into operational objectives. Viewing Panama as a target with the bull's-eye centered around the Panama City-Canal complex, SOUTHCOM selected operational objectives that were located within or could directly reinforce that battlefield. Three categories of objectives were identified. The first category directly and solely addressed the mission of neutralizing the PDF. Generally, these objectives were force-oriented instead of installation-oriented. The second category was composed of objectives that attacked the PDF and supported unilateral US goals. The third category solely supported US actions without neutralizing any PDF units.

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For example, an objective of the first category was the primary command and control node of the PDF known as *La Comandancia*. Its isolation and seizure would critically disrupt PDF operations. An example of a second category objective was Tinajitos, home of the PDF 1st Infantry Heavy Weapons Company. Also representative of the second category, the Tocumen-Torriojos Airport had to be seized not only to facilitate future US operations but also to neutralize the 2d Infantry Company. A third category objective, the Bridge of the Americas was seized to secure the lines of communication between the east and west banks and to defend the canal.

From the earliest planning, the intent was to immediately neutralize forces within the bull's-eye with the H-hour operations. The PDF response to the 3 October 1989 coup attempt had been adroit and flexible. Infantry forces were airlifted from Rio Hato to the Tocumen-Torriojos Airport to link up with transport from the

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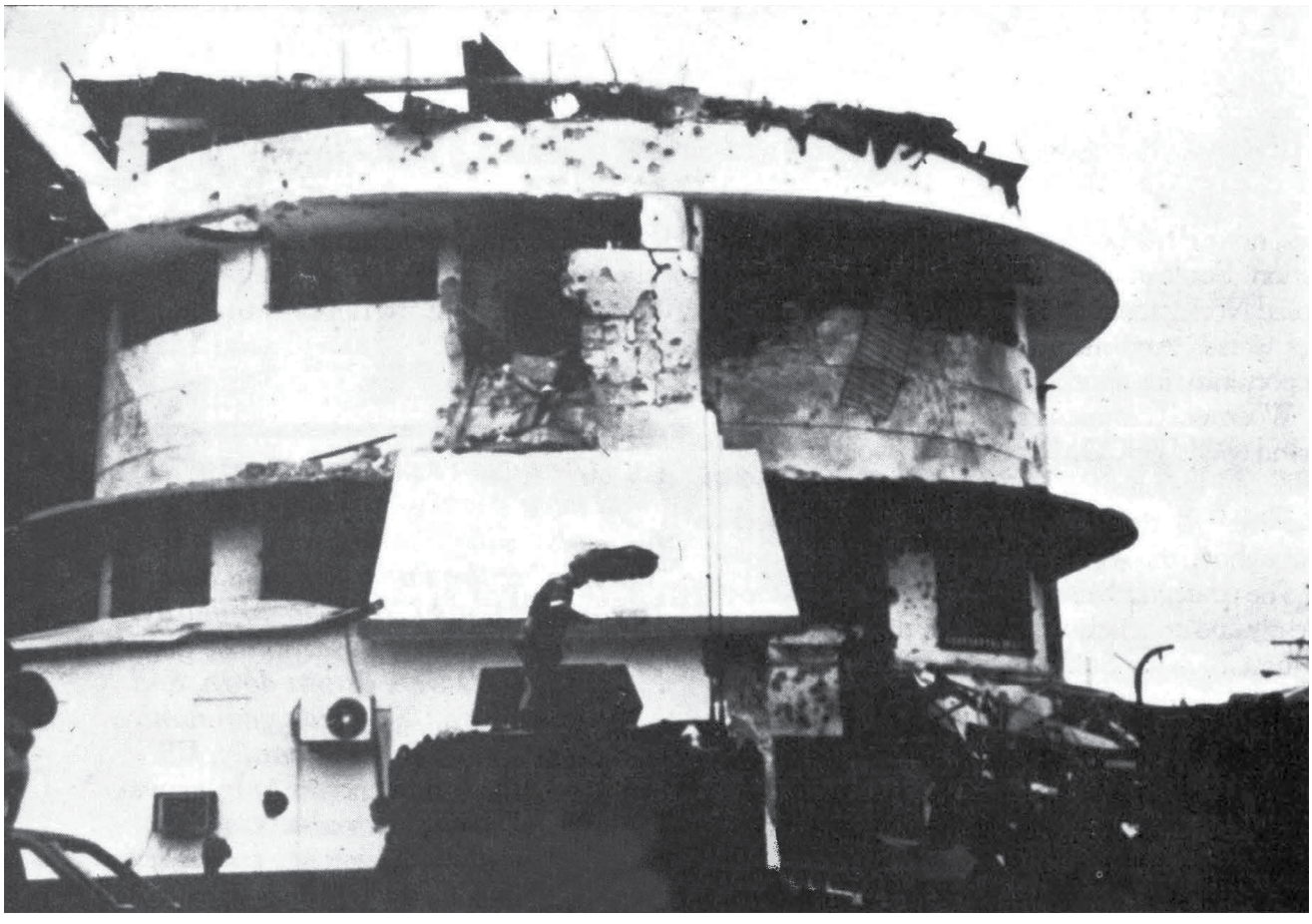

PDF headquarters after its bombardment by US forces.

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motorized battalion at Fort Cimarron. The force then attacked the *Comandancia* from the east through Panama City. Nearly two battalions of the PDF were located on the two bases, and their quick response in October indicated a high degree of training and motivation. Ignoring these forces may have put the rest of the plan in peril. Both bases were included as D-day objectives. More important, attacking these units directly supported the mission of neutralizing the PDF.

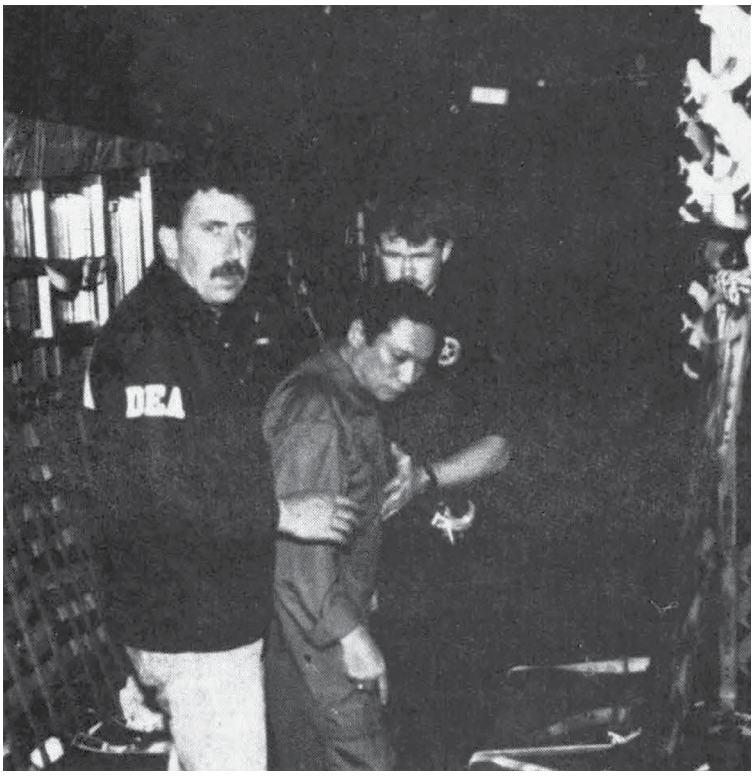
An explicit goal of the operation was removing Noriega from power in Panama. Detailed plans had been developed to capture Noriega. In the months before, an attempt was made to develop an effective program of surveillance of Noriega. Confronted with Department of Defense (DOD) concerns on aspects of intelligence gathering, initially, and with the interagency coordination process, subsequently, the effort contributed little to Noriega's capture. Here the institutional peacetime national intelligence policies of the United States severely constrained the ability of the operational commanders and planners to obtain real-time and meaningful information on Noriega's whereabouts.

Several raid rehearsals were conducted before *Just Cause*. It was also hoped that the concentration of forces

against the Panama City-Canal complex would essentially clamp down on the city. The effort was likened to casting a net over the city, prohibiting any movement. The net could then be drawn in. If any of the initial raids failed, planners thought the net would catch Noriega with the flotsam of the operation. Although the net itself did not ensnare Noriega, it effectively denied him any method of egress from Panama. Although Noriega initially eluded capture, the totality of the PDFs neutralization effectively removed him from power.

Should additional objectives have been assigned in the hope of capturing Noriega? After all, there were those who felt his capture was the sole criteria by which to judge the success of the operation. In hindsight, it is difficult to see how additional objectives would have made much difference without the freedom to conduct the appropriate operations to develop adequate information on Noriega and the PDF.

Offensive. The *offensive* was seized in the opening moments of the conflict, and the initiative never once passed to the PDF. Isolated drive-by attacks and uncoordinated attacks by small elements did occur after the initial D-day operations, but they were so insignificant and random that they cannot be described as an attempt at a counteroffensive. Additionally, most of the attacks were thwarted before they came to any sort of fruition. For example, nine vehicles, including a V300 armored vehicle, were destroyed by the 2d Battalion, 504th Parachute Infantry Regiment, as Dignity Battalion or PDF members attempted drive-by attacks at Panama Viejo on D-day.[5]



Manuel Noriega and his guards preparing to fly to the United States.

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It should be noted here that, even though the principles of war should be valid for any conflict, they are written in the context of a conventional war. As lethal as Panama was in isolated places, the conflict was essentially part of a low-intensity conflict (LIC). As such, many of the manifestations of the conflict were political in nature. Consequently, the current principles, especially the principle of the offensive, must be applied with a broader interpretation. The offensive must not only be applied militarily, which it was, but it must also be applied across the entire spectrum of conflict, to include police and political actions.

The massive looting that occurred in Panama City and Colón may be the greatest tragedy of the conflict. Months after the invasion, the economy has yet to fully recover from that depredation. It has been alleged that this looting was instigated by Dignity Battalion members to undermine the fledgling democratic government. If the looting was not actually instigated by the Dignity battalions, it was the mindless rampage of a citizenry with no restrictions of law and order. The bottom line is that US forces lost the initiative either to the Dignity battalions or to some set of

sociopolitical factors. The result was the same; forces of law and order were stripped away, and for too long a time, nothing was substituted. In the final analysis, the looting made the task of the "freely elected GOP" infinitely more difficult.

An argument might be made that the looting was indeed unfortunate, but it would have no relevance to a discussion of the principles of war. Such a view is too narrow a perspective in LIC where political factors play a much larger role. A stated objective of the operation was "to ensure a freely elected GOP which is allowed to govern."[6] Consequently, anything that hindered the accomplishment of that objective is relevant to an analysis of the operation. Viewed then, in this LIC perspective in which the offensive must be waged across the entire spectrum of conflict, the US forces failed to maintain the offensive. The looting ran counter to the effort of assisting the new government. Consequently, it must be viewed as an integral part of the military campaign. Since US forces failed to stop the looting in a timely manner, they abdicated the initiative to either the Noriega factions or to sociopolitical factors embodied in the mobs.

US forces did maintain the offensive in the move to the interior of Panama, however. The fact that the PDF garrisoned in the interior of Panama made no apparent effort to resist US forces does not change the fact that, militarily, the US forces maintained the offensive. The absence of fighting does not negate this successful application of the offensive.

The PDF response to the … coup attempt had been adroit and flexible. Infantry forces were airlifted from Rio Hato to the Tocumen-Torriojos Airport to link up with transport from the motorized battalion at Fort Cimarron. The force then attacked the* Comandancia *from the east through Panama City. Nearly two battalions of the PDF were located on the two bases, and their quick response in October indicated a high degree of training and motivation.

Mass. The philosophy of both General Maxwell R. Thurman, commander in chief (CINC), SOUTHCOM, and Lieutenant General Carl W. Stiner, commander, Joint Task Force (JTF) *South*, was to emphasize the principle of *mass*. Time and again during the planning process, the idea of applying overwhelming combat power was espoused. The purpose of applying overwhelming combat power was to shorten the conflict. An enemy faced with vastly superior combat power is less likely to resist, and the force with superior combat power obviously enhances its force protection capability. Applying overwhelming force is likely to decrease the number of casualties on both sides of the conflict.

In Operation *Just Cause*, more than 12 infantry battalions, supported by an impressive array of combat support (military police, aviation and engineer) and air fire support platforms, conducted the initial assaults on D-day. They were followed by an additional six infantry battalions in the days that followed. This force was pitted against a PDF force of four battalion equivalents. The majority of the PDF was organized into separate companies. Consequently, the disparate organizations

Force Ratios on D–Day
(exclusive of air support weapons)

Location	US	PDF
La Comandancia	Mech Bn TF	2 PDF Cos
Tocumen–Torriojos	4 Rgr Cos	1 PDF Co
Rio Hato	5 Rgr Cos	2 PDF Cos
Fort Amador	1 Inf Bn	1 PDF Co
Curundu–Balboa	1 Inf Bn	Various Police Units
Fort Cimarron	1 Inf Bn	0 (Bn 2000 missing)
Tinajitos	1 Inf Bn	1 PDF Co
Panama Viejo	1 Inf Bn	1 Cav Sqdn (ceremonial) & Elements of Special Forces
Fort Espinar	1 Inf Co(+)	1 PDF Co
Coco Solo	1 Inf Co(+)	100–Man Naval Infantry Co

Dignity Battalion personnel going into action against anti-Noriega forces during the failed coup attempt of 3 October 1989. They are armed with Soviet-made assault guns and antitank rockets. (Wide World Photos)

The massive looting that occurred in Panama City and Colón may be the greatest tragedy of the conflict. Months after the invasion, the economy has yet to fully recover from that depredation. It has been alleged that this looting was instigated by Dignity Battalion members to undermine the fledgling democratic government.

and strengths of the PDF companies make direct comparison with US forces difficult. The disparate organization of the PDF force and the dispersed nature of its garrisons in fact enhanced our mass advantage and allowed the US forces to attack and defeat each company in detail, maintaining a 3-1 superiority while doing so. The ability to mass combat power against each objective quickly and nearly simultaneously gave the PDF no chance to react or regroup. No one principle is decisive in war, but properly applying the principle of mass was the key factor in this victory.

Economy of Force. *Economy of force* is difficult to examine because, once again, *Just Cause* was not strictly "conventional" at the operational level. As with the offensive, it must be examined in a broader context, and the best example of its application at the operational level was the use of Special Forces. Before H-hour, three Special Forces teams were to provide reconnaissance and surveillance against two D-day objectives and a critical bridge. These teams had the additional task of interdicting any military forces leaving those sites. At the Pacora River Bridge, situated between Fort Cimarron and the Tocumen-Torriojos Airport, a 22-man Special Forces team executed the mission. In the course of the evening, the team prevented several mounted attempts at crossing the river toward the Rangers' airhead at the airport. Throughout the night, six vehicles were destroyed by the team and its AC-130 fire support platform.[7]

Psychological operations (PSYOP) and electronic warfare (EW) are also economy-of-force or force multiplier operations. The EW effort was particularly effective just before H-hour. A broad range of transmitters was effectively shut down by the effort. PSYOP also was to have played an effective role in the initial battle. A Special Forces team temporarily disabled a television station transmission site. In its frequency, an EC-130 airborne PSYOP transmission platform broadcast prepackaged tapes.

The effectiveness of that effort was questionable, however. After the battle, reports tell of the seal of the DOD being broadcast over the channel without any accompanying message.[8] In Panama, PSYOP units scrambled to produce additional tapes. Although the television channel was denied to the Noriega forces, *Radio Nacional* continued to broadcast its pro-Noriega message for several days. On the airwaves, it was a case of too little, too late.

Special Forces also played an economy-of-force role in the maneuvers to disarm the remainder of the PDF in the interior of Panama. When a town was selected to be the next objective, a small Special Forces element was inserted into the airfield. Opposition was not expected, but by leading with a small team (supported by an AC-130), the larger force, which was close behind, was less likely to become decisively engaged.[9] The level of confrontation was kept low by using a small team initially and the overt threat of the large follow-on force, Ranger or infantry battalion. The demonstrated effect of employing overwhelming combat power in the opening phases of the campaign at H-hour, D-day, made smaller, less threatening moves subsequently possible. This method resulted in the remainder of Panama capitulating to US forces.

Maneuver. According to FM 100-5, *maneuver* consists of "three interrelated dimensions: flexibility, mobility, and maneuverability." Maneuver implies movement but doctrinally includes other dimensions. Maneuver includes fire and movement, the "considered application of the principles of mass and economy of force," and flexibility in "thought, plans, and operations."[10] Each of these aspects of maneuver should be examined separately.

Operationally, fire and movement occurred only once on D-day. The air assaults of battalions from the Tocumen-Torriojos Airport to attack objectives at Fort Cimarron, Tinajitos and Panama Viejo are examples of fire and movement at the operational level.

Additional ground movement was hampered by the unfortunate results of the 82d Airborne Division's heavy drop. In a bid to keep the Tocumen-Torriojos runways clear for follow-on operations, the wheeled and tracked vehicles were dropped by parachute on a neighboring drop zone. The land, however, was low, and the majority of the unit's vehicles became stuck in the mud. The unit attempted to improvise with rental cars, but the lack of transportation had a detrimental impact on mobility.[11] The absence of those vehicles undoubtedly contributed to the inexplicable delay in moving into the city to stop the looting.

Flexibility is also an inherent component of maneuver. In many respects, the major battles of *Just Cause* resembled "set-piece affairs." Although Stiner had verbally outlined his thoughts on subsequent moves to his commanders and staff, no written campaign plan had been prepared for actions past the initial assaults at either the unified command level or the JTF level. Operationally, little flexibility was required

Blackhawk and Huey helicopters operating out of a supply point during Operation *Just Cause*.

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during these initial operations. There were glimpses of flexibility, however.

Within the ground forces and aircrews from Continental United States (CONUS), completing the outloading process and marshaling for the assault was a gigantic exercise in flexibility as they struggled to maintain some semblance of order in the face of a severe ice storm in the Carolinas. Tactically, the reconnaissance and surveillance teams at the Pacora River Bridge were forced to extemporize as the first of six PDF vehicles neared the bridge before the team was fully settled. The mechanized task force also practiced flexibility as it encountered obstacles across its routes to isolate the *Comandancia*. The technique employed to pacify the interior of Panama was developed nearly on the run by the units involved. Its acceptance by the chain of command of JTF *South* exhibited not only flexibility but also a willingness to accept calculated risks as well.

Despite the absence of large armored forces rolling across the plains to conduct deep penetrations or slashing envelopments, the components of fire and movement, the principles of mass and economy of force, and flexibility were all applied to an appropriate degree. Consequently, when viewed in all of its components, the principle of maneuver was applied throughout *Just Cause*.

Unity of Command. When addressing *unity of command*, FM 100-5 states, "Coordination may be achieved by cooperation; it is, however, best achieved by vesting a single commander with the requisite authority to direct and to coordinate all forces employed in pursuit of a common goal."[12] One of the primary results of the Goldwater-Nichols DOD Reorganization Act has been to place "requisite authority" in a single commander—the unified command's CINC.

Throughout the planning process and execution, there was a clear chain of command from the president to the CINC. In fact, since Thurman gave Stiner operational control of the entire fighting force, that clearly delineated chain of command proceeded down to the tactical levels. Unlike other contingency operations, service rivalries and politics were not allowed to hamstring the planning and execution of the operation. There was never any doubt in Stiner's mind for whom he was working. As he said in testimony before the Senate Armed Services Committee, "There were no problems with ambiguous relationships or units receiving guidance from multiple sources. These were direct results of the Reorganization Act and Special Operations legislation."[13]

The philosophy of both [US commanders] was to emphasize the principle of mass. . . . More than 12 infantry battalions, supported by an impressive array of combat support . . . and air fire support platforms, conducted the initial assaults on D-day. They were followed by an additional six infantry battalions in the days that followed. This force was pitted against a PDF force of four battalion equivalents.

Within the ground forces and aircrews from the Continental United States, completing the outloading process and marshaling for the assault was a gigantic exercise in flexibility as they struggled to maintain some semblance of order in the face of a severe ice storm.

Despite parochial comments, *Just Cause* was a joint operation. All four services, with a diverse array of tactical units, participated in *Just Cause*, as did a host of supporting CINCs and agencies. Thurman, as the supported CINC, was the warfighting CINC, and he had a great deal of latitude in how he fought the war. Despite the preponderance of one service, it was the Joint Staff in Washington that monitored and supervised the unified command. The conflict was very much a joint effort.

Tactically, throughout the operation, care was taken to ensure that the chain of command did not become muddled. Subordinate units had their higher headquarters change on them in the course of the battle, but the passage of operational control was clearly delineated and stated in appropriate fragmentary orders.

Operationally, then, unity of command was applied. But it was applied, on one hand, by the US Congress. The Reorganization Act has effectively placed the operational employment of troops in the joint system. Therefore, the single responsible commander, the CINC, is no longer fettered by conflicting operational direction from the services. Unity of command was also facilitated by Thurman's decision to place all forces under the operational control of JTF *South*. Such had

not always been the plan, and there was a conscious decision on Thurman's part to direct that change.

Security. *Security* can be achieved by three means; namely, applying operational security (OPSEC) measures, hiding a force or being deceiving as to its intent, and using combat power. The planning and execution of *Just Cause* saw the application of all three of those measures.

Planning for the possibility of US forces being committed against the PDF in Panama began with the JCS Planning Order of 28 February 1988.[14] Although the resulting *Blue Spoon* operation order was updated in October 1989, many of the objectives remained virtually unchanged. The fact that the US forces did not encounter more difficult obstacles and resistance on their respective objectives indicates that the OPSEC of the plan was maintained throughout the nearly two years of its existence. Proper OPSEC appears to have been maintained.

Combat preparations were effectively hidden from PDF cognizance. For example, while the *PURPLE STORM* and *SAND FLEA* exercises, which JTF *Panama* conducted during the latter half of 1989, were to exercise US treaty rights, they also served an ancillary purpose of conditioning the PDF to US force movements in Panama. Additionally, tactical commanders could rehearse their missions on their actual objectives. The six separate deployments of security enhancement forces to Panama over the preceding two years conditioned the PDF—and more important, Noriega—to the United States dispatching troops without decisive result during periods of increased tension.[15] Other preparations, such as infiltrating and hiding M551 tanks and AH-64 helicopters, were conducted more conventionally. These weapon systems arrived during the hours of darkness and were kept from public view until they were operationally required. As the foregoing relates, security was enhanced by each of these actions.

Finally, security can also be achieved through strength. There is little doubt that one reason the enemy never "acquired an unexpected advantage" is because he generally chose not to fight. After the initial actions, he realized his military position was hopeless. The PDF, despite its organization as a military force, did not have the means to counter the armed strength of the United States. The PDF was essentially destroyed as a conventional fighting force and was not able to make the transition to a guerrilla army throughout the operation, if such was its intention. Strength ensured security.

Surprise. There has been a good deal of discussion on whether the PDF was alerted to *Just Cause* and whether surprise was maintained. With the cable news networks' coverage of events at Fort Bragg, North Carolina, over the two days before H-hour, only a megalomaniac would have discounted the possibility of an invasion. That a leak occurred in the hours before the invasion has been neither denied nor confirmed. Regardless of a leak, no army can strike without giving indications of impending operations. As a snake must coil to strike, so also must an army reposition and marshal its assets and move to its jump-off point, either by air, ground or sea. Since firing actually began before H-hour, surprise was lost at least at one location.[16]

Surprise is not a homogenous factor on a battlefield and must be viewed at several levels. As I have discussed, *Just Cause* may have been compromised at the operational level. Whether through prior notification, the reporting of the news networks, or proper analysis of a variety of indicators, certain leaders within the PDF expected the invasion. From the tactical perspective, however, the secrecy concerning the nature and timing of the attack appears to have been maintained.

From Noriega's perspective, the United States did not have the will to take any truly decisive action. The previous troop deployments and exercises lulled Noriega into believing that the United States did not have the will to act in Panama.

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A Marine security team enters a house in Arrijan, Panama while other Marines in light armored vehicles watch its front and back, 20 December 1989.

Despite parochial comments,* Just Cause *was a joint operation. All four services, with a diverse array of tactical units, participated in* Just Cause, *as did a host of supporting CINCs and agencies. Thurman, as the supported CINC, was the warfighting CINC. … Despite the preponderance of one service, it was the Joint Staff in Washington that monitored and supervised the unified command. The conflict was very much a joint effort.

Strategically, surprise was maintained, despite its loss at the operational level. The critical command node in the PDF was Noriega. Noriega's actions on the night of the invasion and in the ensuing days demonstrate that he was surprised. Over the previous two years, the United States had deployed security enhancement forces to Panama on six separate occasions. Troop strength on the ground had increased more than 30 percent. US forces had traded shots with PDF intruders at a petroleum tank farm off and on for 20 months. For six months, the United States had conducted a series of exercises designed to reassert treaty rights.[17]

Despite all of these actions, nothing changed. Noriega and his government remained firmly in control. From Noriega's perspective, the United States did not have the will to take any truly decisive action. The previous troop deployments and exercises lulled Noriega into believing that the United States did not have the will to act in Panama.

Simplicity. *Just Cause* was a complex, finely timed military operation made executable only through clear, concise orders and realistically conducted rehearsals. So, from the outside looking in, *simplicity* appears to have been lacking. If subordinates had not understood their tasks and had the operation not been rehearsed, military disaster might well have been the result.

Panama was not a neat, linear battlefield. Although, at the operational level, linear unit boundaries were

assigned during the initial operations, they were of little value. The battlefield more resembled a lethal mosaic of separate attacks conducted by land, sea and air from the four points of the compass. For example, the 1st Battalion (Airborne), 508th Infantry, conducted an air assault into Fort Amador from the south and then attacked west. Across the bay, less than a mile distant, a mechanized battalion attacked to the southeast to isolate the *Comandancia*. Supporting this mosaic was a variety of fixed- and rotary-wing lift and gunships, all of which required refueling either from Strategic Air Command tankers or forward arming and refueling points deployed to field sites. Air traffic control was a colossal effort at the local level.

Air traffic control was a monumental effort not only in Panama. More than 200 sorties deployed in an air train 67 miles long.[18] Planes marshaled from bases all over CONUS, converged, rendezvoused with tankers to refuel en route, evaded detection and delivered their loads at the appropriate place. *Just Cause* was complicated, indeed, but, as with many of the principles, the perspective changes between the operational and tactical levels.

The fact that the operation was not a failure testifies to the simplicity of the plan at the tactical and lower end of the operational level. At the battalion level, the tasks were relatively straightforward, in that units were tasked to conduct doctrinally appropriate missions. Combat operations are never "easy," but in *Just Cause*, they were straightforward: conduct a parachute assault to seize an airhead, attack to isolate … and so forth. The most complicated battalion missions fell to the battalions of the 82d Airborne Division. These three battalions conducted a parachute assault and assembled and subsequently conducted an air assault to seize an objective.[19]

At the lower end of the operational level, simplicity was enhanced by using clear, concise orders and using standard control measures to the brigade task forces. The brigade task forces from the 82d Airborne Division had the eastern half of Panama City. The Panama-based 193d Infantry Brigade was allotted the western portion of the city and the canal operating area. The Marine task force was responsible for the Bridge of the Americas and the west bank, while the brigade from the 7th Infantry Division was responsible for Colón.[20] Using standard orders and overlays simplified understanding the tasks and enhanced communications between headquarters.

It was primarily at the upper ends of the operational level of war that the operation became complicated. Delivering the force to the battlefield was a challenging, complicated task, possibly the most critical of the entire operation. A force must be delivered to the battlefield in a combat formation—ready to fight—to be able to fight. Despite tremendous obstacles, the Military Airlift Command delivered the combat formations.

When a town was selected to be the next objective, a small Special Forces element was inserted into the airfield. … The level of confrontation was kept low by using a small team initially and the overt threat of the large follow-on force, Ranger or infantry battalion. The demonstrated effect of employing overwhelming combat power in the opening phases of the campaign at H-hour, D-day, made smaller, less threatening moves subsequently possible.

Was the principle of *simplicity* applied? The answer is mixed. At the tactical and lower end of the operational level, the operation was kept simple. At the upper end of the operational level, *Just Cause* was a complicated, yet finely tuned, military operation.

Was *Just Cause* as successful, doctrinally, as it appears to have been portrayed? Were the principles of war applied? Should the principles be reviewed for applicability to short-duration contingency operations? There can be no doubt that the operation was extremely successful. But certain events indicate that, when the principles of war are applied to short-duration contingency operations in a LIC environment, the interpretation of the principles must be viewed within a broader context than normal. The forms that some of the principles may take are likely to be less traditional or "military" and more "police" or "political" in nature. As the analysis of the principle of maneuver showed, the principles are not always what they appear to be at first glance. Maneuver is more than just movement; only by understanding the components can the whole be understood. It is by examining the components of each of the principles

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against the political backdrop of LIC that we identify the forms they may take in contingency operations.

This discussion has been an attempt to generate thought on the applicability of the principles of war on *Just Cause* in particular and on contingency operations in general. If we are not to stagnate as a profession, we must critically examine our performance in the crucible of combat. Future knowledge and competence are founded on a thorough understanding of past conflict. The many after-action reviews (hotwashes) of the participating units provided them with specific items toward which to guide future training. Hopefully, this discussion will spark a corresponding study of our doctrine. Remember, when our forces are committed to combat, not only will those in Washington not accept excuses but neither will the American people. ***MR***

Notes

1. Major General Wayne A. Downing, as battalion commander of 2d Battalion, 75th Rangers, in a talk to his officers in 1978.
2. Hany G. Summers Jr., *On Strategy: The Vietnam War in Context* (Carlisle Barracks, PA: Strategic Studies Institute, The Army War College, 23 March 1982).
3. General Fred F. Woerner, as commander in chief, US Southern Command (SOUTHCOM), during a staff briefing on the *Blue Spoon* operation order, June 1989.
4. Message from Chairman, Joint Chiefs of Staff (CJCS), DTG 18232522 December 1989, Subject: Execute Order.
5. *Soldiers in Panama: Stories of Operation Just Cause* (Fort Leavenworth, KS, US Army Command and General Staff College, January 1990).
6. CJCS, Execute Order.
7. Ibid.
8. Author's notes.
9. CJCS, Execute Order.
10. US Department of the Army Field Manual (FM) 100-5, *Operations* (Washington, DC: US Government Printing Office, May 1986), 175.
11. Author's notes.
12. FM 100-5, *Operations*, 176.
13. Lieutenant General Stiner's response to the chairman, Senate Armed Services Committee, prehearing defense policy questions, dated 11 May 1989.
14. Message from JCS, DTG 2819442 February 1988, Subject: Planning Order.
15. Security forces deployment orders for Panama were: JCS 1717272 March 1988, security enhancement; JCS 1220082 March 1988, security enhancement; JCS 0103152 April 1988, security enhancement; JCS 0916352 June 1988, security enhancement; CJCS 1119532 May 1989, *Nimrod Dancer*; CJCS 1817402 November 1989, bomb security forces. Between March 1988 and November 1989, troop strength increased from approximately 10,000 to more than 13,000.
16. Author's note.
17. Firefights with unknown intruders started in March 1988 and occurred with varying degrees of frequency through 1988. Some incidents occurred as late as November 1989. Joint Task Force (JTF) *Panama* conducted the *PURPLE STORM* and *SAND FLEA* series of exercises commencing in July 1989.
18. SOUTHCOM Command Brief, "*Just Cause*—The Rebirth of a Nation."
19. JTF *South* OPORD 90-1 (*Blue Spoon*), dated 3 November 1990.
20. Ibid.

To view "JUST CAUSE and the Principles of War" as it was originally published in March 1991, visit https://www.armyupress.army.mil/Portals/7/military-review/Archives/English/JF-22/Original/Bennett.pdf.

VII Corps in the Gulf War

Deployment and Preparation for Desert Storm

Lieutenant Colonel Peter S. Kindsvatter, US Army

President George Bush directed the deployment of VII US Corps from Europe to the gulf to provide the offensive punch needed for victory. General H. Norman Schwarzkopf gave VII Corps the main attack mission and made it the key element in his "Hail Mary" envelopment. Nearly every aspect of VII Corps' deployment from Europe, preparations in the desert, move to the western attack positions and final assaults against the Iraqi Republican Guard took on previously undreamed of proportions—in terms of numbers and sizes of forces moved, timelines and schedules, distances, logistics requirements, and speed and lethality of engagements. It will all be the subject of intense study and analysis for years to come.

The following article is the first in a series of three that will chronicle the actions of VII Corps, from its planning and deployment, its training in the desert, through the 100-hour ground offensive and, finally, the corps' actions after the cease-fire. The author relates firsthand observations and information gathered in numerous interviews to provide a telling description of VII Corps' efforts. This article begins with the early planning in Europe and takes us to the eve of the ground offensive.

For six men seated in front of the television in the basement of VII Corps headquarters in Stuttgart, Germany, the 8 November Cable News Network (CNN) announcement that VII Corps would deploy to Southwest Asia came as no surprise. A week earlier, General Crosbie E. Saint, commander in chief of United States Army, Europe (USAREUR), had told the VII Corps commander, Lieutenant General Frederick M. Franks Jr., to form a small, close-hold cell to begin deployment planning.[1] The members of this cell were the only corps soldiers with advance knowledge of the deployment, and even they did not know about the public announcement until Saint called Franks on 8 November and said that a decision might be made that day in Washington.[2]

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While the announcement of the deployment was certainly news to most of the Jayhawk Corps' soldiers, the possibility of deploying all or part of the corps to Southwest Asia was something that the corps' leadership and staff had been secretly examining. The corps commander directed his planners, shortly after the first US troops deployed to Saudi Arabia in August, to begin closely monitoring the situation in Southwest Asia. In late September, VII Corps was directed to begin planning to deploy the 1st Armored Division (AD) to Southwest Asia and, in October, to plan for the deployment of the entire corps. The corps was then told, late in October, to put this planning effort on hold. This initial planning, which involved the corps and its major subordinate commands, served as the foundation for executing the deployment that was announced on 8 November.

Prior to deployment, a BCTP team from Fort Leavenworth, Kansas, conducted a seminar for the corps at Kelley Barracks, Stuttgart, Germany. A BCTP team then accompanied the corps to Saudi Arabia and conducted a three-day map exercise for the corps and its MSCs at King Khalid Military City, 6 to 9 January 1991. Subordinate commands conducted similar leader and staff training sessions.

In all, 49,008 Continental United States (CONUS)-based soldiers and some 73,369 USAREUR-based soldiers would deploy to Saudi Arabia, with 48,600 vehicles, in 97 days.[3] Deployment began on 12 November, four days after the public announcement, when 2d Squadron, 2d Armored Cavalry Regiment (ACR), began rail loading from its home station at Bamberg, Germany, to move to the ports. Prior to deployment, a BCTP team from Fort Leavenworth, Kansas, conducted a seminar for the corps at Kelley Barracks, Stuttgart, Germany. A BCTP team then accompanied the corps to Saudi Arabia and conducted a three-day map exercise for the corps and its MSCs at King Khalid Military City, 6 to 9 January 1991. Subordinate commands conducted similar leader and staff training sessions.

In Germany, 465 trains, 119 convoys and 312 barges moved the soldiers and their equipment to aerial and seaports of embarkation, where 435 aircraft and 109 ships took them to Saudi Arabia. An additional

Reconnaissance unit from the 82nd Airborne Division returning to its desert base camp while host nation personnel (near forklift) erect donated tents, August or September 1990.

[During the reconnaissance] Schwarzkopf outlined his strategic campaign plan at the meeting and told VII Corps that it would conduct the attack's main effort during the ground campaign. Its mission would be to attack and destroy the Iraqi Republican Guard. . . . the reconnaissance allowed the VII Corps commanders to see firsthand the harsh desert conditions, the lack of supporting facilities and to gain valuable insights from their fellow commanders already in theater.

143 aircraft and 31 ships brought the CONUS-based forces to the desert.[4]

Given the need for immediate deployment, force structure decisions had to be made very early. Even before the deployment announcement, Franks met with Saint at USAREUR headquarters on 4 November to discuss tailoring the VII Corps force. Based on anticipated offensive operations, they decided to deploy tank-heavy armored divisions—1st Armored from VII Corps and 3d Armored from V Corps. Picking a division from the US corps stationed in Germany allowed cross-leveling and support from within each corps for its division's deployment.

The two leaders further discussed the internal composition of these divisions. Because of ongoing force reductions, several battalion-size units from the 8th Infantry Division (ID) would deploy to fill out the 3d AD.[5] In the 1st AD, where two mechanized infantry battalions had not yet upgraded from M113 personnel carriers to Bradley fighting vehicles, they decided to deploy the 3d Brigade of the 3d ID in lieu of the division's 1st Brigade.[6]

Finally, 2d AD (Forward) would deploy from Germany to round out the two-brigade 1st ID, which, with its armor-heavy brigades (two tank battalions and one mechanized infantry battalion in each) and its longstanding REFORGER association with VII Corps, was a logical addition to the force package.

Force structuring decisions in the combat support and combat service support area would prove even more difficult. As Franks noted, the challenge was "to make a contingency corps out of an already forward deployed corps, and that meant adding communications and combat service support units … We were playing

catchup ball in making us a contingency corps almost to the time we crossed the line of departure." VII Corps, long reliant upon host nation support in a theater with a well-developed infrastructure, now needed substantial additions in signal, medical, transportation and engineer support. The 2d Corps Support Command (COSCOM), for example, grew from about 8,000 personnel in Germany to 24,000 in Southwest Asia.

In a sense, the corps had begun focusing its training for the war in Southwest Asia even before Iraq invaded Kuwait. With the end of the Cold War and the dismantling of the inter-German border, VII Corps had begun to get away from lock step, general defense plan (GDP)-oriented scenarios in its training exercises, emphasizing instead more mobile, offensively oriented scenarios.

In expanding from two maneuver divisions and an ACR in Germany to, at times, five maneuver divisions and an ACR in Southwest Asia and in tripling the size of its COSCOM, VII Corps exhibited an ability to be expansible. As former Chief of Staff of the Army General Carl E. Vuono said, the smaller US Army of the future must be "expansible, able to regenerate forces to sustain and reinforce extended contingency operations." Vuono envisioned that the Army will continue to "rely extensively on the Reserve Components" for any such expansion, as was the case for VII Corps.[7] The Jayhawk Corps included 19,908 personnel from 166 Army National Guard and Army Reserve units. Most of these were combat service support units and constituted a large part of the increase in size of 2d COSCOM.[8]

While many specific decisions concerning tailoring the force would, indeed, continue right up to line-of-departure time, most of the major subordinate units deploying with the corps were thus identified prior to the 8 November public announcement (see task organization chart), allowing Franks to immediately convene a commanders' meeting the morning of 9 November. He set the tone for the operation at this meeting, specifically that "we were proud to join our fellow soldiers operating in Southwest Asia and to join the team to defeat aggression, and we would go do what we were asked to do, and we would talk about it later."

The corps commander also laid out a training focus at his 9 November meeting. Units would emphasize gunnery and weapons skills, NBC (nuclear, biological and chemical) training, command and control (C^2) of large formations, desert survival and host country customs. From this guidance, the corps' major subordinate commands (MSCs) developed mission essential task lists upon which to base their training.

In a sense, the corps had begun focusing its training for the war in Southwest Asia even before Iraq invaded Kuwait. With the end of the Cold War and the dismantling of the inter-German border, VII Corps had begun to get away from lock step, general defense plan (GDP)-oriented scenarios in its training exercises, emphasizing instead more mobile, offensively oriented scenarios. The corps provided a higher headquarters cell to 1st ID's Battle Command Training Program (BCTP) at Fort Riley, Kansas, in February-March 1990, and then to a 3d ID BCTP in Germany. These BCTPs emphasized long approach marches and attacks from the march. Hence, the corps was well on the way toward a new emphasis on agility and flexibility in planning and operations that would serve it well during the 100-hour war.

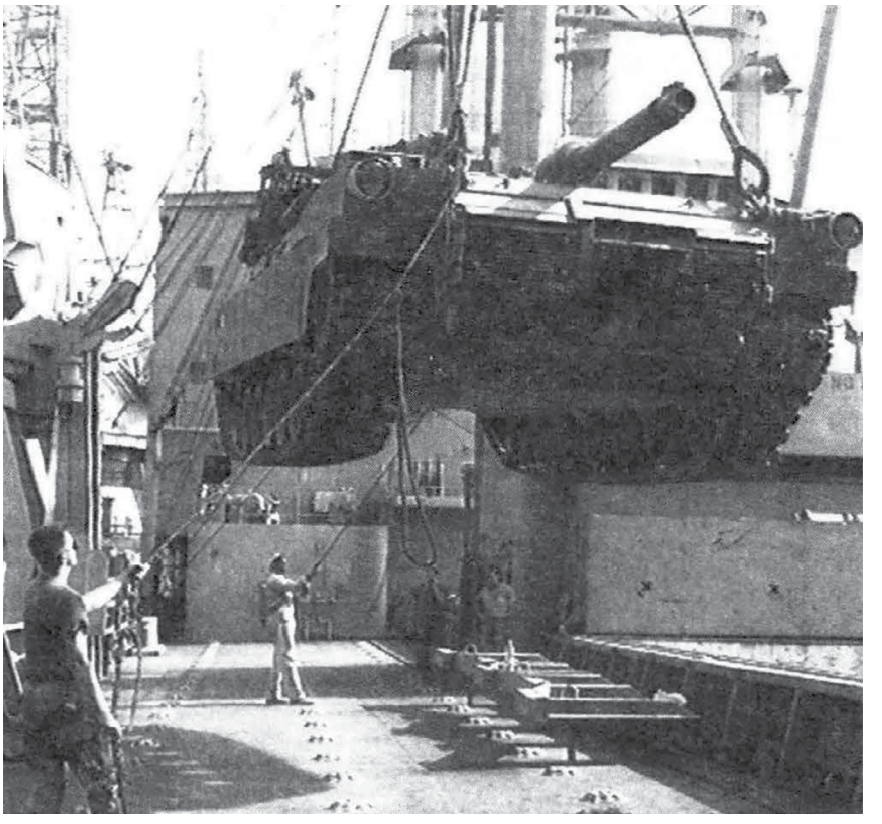
Franks also decided upon an immediate leaders' reconnaissance to Southwest Asia. On 11 November, he departed for Saudi Arabia with his 2d COSCOM commander (Brigadier General Robert P. McFarlin), his G3 (operations and plans officer, Colonel Stanley F. Cherrie), his 93d Signal Brigade commander (Colonel Richard M. Walsh), his deputy chief of staff (Colonel Edwin W. Simpson), and his aide (Major Toby Martinez). This party linked up with the corps' MSC commanders in country: Major General Ronald H. Griffith, 1st AD; Major General Paul E. Funk, 3d AD; Major General Thomas G. Rhame, 1st ID; and Colonel Don Holder, 2d ACR.

This reconnaissance was very productive for several reasons. First, Franks and his commanders received firsthand mission guidance from General H. Norman Schwarzkopf, the Central Command (CENTCOM) commander, at a commanders' meeting held on 13 November. Schwarzkopf outlined his strategic campaign plan at the meeting and told VII Corps that it would conduct the attack's main effort during the

ground campaign. Its mission would be to attack and destroy the Iraqi Republican Guard Forces Command (RGFC). This basic guidance did not change from that point on, thus allowing VII Corps to focus its planning and training efforts.

Second, the reconnaissance allowed face-to-face coordination with Lieutenant General John J. Yeosock, commander of the Army component to CENTCOM (ARCENT [Army Forces Command]) and his staff. Initial assembly areas and ports of debarkation were selected, and an initial time-phased force deployment list for VII Corps was adopted, with an emphasis on getting combat service support units into the troop flow early.

Finally, the reconnaissance allowed the VII Corps commanders to see firsthand the harsh desert conditions, the lack of supporting facilities and to gain valuable insights from their fellow commanders already in theater (XVIII Airborne Corps, 24th ID and 1st Cavalry Division) on deployment and desert operations.

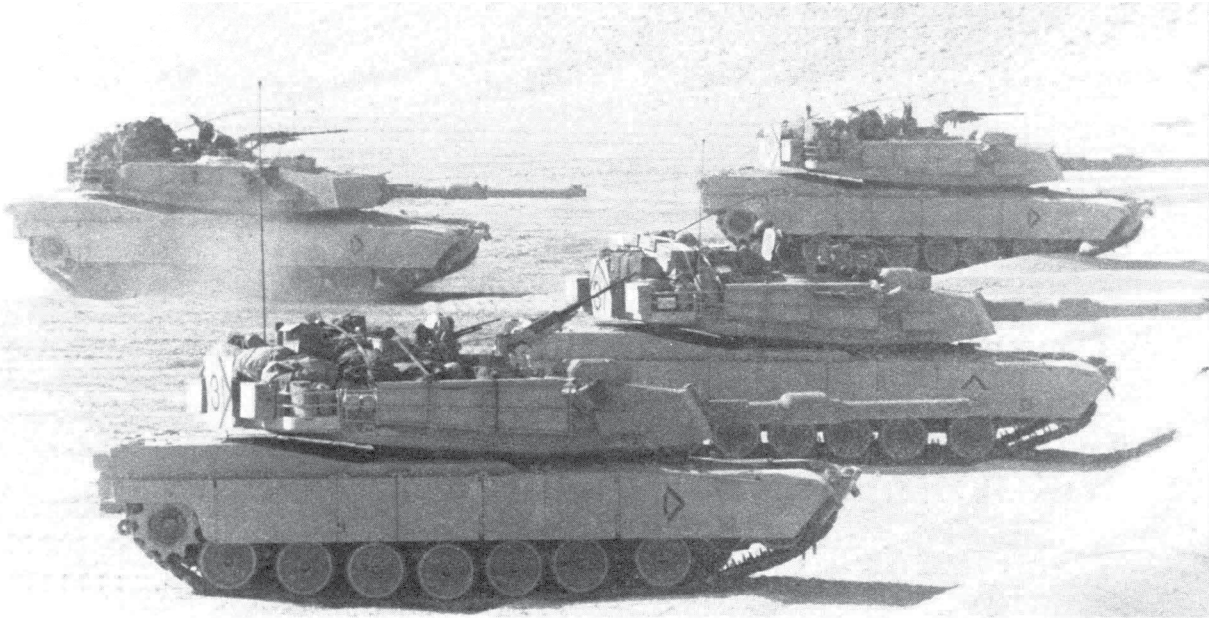


Offloading of 3d Armored Division tanks at Ad Dammam, Saudi Arabia, December 1990.

VII Corps, long reliant upon host nation support in a theater with a well-developed infrastructure, now needed substantial additions in signal, medical, transportation and engineer support. The 2d Corps Support Command (COSCOM), for example, grew from about 8,000 personnel in Germany to 24,000 in Southwest Asia.

Upon returning to their home stations, the commanders and their staffs threw themselves into simultaneously conducting individual and unit training, deploying personnel and equipment and developing tactical plans. In the area of training, units placed a great deal of emphasis on gunnery skills, knowing that long-range gunnery skills would be critical. The 3d AD had just completed a gunnery and tactical training period at Grafenwohr and Hohenfels and, thus, was at the peak of its training cycle. The 3d ID was in a gunnery cycle at Grafenwohr at the time of the deployment and it hosted deploying tanks and Bradley fighting vehicles on the gunnery ranges, using its own vehicles for any gunner-vehicle commander pairs from 2d ACR, 1st AD or 2d AD (Forward) who had not previously fired together. Unit conduct of fire trainer (UCOFT) training was included.

Live-fire gunnery training continued after units deployed to Saudi Arabia. The corps obtained permission to fire on Saudi training ranges at King Khalid Military City. In addition, the 2d ACR, 1st AD and 3d AD built their own firing ranges in the desert. Engineers constructed a full-scale replica of the enemy defenses for 1st ID to practice deliberate breaching of a fortified area. The 1st ID practiced with its newly acquired mine plows and mine rollers in this practice breach area. These in-theater ranges were not of the quality found at the training areas in Germany, but they afforded each crew the opportunity to fire service ammunition—something many of them had not done before. These ranges also had enough space to allow



M1A1s at a hastily built firing range in the Saudi desert.

The 2d ACR, 1st AD and 3d AD built their own firing ranges in the desert. Engineers constructed a full-scale replica of the enemy defenses for 1st ID to practice deliberate breaching of a fortified area. . . . These in-theater ranges were not of the quality found at the training areas in Germany, but they afforded each crew the opportunity to fire service ammunition—something many of them had not done before. These ranges also had enough space to allow a large impact area.

a large impact area, permitting long-range gunnery. During day and night, crews fired TOW (tube-launched, optically tracked, wire-guided) and Hellfire missiles, 120mm tank service SABOT rounds, the Multiple Launch Rocket System (MLRS), mine clearing line charges (MICLICs), 155mm dual-purpose improved conventional munitions and 25mm Bradley fighting vehicle service ammunition.

Another key element of the in-theater training was maneuver training. Units practiced formations and navigation at all levels, learning to navigate by compass and odometer in the featureless desert. The acquisition of about 3,000 Global Positioning Systems proved immensely valuable to navigation and accuracy of artillery fires. Units learned to build fire support and field trains into their formations, both to keep them readily at hand and to protect them. For many commanders, particularly those above battalion level, the size of their formations was something of a revelation, as was the speed with which they could move over the flat desert. Limited maneuver space had precluded such formations at home station.

The corps also emphasized leader and staff training and rehearsals, both at home station and in Saudi Arabia. Prior to deployment, a BCTP team from Fort Leavenworth, Kansas, conducted a seminar for the corps at Kelley Barracks, Stuttgart, Germany. A BCTP team then accompanied the corps to Saudi Arabia and conducted a three-day map exercise for the corps and its MSCs at King Khalid Military City, 6 to 9 January 1991. Subordinate commands conducted similar leader and staff training sessions.

Both the corps commander and the corps chief of staff, Brigadier General John R. Landry, held frequent map rehearsals for commanders and staff, using a 1:100,000 scale flat map with unit counters. These sessions were invaluable in identifying problems and ensuring synchronization.[9]

The three to four weeks of in-theater training the corps' units were able to conduct (some units more than four weeks) was a critical confidence builder. At first, units were concerned with simply establishing themselves in their assembly areas and getting used to desert life. After about three or four weeks, however, as Franks put it: "Our soldiers were desert smart and desert tough. Our soldiers were magnificent at being able to adapt to the desert—much to the surprise of the Iraqis."

In addition to executing an ambitious training plan, the corps' units underwent various force modernization actions once in theater. Mine rollers, plows and rakes were issued to the corps, with priority to the 1st ID. The 2d ACR turned in its "basic" cavalry fighting vehicles for improved and more heavily armored M2A2 Bradleys, which the 2d ACR used as cavalry fighting vehicles. The four tank battalions of the 1st ID arrived from Fort Riley with M1 tanks. Two of these battalions drew M1A1 tanks, with the 120mm main gun. By the time the ground war started, all of the corps' tank battalions had the M1A1 tank except 3-37AR (Armor) and 4-37AR of 1st ID's 2d Brigade, which would be quite successful with the basic M1 and its 105mm main gun.

Numerous other force improvement efforts took place. Several tank battalions in the 1st AD received add-on armor plating for their M1A1s. The corps also received single and multichannel tactical satellite (TACSAT) equipment, which proved extremely valuable for communications over great distances in a rapidly moving battle. The corps received intelligence input downlinked from JSTARS (Joint Surveillance and Target Attack Radar System). MICLICs were mounted on armored vehicle launched bridge chassis to make AVLMs (armored vehicle launcher MICLICs). Hundreds of CUCVs (commercial utility cargo vehicles) were swapped out for the far more versatile and

VII Corps armor stretching across the Saudi desert to the southern horizon, late February 1991.

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A very efficient airflow of soldiers, coupled with ship breakdowns and delays, led to a growing time gap between the arrival of personnel and equipment. The [expected two- or three-day] waiting time stretched to more than two weeks and caused a buildup of about 30,000 soldiers in the port waiting areas.

A further complication was the lack of lines of communication.
The single LOC for the theater was a two-lane, hard-surface road known as Tapline (Trans-Arabian Pipeline) Road. Military and civilian traffic rolled in steady streams along this single supply route, day and night.

(*Top*) VII Corps soldiers packed into an Ad Dammam warehouse, 9 January 1991. (*Below*) A battle-weary GM sedan makes its way up Tapline Road among towering 2d Armored Division (F) and British 1st Armored Division vehicles, 30 January 1991. Note the marker directing "All 1st ID convoys" to exit the highway and the desert rat symbol painted on the HET cab door at right.

mobile HMMWV (high mobility multipurpose wheeled vehicle). Hundreds of additional HEMTT (heavy expanded mobility tactical truck) fuel trucks augmented the less mobile 5,000-gallon fuel tractor trailers.

Finally, much of the corps' equipment arriving in theater was green in color. A massive effort to paint it desert sand color started at the ports and continued up until line-of-departure time, with soldiers at the corps tactical command post (TAC) slapping tan paint on their vehicles with brushes as late as 22 February.

Such in-theater force modernization and improvement efforts, coupled with the latest equipment brought by units from home stations—the Apache attack helicopter, the MLRS, the armored combat earthmover, the German-built *Fuchs* NBC reconnaissance vehicle, the Army Tactical Missile System and the Patriot air defense missile system, to name just a few—ensured that VII Corps crossed the line of departure with the most modem equipment possible. The corps' equipment superiority over the Iraqis would be one of the keys to success.

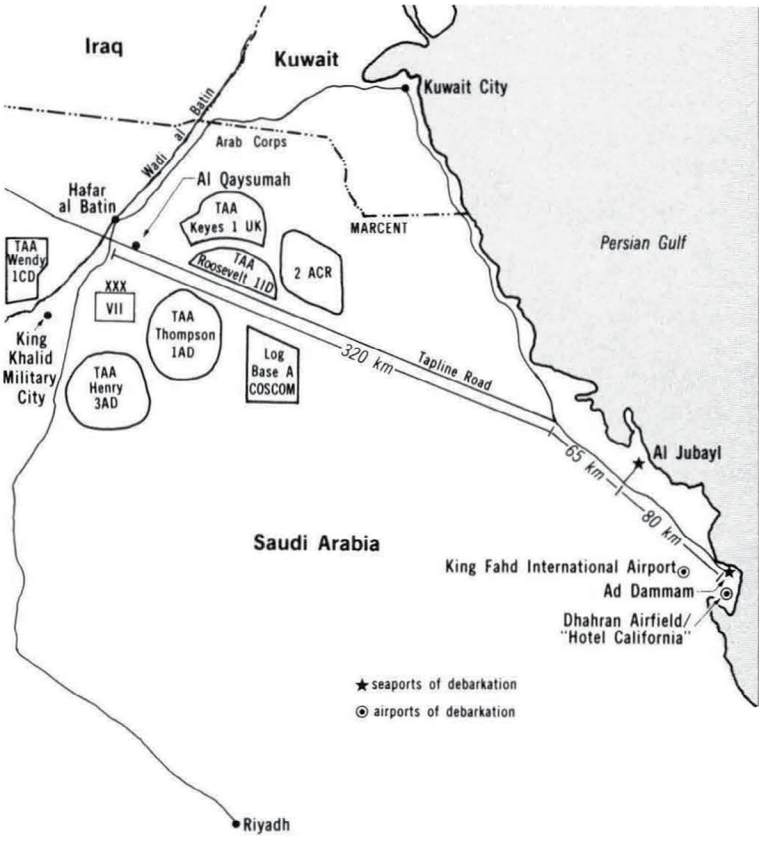

Figure 1. VII Corps Deployment

This significant training and force modernization effort had to be built around the requirements for executing a massive deployment. The corps quickly developed and published, on 11 November, Operation Order (OPORD) 1990-1 for the deployment.[10]

The corps established a deployment cell, under the control of the corps deputy commander, Brigadier General Eugene L. Daniel. USAREUR and United States European Command (USEUCOM) collocated their representatives with the corps' cell. The sequencing of units out of Germany was 2d ACR, corps C^2 assets, 2d COSCOM, 1st AD, 3d AD, then 2d AD (Forward). The nondeploying 3d ID ran the port support activities in Europe, providing loading teams at seaports of embarkation at Antwerp, Belgium, Bremerhaven, Germany and Rotterdam, Holland.

Establishing a separate deployment cell under Daniel proved to be a wise division of the corps' C^2 in that it allowed the corps commander and his subordinate commanders to focus on training and war planning while the deployment cell executed the deployment plan. Also, the external support

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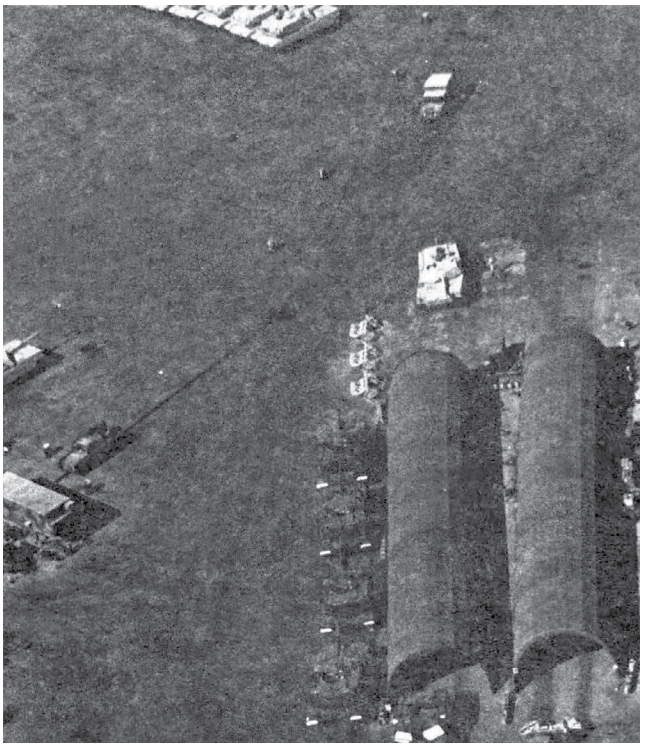

VII Corps tanks receiving their desert camouflage at a painting facility in Ad Dammam, 1 January 1991.

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provided by a wide variety of headquarters outside VII Corps such as USAREUR, USEUCOM and various CONUS-based agencies was equally invaluable to the successful deployment.

The corps intended to deploy as it was expecting to fight, in a tactical configuration, with unit integrity maintained, thus facilitating being able to go to war immediately upon arrival in Saudi Arabia. There was a great deal of pressure, however, to complete the deployment by the 15 January deadline given to Iraq to withdraw from Kuwait. This led to an increasing tendency to administratively load ships to get as much equipment on board as possible, to the detriment of unit integrity. A shortage of MILVANs (military-owned demountable containers) and CONEX (container express) container aggravated the problem.

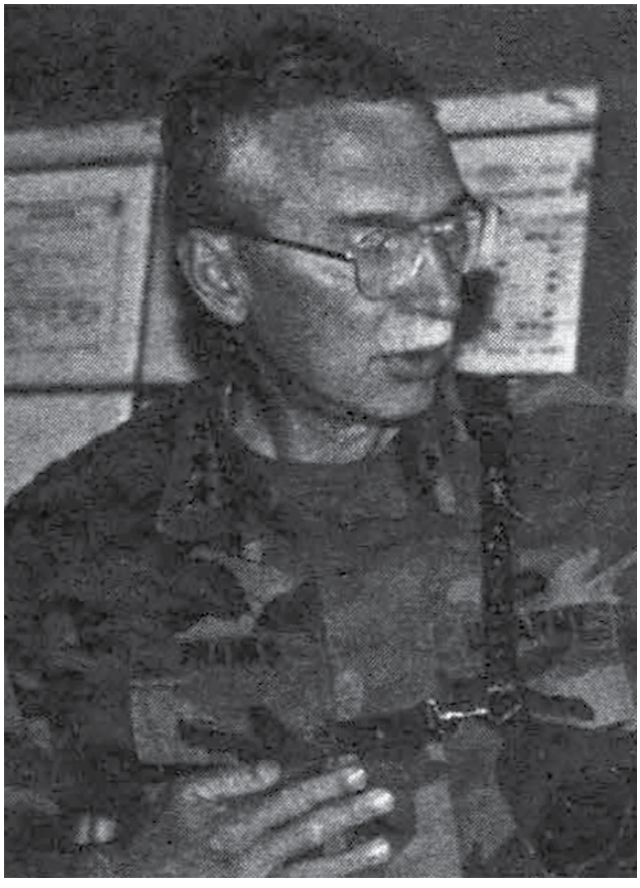
The in-theater merging of soldiers with their equipment also proved to be a problem. The corp established an ad hoc port support activities headquarters, known as "Hotel California," at the King Abdul Aziz Air Base in Dhahran, Saudi Arabia. This headquarters was responsible for monitoring the arrival of passengers at the King Abdul Aziz Air Base and at King Fahd International Airport, the arrival of equipment and supplies at the ports of Ad Dammam and Al Jubayl, and the linkup and forward movement of troops and equipment to tactical assembly areas (TAAs) (see fig. 1).

The goal was to have the soldiers wait in temporary quarters in the port area no more than two or three days before linking up with their equipment. However, a very efficient airflow of soldiers, coupled with ship breakdowns and delays, led to a growing time gap between the arrival of personnel and equipment. The waiting time stretched to more than two weeks and caused a buildup of about 30,000 soldiers in the port waiting areas, far in excess of the planned 12,000 to 15,000, greatly straining accommodations, security measures and transportation.

The ad hoc port support activities headquarters was inadequately staffed and structured to handle this dilemma, so Brigadier General William J. Mullen III, commander of 1st ID (Forward) in Germany, was tasked to bring his chain of command and necessary equipment to Saudi Arabia to assume the port support activities mission. About 800 soldiers from 1st ID (Forward) assumed this mission just after Christmas, with an immediate improvement in the reception and onward movement process. This superb effort allowed the corps and its MSCs to deploy to the desert and prepare for combat operations.

The next problem in the deployment process proved to be the lack of adequate heavy equipment transporters (HETs) to move equipment from the port area to TAAs in the desert. The number of available HETs was limited, and the reliability of the civilian drivers left something to be desired. Consequently, equipment backed up at the ports. Of course in Saudi Arabia, unlike a mature theater of operations such as Europe, there were no alternate means of transportation such as river barges or railroads to move heavy equipment.

A further complication was the lack of lines of communication (LOC). The single LOC for the theater was a two-lane, hard-surface road known as Tapline (Trans-Arabian Pipeline) Road. Military and civilian traffic rolled in steady streams along this single supply route, day and night (see fig. 1). Hence, despite everyone's best efforts, by 17 January, the equivalent of eight tank companies, 16 Bradley companies and 22 howitzer batteries were awaiting transport. On 22 January, 1st AD and 3d AD began road marching selected units to their TAAs rather than waiting for HET transport.[11]



LTG Franks at the main VII Corps headquarters northwest of Hafar al Batin, late February 1991.

[LTG Franks was] on the lookout for a chance to call an "audible" … on the "line of scrimmage" to take advantage of an enemy weakness. The specific move in mind was a shifting of forces westward to envelop the open western flank of the Iraqi defenses, rather than pass the entire attacking force through the breach made by 1st ID.

While there were many snags in the deployment process, these problems, as Franks was quick to point out, "were certainly not caused by anybody's lack of motivation or unwillingness to do what was required. It was just the enormity—the size—of the operation," deploying a heavy corps through two ports (Ad Dammam and Al Jubayl) while normal theater logistics had to flow through those same ports. Corps and the theater support command would overcome these problems, and the units would close in their TAAs in time to train and prepare for combat.[12]

In addition to training and deployment, the corps had to translate Schwarzkopf's mission of attacking to destroy the RGFC into a concrete tactical plan. The corps commander gave this mission considerable thought upon his return to Germany following the 13 November meeting with Schwarzkopf. On 26 November, a planning cell was convened at Kelley Barracks. Because of the sensitivity of the information, the cell was limited to 10 people.[13] The planning cell was to develop options to rapidly move to the enemy's rear to attack and destroy the RGFC, which was positioned in depth behind the forward defenses. Depending upon the extent to which the Iraqis continued to improve their defenses and extend them westward, the corps would have to conduct a penetration of the enemy's defensive belt before advancing against the RGFC. The corps commander did not want to rule out an envelopment around the western edge of the enemy's defenses, however, as he much preferred this over what could be a bloody, deliberate breach of a fortified zone.

The planning cell then developed an outline plan that Franks briefed to the ARCENT commander on 7 December in Riyadh. The plan at that point envisioned a strong Iraqi first-echelon defense. The 1st ID would attack and secure a breach area in these defenses west of the Wadi al Batin, and the other corps forces (2d ACR, 1st AD and 3d AD) would pass through the breach and attack to the northeast. The employment of the 1st (United Kingdom [UK]) AD and the 1st Cavalry Division (CD) were discussed at that briefing, but no decisions were made concerning their employment. (Neither unit was, at that point, designated to be part of VII Corps, but the corps commander expected

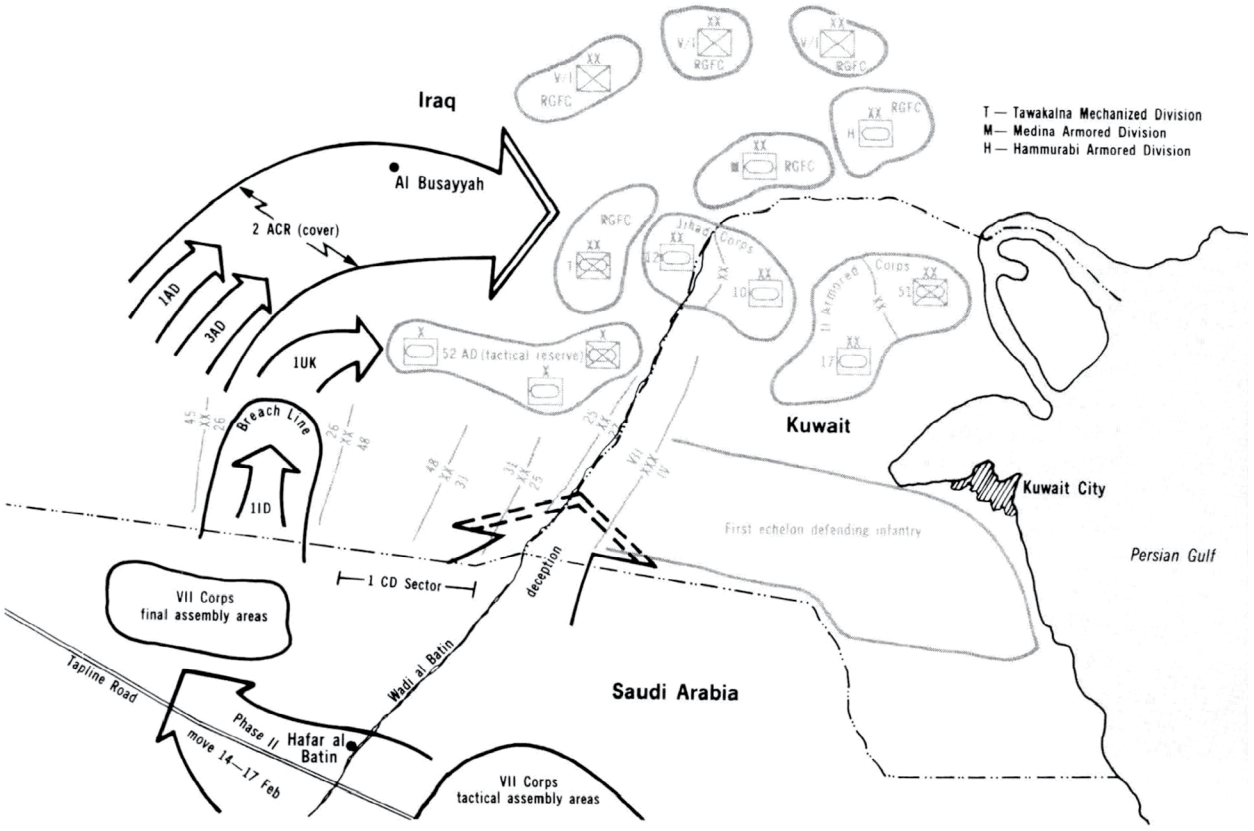


Figure 2. VII Corps Plan of Attack

one or both of those units to be given to the corps, since VII Corps' attack was to be ARCENT's main effort.)

The corps was informed at the 7 December briefing that the secretary of defense, Richard B. Cheney, and the chairman of the Joint Chiefs of Staff, General Colin L. Powell, were to be briefed in Riyadh on 20-21 December, to include briefings by the VII and XVIII corps commanders. It was now evident that the corps' focus was rapidly shifting to Saudi Arabia, even though most of the corps had not yet arrived. Thus, on 13 December, the corps commander and staff deployed to Saudi Arabia for the duration of the campaign, arriving in theater on 14 December.

A week later, the corps commander briefed the secretary of defense and the chairman of the Joint Chiefs of Staff on essentially the same plan he had briefed on 7 December. The 1st ID would breach the Iraqi defenses, and the rest of the corps would pass through the breach to attack the RGFC. Franks explained the three aspects of his tactical plan—penetrating the first echelon defenses, blocking the reaction by the enemy's tactical reserve and moving rapidly to destroy the RGFC. The plan required three divisions and an ACR for the RGFC fight, a division to penetrate the defenses and a division to block the tactical reserves. This was two more divisions than the corps controlled.

Franks briefed the corps' concept for conducting the breach and passing the follow-on units through, pointing out that this would take considerable time. He explained that he would be on the lookout for a chance to call an "audible," meaning a last-minute shifting of the corps' forces on the "line of scrimmage" to take advantage of an enemy weakness. The specific move in mind was a shifting of forces westward to envelop the open western flank of the Iraqi defenses, rather than pass the entire attacking force through the breach made by 1st ID.

During the BCTP-led corps map exercise held in early January at King Khalid Military City, the corps practiced this "audible." The 1st and 3d ADs, with the 2d ACR covering, would shift to the western side of the corps' zone and attack around the western end of the enemy's fortified positions. The 1st ID would still conduct a breaching operation and would be the corps' main effort until the breach was completed. The 1st (UK) AD, though not yet attached to VII Corps, was expected to join the corps before the ground campaign began.[14] Its mission was to pass through the 1st ID breach and attack to defeat the enemy's tactical reserves. This would protect the flank of the enveloping force driving to the northeast to attack the RGFC (see fig. 2).

The corps was now short only one division to execute this plan—a third division to join 2d ACR, 1st AD and 3d AD in the destruction of the RGFC. The corps published OPLAN 1990-2, Operation *Desert Saber*, on 13 January 1991, reflecting this concept of operation.

Prior to the start of the ground campaign, a series of fragmentary plans ("FRAGPLANs") were developed off of OPLAN 1990-2. One of these, FRAGPLAN 7, would be significant to the execution of the campaign. The corps used FRAGPLANs as a means of providing some options to the subordinate commanders concerning future operations based on various friendly or enemy situations. FRAGPLAN 7 was developed at the request of the corps commander, to whom "it became apparent that, if the RGFC stood and fought, we needed a coordinated effort between us and XVIIIth Airborne Corps to finish the fight, so I asked our planners to look at a variety of options, basically continuing the left hook (enveloping force)."

FRAGPLAN 7 essentially extended the corps' zone of attack eastward to the Persian Gulf, and proposed a similar extension of XVIII Airborne Corps' zone to the east, on VII Corps' northern flank. ARCENT accepted this FRAGPLAN on 19 February, adopting it as "ARCENT Course of Action 6 for the Destruction of RGFC: Positional Defense in Place." The corps published FRAGPLAN 7 on 24 February.[15]

Deception was an inherent part of the plan at all levels, and the initial positioning of the corps' forces in theater was in large measure to support the deception story, specifically that the corps would attack to the northeast-up, or east of, the Wadi al Batin. For this reason, all unit TAAs were located east of the wadi.

The 2d ACR was positioned north of Tapline Road, well east of the wadi, with a Hawk air defense battery radiating electronically behind it, to portray to Iraqi signal and human intelligence sources a cavalry regiment preparing for its doctrinal role as a covering force for a corps attack east of the wadi. No unit could move west of the Wadi al Batin without the personal approval of the corps commander. Once the air campaign began on 17 January, heavy bombing of targets near and east of the Wadi al Batin reinforced the deception.

On 13 January, the 1st CD, which had been attached to the XVIII Airborne Corps, was attached to VII Corps for the specific mission of protecting the theater's main supply route, Tapline Road, against a possible Iraqi spoiling attack south along the Wadi al

VII Corps Task Organization on G–Day

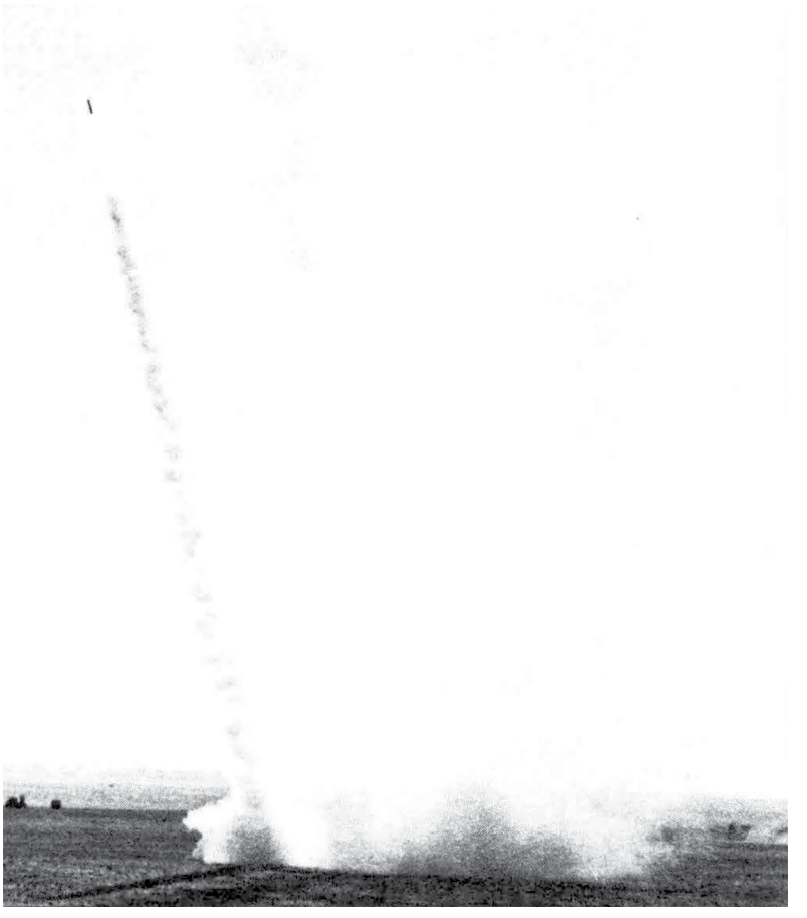
- 1st Armored Division
- 3d Armored Division
- 1st Infantry Division (w/2 AD [Forward] attached)
- 1st (UK) Armored Division*
- 1st Cavalry Division**
- 2d Cavalry Regiment
- Corps Artillery
  - 42d Field Artillery Brigade
  - 75th Field Artillery Brigade
  - 142d Field Artillery Brigade
  - 210th Field Artillery Brigade
- 7th Engineer Brigade
- 11th Aviation Brigade
- 14th Military Police Brigade
- 93d Signal Brigade
- 207th Military Intelligence Brigade
- 354th Civil Affairs Brigade
- TF 8-43d Air Defense Artillery
- 7th Finance Group
- 2d Corps Support Command
  - 7-159th Aviation Regiment
  - 332d Medical Brigade
  - 229th Movement Control Center
  - 800th Corps Movement Control Center
  - 7th Support Group
  - 159th Support Group
  - 30th Support Group
  - 16th Support Group
  - 43d Support Group

* Tactical control (TACON) to VII Corps 260001Z Jan 1991
** Attached to VII Corps 13 Jan.—23 Feb., and again effective 260930C Feb 1991.

Batin to the town of Hafa al Batin. At that time, the 1st CD occupied TAA Wendy just west of King Khalid Military City. The corps also received the 2d Brigade of the 101st Airborne Division (Air Assault) from the XVIII Airborne Corps for this same mission. The 2d Brigade of the 101st flew into Al Qaysumah, a town and airfield on Tapline Road about 30 kilometers east of Hafar al Batin, and began digging in around the airfield.

On a cold, rainy 13 January, the 2d Brigade of the 101st was trying to dig in and set up a defense with only what they had carried in with them. The corps, seeing that the 2d Brigade needed help, arranged for engineer and logistics support. Franks also ordered the 1st CD out of TAA Wendy north to positions along Tapline Road that placed the 2d Brigade of the 101st within range of the 1st CD's artillery. The 1st CD moved quickly, starting at 1520 in adverse weather, and covered about 100 kilometers in 16 hours to get into position. The 2d Brigade of the 101st was put under the tactical control of 1st CD.

The enemy did not attack, but this "defense of Hafar al Batin" proved to be a valuable C^2 exercise in synchronizing combat power. The corps also started, as a result of this exercise, to issue daily operational fragmentary orders to get units accustomed to receiving them and to help get everyone on a tactical footing.



An MLRS attacking Iraqi positions during one of the many artillery "raids" conducted before G-day.

Deception was an inherent part of the plan at all levels, and the initial positioning of the corps' forces in theater was in large measure to support the deception story, specifically that the corps would attack to the northeast—up, or east of, the Wadi al Batin. For this reason, all unit TAAs were located east of the wadi.

Later in the month, the 2d Brigade of the 101st reverted to XVIII Airborne Corps' control, and the 1st CD moved further north until it occupied a sector along the Saudi-Iraqi border just west of the Wadi al Batin. It remained there through the start of the ground campaign, although it would revert to ARCENT control on 23 February as the theater's ground reserve force. During the month of February, the 1st CD actively supported the deception story of an attack in the vicinity of the Wadi by conducting a series of feints, artillery raids and Apache helicopter strikes against Iraqi forces defending north of the Saudi-Iraqi border.[16]

There came a time, however, when the corps had to risk tipping its hand concerning its true intentions. That time came when the corps had to leave its TAAs and shift westward to assigned sectors and final assembly areas in preparation for the ground offensive. The corps executed this move, which was Phase II of *Desert Saber*, from 14 to 17 February. (Phase I was deployment and preparation for combat.) Corps units traveled as far as 160 kilometers to the west and north to position themselves for the attack across the Saudi-Iraqi border.

The corps was concerned that this move would alert the Iraqis to its intentions, but there was no way to completely conceal the move, as two major roads carrying civilian traffic had to be crossed and numerous Bedouin herdsmen and a few small villages were along the path of movement. The corps commander felt that, given the air campaign's success in damaging the Iraqis' intelligence collection and C^2 apparatus, the only viable intelligence collection method the Iraqis had left was human, "and by the time [anyone] called Baghdad, on their broken down communication system that the Air Force had destroyed, and got that to the field and they reacted to it, we'd be on them." The lack of Iraqi reaction to the corps' movement would bear this out. Indeed it seems probable that the Iraqis were not even aware of the presence of the VII Corps enveloping force until the attack commenced.[17]

The Phase II movement [became] a full-up rehearsal for the attack. The 1st ID moved … to its assigned sector along the Saudi-Iraqi border [and] the 1st (UK) AD followed … into a final assembly area just south of the 1st ID. Along the way, the 1st (UK) AD practiced the formations it would use when it attacked to the east out of 1st ID breach.

Prior to executing the Phase II move, the corps commander noticed, from a map analysis, that he could move the corps to its final assembly areas using the same alignments and formations it would use when crossing the line of departure. The Phase II movement was therefore used as a full-up rehearsal for the attack. The 1st ID moved on 15 February from TAA Roosevelt to its assigned sector along the Saudi-Iraqi border. The 1st (UK) AD followed on 16 February, moving into a final assembly area just south of the 1st ID. Along the way, the 1st (UK) AD practiced the formations it would use when it attacked to the east out of 1st ID breach. The 1st ID and 1st (UK) AD did not rehearse the latter's forward passage at this time, but a full dress rehearsal had been conducted on 30 January using 1st ID's breach training area. (At the rehearsal, passage lanes were marked and controlled as they would be during the breach, and the 7,000 vehicles of the 1st (UK) AD passed through these lanes.)[18]

On 16 February, after some initial repositioning on 14 and 15 February, the western enveloping force (2d ACR, 1st AD and 3d AD) moved west and then north to its final assembly areas along the Saudi-Iraqi border. The 2d ACR moved in the same covering force formation it would use to attack into Iraq. The 1st AD, in wedge formation, and the 3d AD, in a column of brigades, moved behind the 2d ACR as they would during the attack.

The corps also took this opportunity to rehearse corps-level C^2. Franks moved in his M113A3 personnel carrier, along with the G3's and air liaison officer's M113A3s (these three M113s constituted the command group), not far behind the 1st AD TAC headquarters, as he planned to do during the ground campaign. During the move, conducted in a brisk sandstorm, Franks found FM radio communications spotty at best, and he knew that FM radio would be the key to C^2 during what he expected to be a swift-moving offensive campaign. Franks, therefore, decided that, unless his physical presence at a particular point on the battlefield became critical, he would travel about the battlefield in his UH-60 Black Hawk helicopter, taking his portable TACSAT radio and an operator with him. In between helicopter trips, he would base himself at whatever forward corps tactical command post was stationary and operating.

The corps' units also learned valuable lessons from the Phase II movement concerning C^2, time-distance factors, fuel consumption and refueling operations. The corps conducted a formal after-action review on 18 February at the corps' main headquarters, where commanders shared these lessons learned.

The stage was now set for the corps' offensive. The Iraqis had not extended their fortifications farther westward, nor had they repositioned any additional units westward. The chances of a successful envelopment of the Iraqi western flank appeared good. The corps prepared for the assault and awaited the announcement of G-day, a date called into question by the last-minute Soviet effort to arrange a peaceful withdrawal of Iraqi forces from Kuwait. The corps was scheduled and ready to attack on G+1. ***MR***

Notes

1. Except as noted otherwise in the footnotes, this article is based upon in formation and quotations from a series of interviews with LTG Frederick M. Franks Jr. conducted by the author from 2 April to 26 June 1991. The author served as the VII Corps historian during *Desert Storm* from 21 January to 29 June 1991.

2. The six men were the corps commander, the deputy corps commander (BG Eugene L. Daniel), the 2d Corps Support Command (COSCOM) commander (BG Robert P. McFarlin), the corps G3 (COL Stanley F. Cherrie), the G3 plans chief (LTC Thomas R. Goedkoop) and the deputy G4 (LTC Michael R. Stafford). The corps chief of staff (BG John R. Landry), a G4 planner (LTC Robert W. Browne) and a G1 planner (MAJ Paul G. Liebeck) were also members of the planning cell, but were not present at the headquarters when the CNN announcement was made.

3. Tab D (Contingency and Fragmentary Plans [FRAGPLAN]) to VII Corps *Desert Shield/Desert Storm* After-Action Report. These numbers do not include the 23,917 British soldiers that deployed from the United Kingdom and the British Army of the Rhine who would later join VII Corps. Nor is the 1st Cavalry Division, which would also join VII Corps during the 100-hour war, counted in these numbers.

4. Ibid.

5. The 4th Battalion, 34th Armor and 5th Battalion, 3d Air Defense Artillery from 8th Infantry Division (ID) deployed with 3d Armored Division (AD).

6. The 3d Brigade of 3d ID, with 1st Battalion, 7th Infantry, 4th Battalion, 7th Infantry, 4th Battalion, 66th Armor and the 26th Forward Support Battalion, deployed with 1st AD.

7. Quote from GEN Carl E. Vuono's Statement Before the Committee on Armed Services, United States House of Representatives, on 20 February 1991.

8. Statistics on Reserve Component participation, provided by VII Corps G1 to the VII Corps historian, are as of 26 April 1991.

9. Such sessions included, for example, a commander's war-gaming session on 7 February, and chief of staff war-gaming sessions on 12, 17 and 21 February. Subjects war-gamed included the breach operation to be conducted by 1st ID, the first few days of combat operations, and the artillery and logistics support plans. This is by no means a comprehensive list; corps historian's notes.

10. A total of seven changes to the plan were published between 11 and 23 November, mostly reflecting additional information available concerning the reception and onward movement process in Southwest Asia and changes to the deployment sequence. The entire operating order, with changes, is in part (Chronology and Documentation) of the VII Corps *Desert Shield/Desert Storm* After-Action Report.

11. Appendix 3 (Significant Activities), Tab A (Mission) to VII Corps *Desert Shield/Desert Storm* After-Action Report.

12. The 2d Armored Cavalry Regiment was closed in country on 20 December. It then occupied a sector east of the Wadi al Batin, and later closed into TAA Richardson on 23 January. 1st AD and 1st ID closed in TAAs Thompson and Roosevelt, respectively, on 28 January. The 3d AD closed into TAA Henry approximately 5 February, and 1st (United Kingdom [UK]) AD closed into TAA Keyes on about 31 January after moving westward from the Marine Forces Command (MARCENT) sector. Appendix 3, Tab A to VII Corps *Desert Shield/Desert Storm* After-Action Report.

13. This planning cell was initially limited to the commander, the deputy commander, the chief of staff, the commander of 2d COSCOM, the G3, the G4 (COL Wilson R. Rutherford III), the deputy fire support coordinator (COL Thurman R. Smith), the G3 plans chief, the G2 planner (LTC James P. Mault), and the G3 war plans chief (MAJ Patrick J. Becker). Others were soon added, however.

14. As early as mid-December, the corps received "unofficial" notification of 1st (UK) AD's eventual attachment to VII Corps. From that point on, 1he 1st (UK) AD maintained close ties with VII Corps, even though the "official" word did not occur until Army Forces Command (ARGENT) fragmentary order (FRAGO) 16 was issued, directing tactical control of 1st (UK) AD effective 260001Z January 1991. Tab D to VII Corps *Desert Shield/Desert Storm* After-Action Report.

15. FRAGPLAN 7 was initially published 20 February and modified and republished on 24 February. The graphics, if not the exact disposition of forces, would be executed during the ground campaign. FRAGPLANs 1 through 6, incidentally, were not executed-only FRAGPLAN 7. Tab D to VII Corps *Desert Shield/Desert Storm* After-Action Report.

16. Executive Summary and Narrative Summary, 1st CD After-Action Report, 10 April 1991.

17. VII Corps G2's *Battlefield Reconstruction Study*, "The 100-Hour Ground War: How the Iraqi Plan Failed," 20 April 1991, pages 31-37, provided details on the failure of the Iraqi intelligence system and the extent to which the Iraqi forces were in ignorance of the VII Corps' dispositions in particular, and of Coalition Forces in general.

18. 1st ID Executive Summary, *Desert Shield/Desert Storm* After-Action Report, 3.

To view "VII Corps in the Gulf War: Deployment and Preparation for Desert Storm" as it was originally published in January 1992, visit https://www.armyupress.army.mil/Portals/7/military-review/Archives/English/JF-22/Original/Kindsvatter.pdf.

The Impact of Weapons of Mass Destruction on Battlefield Operations

Major General Robert D. Orton, US Army
Major Robert C. Neumann, US Army

Weapons that through use or the threat of use can cause large-scale shifts in objectives, phases, and courses of action.
—FM 100-5, *Operations*, 1993

In April 1988, Iraq began Operation *Blessed Ramadan* to retake the Al Faw peninsula. The attack began on the morning of 17 April. Armored forces of the Republican Guard conducted the main attack. The Iraqi 7th Corps conducted a supporting attack along the west bank of the Shatt-al-Arab channel. The Iraqis also conducted two amphibious assaults along the western coast of the peninsula. The Iraqi plan called for a three-phase operation lasting four to five days. The employment of chemical weapons was an integral part of the Iraqi plan. Nonpersistent nerve agent was used on the defending Iranians. Reports indicate that front-line forces, command and control (C^2) sites and artillery positions were targeted.[1] Both artillery and aircraft delivered the chemical agent on the intended targets. Only 35 hours were required to complete the operation. The Iranians never recovered from the initial assault and were unable to reestablish an effective defense. The Iranian retreat across the Shatt-al-Arab turned into a complete rout, with the Iranians abandoning most of their equipment. The Iraqis did not win this battle solely by employing chemical weapons, but their impact was significant.[2] The use of chemical weapons in this battle caused casualties, disrupted operations, hindered battle command and allowed the Iraqis to retain the initiative throughout the attack.

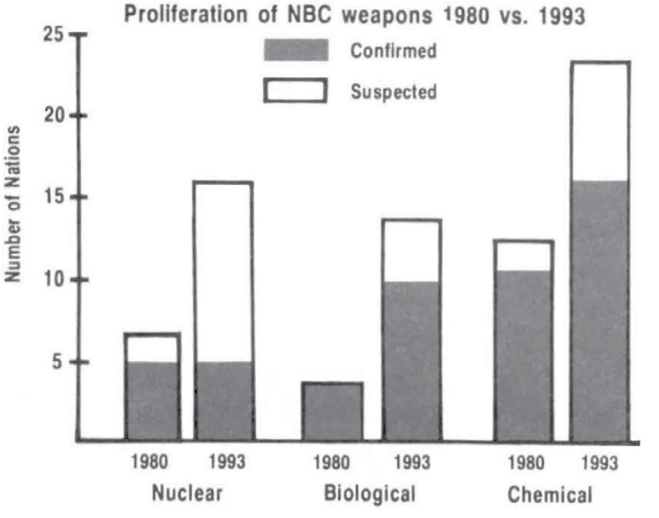
Lessons from the Iran-Iraq War show that the employment of chemical weapons did have tactical significance during several battles. One analyst felt that the employment in the Iran-Iraq War was an example of "low-level, sporadic use of chemical weapons." He concluded that this "was far less devastating to those involved than it might have been or could be in a future conflict."[3] Yet, this limited usage was a major contributor to Iraq's successes against an otherwise superior force. The Iraqi use of chemical weapons during its war with Iran clearly demonstrates the impact that weapons of mass destruction can have on the battlefield.

Nations seek to obtain these weapons as low-cost alternatives to expensive conventional weapons that provide an added measure of political, leverage in dealing with their neighbors. Some nations seek these weapons as status symbols to gain acceptance as world or regional, powers. . . . Nations seeking or already having NBC weapons believe in their utility as force multipliers.

One of the significant factors affecting today's national security environment is the proliferation of weapons of mass destruction.[4] The revised edition of US Army Field Manual (FM) 100-5, *Operations*, establishes that the Army must be capable of waging war under any condition, including those created by

weapons of mass destruction. There is a need to reassess the implications and impact of these weapons on future military operations. FM 100-5 gives the term *weapons of mass destruction* a rather broad definition. Currently, only three weapon types—nuclear, biological and chemical (NBC)—meet the criteria because of their large area coverage or long-lasting effects.

A recent congressional inquiry determined that the chemical and biological warfare "threat has increased in terms of widespread proliferation, technological diversity and probability of use."[5] The proliferation of NBC weapons has increased over the past decade. Today, more than 24 countries are confirmed or suspected of having an offensive chemical warfare program. Fourteen countries have, or are suspected of having, an offensive biological warfare program. Sixteen countries have confirmed or suspected nuclear weapons programs. One thing is certain, these weapons will continue to pose a threat to US forces facing future contingency requirements regardless of the region or level of conflict.



Nations seek to obtain these weapons as low-cost alternatives to expensive conventional weapons that provide an added measure of political leverage in dealing with their neighbors. Some nations seek these weapons as status symbols to gain acceptance as world or regional powers. Whatever the reason, nations seeking or already having NBC weapons believe in their utility as force multipliers.

When ratified, the new Chemical Warfare Convention (CWC) is expected to limit the growth of chemical weapon stockpiles and reduce the likelihood of conflicts with massive employment of chemical weapons. However, the risk of employment on a reduced scale will grow as rogue nations seek to take advantage of the battlefield asymmetry that one-sided use of chemicals can create. Several countries thought to possess chemical weapons, such as North Korea and Iraq, have refused to sign the convention. Others that have signed it have a history of disregarding international accords. As with the 1972 biological weapons ban, the CWC can, at best, be expected to "keep honest people honest." It will not deter use of this kind of weaponry by a strong-willed aggressor.

Since the United States no longer allows itself to use chemical weapons in retaliation, chemical defense takes on greater importance. Further, the growing biological threat and the spread of nuclear weaponry increases the importance of both passive and active defense against these weapons as well. US forces must do more than survive an NBC attack—we must be trained and equipped to continue the mission under NBC conditions. Maintaining a robust NBC defense capability is the only way to ensure that the Army is ready to face an opponent who possesses an offensive NBC capability. NBC defense on a power-projection battlefield is necessary to deter and, if necessary, counter an enemy's use of weapons of mass destruction.

Impact on Tactical Operations

Our experiences, both in training and actual combat, demonstrate the debilitating impact of NBC weapons. Continued observations from our combat training centers show that the introduction of NBC into a training scenario contributes to mission degradation or failure. In other words, NBC affects the outcome of battles. The effects of these weapons rarely involve heavy attacks with massive casualties. Rather, they cause the disruption of operations through the performance degradation caused by adopting protective measures and the burden of added leader tasks. Typical comments from unit after-action reviews show

that NBC conditions impair synchronization, diminish agility, slow the tempo and disrupt battle command.

In one such battle at the National Training Center, Fort Irwin, California, a brigade conducting a deliberate attack encountered a chemically contaminated area. While only one platoon actually entered the contamination, the forward momentum of the brigade was halted. Once forward movement was regained, the brigade conducted a piecemeal assault. The tempo of the attack was never fully restored; massing of combat power at the decisive point was never achieved. While the brigade suffered very few casualties from contamination, the unit never reached its objective. In this case, the effect on the operation was profound.[6]

[NBC weapons] will produce extensive casualties against an unprotected force. It is particularly crucial to consider the impact on allies and coalition members who may be less well-protected than our forces. … Leaders are less effective, communication is more difficult, and critical tasks are neglected. To achieve the same objective, operations under NBC conditions require more combat power than operations not under NBC conditions.

The key point is that the unit was not prepared to perform its mission in a chemical environment. To overcome this commanders must understand the impact that weapons of mass destruction will have on battlefield operations and take the necessary steps to prepare their units for such situations. During the Army's Combined Arms in a Nuclear/Chemical Environment (CANE) tests, force-on-force evaluations showed unit performance was degraded in operations under NBC conditions. For attacks and defenses, units were required to operate in the highest protective posture, mission-oriented protection posture (MOPP4). During offensive operations it was noted that:

- Attacks and engagements lasted longer.
- Fewer enemy forces were killed.
- Friendly forces suffered more casualties.
- Friendly forces fired fewer rounds at the enemy.
- Fratricide increased.
- Terrain was used less effectively for cover and concealment.[7]

Many of the same observations held true for defensive operations. Throughout the CANE tests, it was noted that performance of routine tasks and those tasks in which the unit was well trained suffered the least degradation. While a unit cannot win a battle through NBC defense, it can lose a battle through the inability to conduct its mission in an NBC environment.

Battlefield Effects

The effects of NBC weapons on the battlefield are unique. They will produce extensive casualties against an unprotected force. It is particularly crucial to consider the impact on allies and coalition members who may be less well-protected than our forces. The effectiveness of weapon systems and battle command is degraded. Operations under NBC conditions can decrease weapon systems' effectiveness by up to 60 percent.[8] Leaders are less effective, communication is more difficult, and critical tasks are neglected. To achieve the same objective, operations under NBC conditions require more combat power than operations not under NBC conditions.

NBC contamination will limit the consumption of supplies and the use of weapons and equipment, and decontamination operations are extremely resource intensive. Long-lasting contamination on terrain can severely limit friendly use of key terrain.

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Opposing force troops at the NTC.

At the NTC, a brigade conducting a deliberate attack encountered a chemically contaminated area. While only one platoon actually entered the contamination, the forward momentum of the brigade was halted. Once forward movement was regained, the brigade conducted a piecemeal assault. The tempo of the attack was never fully restored; massing of combat power at the decisive point was never achieved. While the brigade suffered very few casualties from contamination, the unit never reached its objective.

The operational tempo of battles and engagements slows because of the effect on battle command, degradation from protective equipment and battlefield contamination. The speed, cohesion and flexibility of movement is reduced. Contaminated areas and debris from nuclear detonations make movement more difficult. Attacks may take up to twice as long under NBC conditions. Because battles and engagements last longer, more supplies are consumed. Additionally, equipping and maintaining a force in an NBC-protective posture increases the burden on the logistics system.

The effects of weapons of mass destruction in combination with conventional munitions creates a synergistic effect. The effect of other munitions is enhanced. Psychological casualties will increase because of the fear and fatigue arising from the nature of the killing agent and the need to conduct operations for extended periods of time in burdensome protective equipment. Soldiers are fearful of the effects from weapons of mass destruction, and prolonged operations in protective equipment produces numerous physiological effects on soldiers.

To protect the force, commanders must divert significant combat power to counter or defeat enemy weapons and delivery systems. Elimination of the enemy's capability to employ weapons of mass destruction requires substantial combat power and can never be totally successful. Massing of forces creates lucrative targets. This increases the need for dispersion and negates the advantages of concentration.

At the operational and strategic levels, the use of NBC weapons escalates the conflict and creates a more difficult environment for conflict termination and post-conflict activities. Commanders must consider how to respond to an enemy's use of weapons of mass destruction. Even if such weapons are not actually used, the threat of use, by itself, will produce militarily significant results. The force must adopt an NBC defense posture requiring logistical support. Resources must be devoted to achieving and maintaining NBC defense readiness.

NBC and the Operational Tenets

FM 100-5 states that success on the battlefield depends on the ability of forces to follow operational tenets. Consider the primary effects from weapons of mass destruction on each tenet of Army operations.

Initiative. The introduction of NBC weapons on the battlefield by an opponent gives him the initiative. It places us on the defensive and changes the terms of the battle in his favor. With even the mere threat of their use, NBC weapons can become a dominating factor on the battlefield. During the Gulf War, preparations for operations under NBC conditions preoccupied many units. Destruction of Iraq's capability to wage chemical and biological warfare ranked as one of the highest priorities of the air phase of the war. Operations under NBC conditions degrade a leader's ability to set or change the terms of battle. By understanding the threat, the enemy's capabilities and intentions, it is possible to anticipate his use of NBC weapons and reduce many of their effects.

Agility. NBC weapons exert great combat power at the moment of their employment. Equally important, their residual effects also degrade our ability to act long after employment. Nuclear weapons create large areas of contamination and destruction, requiring units to avoid these areas or carefully regulate their time in them. Chemical and biological weapons can render portions of the battlefield extremely hazardous. If we choose to operate in these areas, individuals must assume a protective posture. Operations under NBC conditions degrade the mental and physical quality of our forces. This reduces the ability to rapidly concentrate friendly strengths against enemy weaknesses. Successful application of NBC reconnaissance units and doctrine can enhance a unit's agility on the battlefield.

Depth. Through innovative selection of delivery means and by capitalizing on agent characteristics, weapons of mass destruction can be employed throughout the depth of the battlefield. Biological agents can cover large areas of the battlefield following a single employment well outside the battle area. Weapons of mass destruction extend across the organization of the battlefield and place our forces at risk throughout the area of operations. Operations under NBC conditions often require additional forces to achieve the same combat power as on a conventional battlefield. A commander's ability to control the necessary space through the depth of the battlefield and maneuver effectively is also reduced. Through the employment of detectors and alarms, NBC reconnaissance, decontamination and other passive measures, we can lessen the impact of NBC weapons anywhere on the battlefield.

Synchronization. US forces achieve synchronization by arranging activities in time and space to provide mass at the decisive point. An opponent employs weapons of mass destruction to break synchronization by disrupting the tempo and momentum of our forces. Forces arrive at the decisive point in a piecemeal fashion, and mass is never achieved. Battle command is crucial to synchronization. C^2 sites are typical NBC targets. Operations under NBC conditions degrades battle command. Through the CANE tests, the effect on battle command was clearly seen. The quality of leadership decreased, reports were less timely, coordination was often ineffective, clarity and conciseness of orders decreased and responses slowed.

Versatility. The residual effect of NBC contamination strips away a unit's versatility. Contaminated units are unable to shift rapidly from one mission to another. However, this tenet ensures a degree of success under NBC conditions. The ability to rapidly transition from operations in a conventional environment to operations in an NBC environment is based upon an organization's versatility. Training, leadership and planning are critical elements that allow for transition to operations under NBC conditions. A robust chemical specialist representation in the force's composition is also essential to be versatile enough to transition to an NBC fight.

To protect the force, commanders must divert significant combat power to counter or defeat enemy weapons and delivery systems. Elimination of the enemy's capability to employ weapons of mass destruction requires substantial combat power and can never be totally successful. Massing of forces creates lucrative targets. This increases the need for dispersion and negates the advantages of concentration.

During force-projection operations, commanders must look at the impact of weapons of mass destruction by stage of the operation. In the case of nuclear weapons, actual projection of forces into the theater of operations may be difficult. During a recent wargame, the opposing force used a tactical ballistic missile saturation attack against the early entry force. The early entry force destroyed all but two of the missiles, but those two missiles, armed with nuclear warheads, caused 1,000 immediate casualties among the early force.

F-15s from the 4th Tactical Fighter Wing at Al Kharj, Saudi Arabia, and (*top*) one of the many hundreds of tent cities that sprang up across the Saudi landscape during *Desert Shield*. It takes little imagination to envision the disruption that early Iraqi use of chemical weapons would have caused during the buildup in the Gulf.

Effects on Combat Power

Combat power is a combination of maneuver, firepower, protection and leadership. On the battlefield where weapons of mass destruction have been or may be employed, protection is even more important. Keys to force survival are training and equipping forces to operate on a contaminated battlefield. All units must take force protection measures to ensure survival. Until recently, our ability to deter a potential adversary from using chemical weapons relied on our capability to retaliate in kind. Today, we no longer have that capability; our NBC defense capability must be sufficient to reduce the incentive to use weapons of mass destruction. One of the lessons of the Iran-Iraq War shows that the effectiveness of chemical weapons increases when employed against a force that is not readily capable of defending itself. Indeed, history tells us that chemical weapons are far more likely to be used against an unprepared force.

Power Projection

Based on the continuing spread of weapons of mass destruction, no region or level of involvement is exempt from potential use of such weapons. Delivery systems range from intercontinental and ballistic missiles through standard battlefield weapons such as artillery and bombs, to terrorist or special operations forces "hand delivery," such as a rented truck or boat. This is particularly significant when the use of NBC weapons during the initial period of early-entry operations could have devastating effects. It is reasonable to assume that our potential enemies learned lessons from our recent operations in the Gulf War. Protecting the force against weapons of mass destruction must begin long before any deployment. Training, logistic readiness and intelligence are critical components. Units must train to protect themselves and to operate under NBC conditions. Just getting the troops in MOPP gear is not enough. The protective equipment, NBC reconnaissance systems, detectors and alarms, decontamination capability and other critical items must be available and ready to use. Tactics, techniques and decision matrices must be understood and practiced. Understanding the enemy's threat, capabilities and intentions is a continuous task. We cannot afford any surprises.

During force-projection operations, commanders must look at the impact of weapons of mass destruction by stage of the operation. In the case of nuclear weapons, actual projection of forces into the theater of operations may be difficult. During a recent wargame, the opposing force used a tactical ballistic missile saturation attack against the early entry force. The early entry force destroyed all but two of the missiles, but those two missiles, armed with nuclear warheads, caused 1,000 immediate casualties among the early force. A lesson from this wargame is that "we will have to think about new ways of getting into a theater of operations."[9]

Intelligence concerning the enemy's capability to employ NBC weapons is critical. Types of weapons, delivery means, production and storage facilities and employment doctrine are examples of the intelligence required long before deployment begins. The ability of the enemy to use weapons of mass destruction will affect the force tailoring process. To provide force protection, the initial force package must include air defense units to afford a theater ballistic missile defense and chemical units to provide NBC reconnaissance, chemical/biological detection, large area smoke and decontamination.

NBC defense training at all levels is essential for providing a force capable of projection to regional conflicts. While units may not expect to deploy to a theater where there is an NBC threat, it can occur. We can assume that an NBC-capable enemy will not allow us to mass our combat power and conduct a lengthy preparation period that includes extensive NBC defense training. The newest tenet of Army operations—versatility—requires that units have the ability to operate in many environments. Once weapons of mass destruction are employed, they create their own unique physical environment. NBC defense training and the introduction of NBC conditions during exercises is crucial for establishing a versatile force capable of power-projection operations.

Keys to force survival, are training and equipping forces to operate on a contaminated battlefield. All units must take force protection measures to ensure survival. Until recently, our ability to deter a potential adversary from using chemical, weapons relied on our capability to retaliate in kind. Today, we no longer have that capability; our NBC defense capability must be sufficient to reduce the incentive to use weapons of mass destruction.

Force Protection

FM 100-5 states that when an enemy possesses weapons of mass destruction, the vulnerability of initial entry forces is acute.[10] To counter this vulnerability, force protection is critical and must remain part of the overall concept through war termination. Force protection considerations include dispersing forces and installations, maintaining tactical and operational mobility and planning for rapid reorganization of forces. Critical tasks of force protection are:[11]

Maintain alertness. Commanders at all levels must be continuously alert to the use of these weapons. They must balance risk against mission requirements and adjust their MOPP level without losing momentum.

Develop leaders. Leaders are the most critical component in force protection. Confident, competent leaders make the difference in such a complex environment. Once NBC conditions are imposed on the battlefield, the challenge to leadership increases dramatically.[12] Leaders must train to conduct operations under NBC conditions.

Instill discipline. Units must continue their missions despite the employment of NBC weapons by an adversary. Personnel must be adequately trained, properly equipped and psychologically prepared for the effects of nuclear and chemical weapons.

Avoid detection. Units must use active and passive measures to negate the threat's target acquisition means. The combination of active and passive force protection measures will negate any possible advantageous use of these weapons by an adversary.

Retain mobility. Tactical, operational and strategic mobility will enhance chances for survival. Commanders at all levels must consider displacing or dispersing whenever the threat of nuclear or chemical use is imminent.

Disperse forces and installations to minimize potential damage. Commanders will disperse forces based on an adversary's ability to employ weapons of mass destruction. The extent of dispersion depends on the mission, enemy, terrain, troops, and time available). Dispersion includes plans for massing forces quickly once there is a reduction in risk of employment of weapons of mass destruction. The commander determines the size and type of maneuver forces and the timing for their concentration. Troop concentrations should be brief in duration and flexible to accommodate sudden changes, and they must use deception of the highest quality. Operations should be swift and violent to take advantage of concentration.

Use terrain for cover and shielding. Careful use of natural terrain shields personnel and equipment from the effects of nuclear and chemical weapons.

Ensure logistic preparedness. Combat service support personnel and installations will disperse while continuing to sustain the force. Units must have sufficient supplies, protective clothing, decontamination equipment and medical supplies to continue operations without immediate need for resupply.

Plan for reorganization. Commanders must anticipate the need to reorganize units following the employment of weapons of mass destruction. Prompt damage assessment of personnel and equipment and the rapid implementation of reorganization measures will allow the unit to maintain momentum and continue the mission.

We can assume that an NBC-capable enemy will not allow us to mass our combat power and conduct a lengthy preparation period that includes extensive NBC defense training. The newest tenet of Army operations—versatility—requires that units have the ability to operate in many environments. . . . NBC defense training and the introduction of NBC conditions during exercises is crucial for establishing a versatile force capable of power-projection operations.

Reduce risk. Commanders plan and conduct operations with the knowledge that weapons of mass destruction may be used by an adversary at any time. To reduce that risk, it is essential that our units maintain alertness, avoid detection and retain mobility.

Conduct offensive operations. Nullify the use of weapons of mass destruction by attacking them at their source, before they can be employed against friendly forces and populations.

The Future

The proliferation of weapons of mass destruction has altered the nature of regional conflict. While international efforts continue to reduce the spread of weapons of mass destruction, in all reality, potential enemies will continue to seek and obtain these weapons. The introduction of forces into regional conflicts has become increasingly risky due to the proliferation of these weapons. Therefore, commanders must consider the impact of these weapons on all stages of their operations, from mobilization through postconflict operations. US forces may encounter NBC weapons in operations other than war. Peacemaking, humanitarian, shows of force and other operations all have potential for encountering NBC weapons.

The potential of the use of weapons of mass destruction requires planners to consider creating force

dispositions that do not provide lucrative targets. In addition, offensive operations must combine with defensive umbrellas to limit the threat as close to its source as possible. Finally, planners must integrate the use of NBC reconnaissance and decontamination assets into the overall plan.[13] The emphasis must be on training to reduce the effects of the use of weapons of mass destruction. It is necessary to meet the challenges that weapons of mass destruction have on our warfighting capabilities. We must stand ready to fight and win under any condition, to include those produced by weapons of mass destruction.

As stated in Chapter 1 of FM 100-5, "The Army faces a unique set of challenges as it adapts to a world that has changed more broadly and fundamentally than at any other time since the end of World War II."[14] This is certainly the case for weapons of mass destruction. The NBC threat has changed; US National Policy has changed; strategic, operational and tactical warfare considerations have changed. The challenge now is to ensure that as the implementation of FM 100-5 moves forward, consideration of the impact of weapons of mass destruction is fully integrated into the development of our future warfighting capabilities. ***MR***

Notes

1. Anthony H. Cordesman and Abraham R. Wagner, *The Lessons of Modern War—Volume II: The Iran-Iraq War* (Boulder, CO: Westview Press, 1990); and Gordon M. Burck and Charles C. Flowerree, *International Handbook on Chemical Weapons Proliferation* (Westport, CT: Greenwood Press, 1991).
2. Cordesman and Wagner, 509.
3. Burck and Flowerree, 117.
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US Army
Doctrinal Influence On the War in Bosnia

Mark Edmond Clark

Current US Army operational doctrine directs commanders to shock and disrupt opponents across the spectrum of warfare, using relative combat power, if necessary, to defeat a larger force. Integrated and synchronized operations ensure the total application of military force and enable commanders to set the terms for battle so that the threat cannot resurrect itself. To gain early, decisive control over the opponent's center of gravity, doctrine emphasizes lethality, tempo, decisiveness and operational depth.

Exercises at the National Training Center, Fort Irwin, California, have proved that it is no small feat for even the most able US commanders to implement the Army's doctrine effectively against a well-trained opponent. In most circumstances, other armies would have to introduce concepts into doctrine well in advance of its use. Successful performance under the doctrine would normally require special equipment, specific organization of formations and tough, realistic training. Further, the doctrine should be instilled at all levels.

Nevertheless, during the recent war in Bosnia, the commanders of *Armija Bosne i Hercegovina*—the Bosnia and Herzegovina army, working in conjunction with commanders of *Hrvatsko Vijece Obrane*—the Croatian Defense Council, and *Hrvatska Vojska*—the Croatian army, proved to be an exception. Indeed, together, they applied US Army doctrinal concepts to turn the tide with maneuver and deep attack.

Intent and Concepts for Operations *URAGAN '95* and *SANA '95*

The summer of 1995 marked the third costly and exhausting year of war for the Bosnian Muslims and Bosnian Croats. Over 70 percent of the territory of Bosnia and Herzegovina was held by Bosnian Serbs; the number of soldiers killed was in the tens of thousands; and it seemed from the start that the conflict would eventually end in favor of the Serbs. Throughout the struggle, however, the government of Bosnia and Herzegovina fought to liberate territories of its state held by the Serbs. More progress on the ground from November 1994 to August 1995 and a new US peace initiative established conditions that finally made the achievement of the government's goal a very strong possibility. In addition, in August, the United States offered a new peace plan which was similar to that of the five-nation "Contact Group."[1]

In 1994, Croatian Army signed a contract with MPRI, a Virginia-based company staffed with former senior field grade and general officers, for a program to train instructors about improving the army, especially its higher ranks. The concepts and skills that MPRI provided* Hrvatska Vojska *were based on doctrine very similar to current US Army doctrine.

The peace plan called for granting the Bosnian Muslims and Croats united as the Federation of Bosnia and Herzegovina 51 percent of the country's territory, while the Bosnian Serbs would receive 49 percent.[2] It also insisted that Bosnia and Herzegovina would become a single, nonpartitioned, internationally

recognized state.[3] The Serbs had refused to respond to the US-brokered initiative throughout August, and some in NATO threatened to launch compensatory air strikes and have the UN arms embargo lifted to support the Bosnian government with weapons. When the Serbs attacked Sarajevo, and then failed to pull their artillery 12.5 miles away from the city as required, they triggered two weeks of air strikes at the end of August.[4]

It is no small feat for even the most able US commanders to implement the Army's doctrine effectively against a well-trained opponent. . . . Nevertheless, during the recent war in Bosnia, the commanders of the Bosnia and Herzegovina army, working in conjunction with commanders of the Croatian Defense Council and the Croatian army, proved to be an exception. Indeed, together, they applied US Army doctrinal concepts to turn the tide with maneuver and deep attack.

When the plan was presented for the federation to undertake a massive offensive, it was immediately accepted. Both political and military officials agreed that federation soldiers and civilians urgently needed a great success to maintain their support for the war.[5] Operation *URAGAN '95* would successfully link two corps, shorten the front approximately 2 miles and result in a drive north through central Bosnia. Operation *SANA '95* would unite Muslim and Croat forces in the field and result in a drive across northern Bosnia to retake towns and cities. Both operations were named after Bosnian rivers. Through them, the federation hoped to strike a devastating blow against the Serbs that would end the war and open the way for a unified Bosnian state.

Advisement from the United States

Upon witnessing the combat capabilities of *Hrvatska Vojska* in Operation *OLUJA* (STORM)—a four-day blitz on the Serb-held Krajina, Croatia—many military analysts immediately concluded that the success owed to US training and advisement.[6] In 1994, *Hrvatska Vojska* had signed a contract with Military Professional Resources, Inc. (MPRI), a Virginia-based company staffed with former senior field grade and general officers, for a program to train instructors about improving the army, especially its higher ranks.[7] The concepts and skills that MPRI provided *Hrvatska Vojska* were based on doctrine very similar to current US Army doctrine. Training and advisement under the same doctrine were apparently key to the success of the September counteroffensive for both *Armija* and *Hrvatsko Vijece Obrane* forces in Bosnia.

There were many problems that the Croats and Muslims had to iron out before their forces could work jointly, not the least of which was the vicious war fought between them in 1992 and 1993. Indeed, establishing the Bosnian Federation came largely through US insistence. The Muslims and Croats began integrating their military operations to combat the Serbs in 1994, eventually setting up a joint command, exchanging military intelligence and shared command, control and communication networks.[8] Despite their disputes, the alliance was strongest when *Armija* and *Hrvatska Vojska* forces physically linked in August 1995, just days before the September offensive.

Operational Planning

General Sead Delic, II Corps commander and General Kadir Jusic, III Corps commander, were assigned the task of executing *URAGAN '95*. Their mission was to link their units and eliminate the threat posed by *Vojska Republika Srpska* (referred to here as *"Vojska"*) using a 5.6-mile seam between II and III corps.[9] They were directed to eliminate the defenses at Mount Ozren.[10] In addition, they were to relieve units and citizens in the Podrinje region.[11]

The Players

Vojska Republika Srpska — the Bosnian Serb army (referred to in text as "*Vojska*")

Hrvatska Vojska — the Croatian army

Armija Bosne i Hercegovina — the Bosnia and Herzegovina army

Hrvatsko Vijece Obrane — the Croatian Defense Council

Establishing the Bosnian Federation came largely through US insistence. The Muslims and Croats began integrating their military operations to combat the Serbs in 1994, eventually setting up a joint command, exchanging military intelligence and shared command, control and communication networks. Despite their disputes, the alliance was strongest when* Armija *and* Hrvatska Vojska *forces physically linked in August 1995.

Vojska commanders considered Mount Ozren an obvious *Armija* objective. They had amassed armor and artillery equivalent to four brigades to defend it.[12] The economy of force dimension also required *Vojska* units in central Bosnia to hold their positions while other operations were being conducted in western Bosnia.

Intelligence possessed by *Armija* forces allowed them to make detailed preparations. Delic stated that he "was almost afraid of the fact that we did not have any weak points in the preparations."[13] Massed artillery and 10,000 troops (six brigades) concentrated against the opponent.[14] The terrain for the attack was mountainous, not conducive to high mobility. However, *Armija* forces generated high speeds and maneuvered well from the first day of the operation.

Operation *SANA '95* would be a liberating march by government forces to retake towns and cities across northern Bosnia. V Corps, under the command of General Atif Dudakovic, would unify with units of VII Corps, under the command of General Mehmed Alagic. V Corps would then coordinate *Armija* efforts with, and fight alongside, *Hrvatsko Vijece Obrane* forces, under General Tihomir Blaskic, and *Hrvatska Vojska* forces with which it linked in August.

From previous military actions, V Corps had been able to amass captured ammunition and howitzers to help make further advances.[15] The peace negotiations had much to do with the timing of the offensive. In early September 1995, the Bosnian government expressed its desire to take land in northwestern Bosnia to strengthen its hand at the negotiating table.[16] *SANA '95* was the way to acquire territory quickly. The launch date for the operation was set for 13 September.

The Impact of NATO Air Strikes

NATO air and artillery strikes began in Bosnia on 30 August 1995, after an apparent Serb mortar attack killed 38 people at an outdoor market in Sarajevo.[17] The strikes were suspended on 14 September after punishing the Serbs and greatly influencing events on the ground.[18]

From the first day, the strikes severely damaged *Vojska's* lines of supply, supply depots, command and control systems and communication networks, military barracks and installations.[19] The strength of *Vojska* maneuver elements fell as their tanks and artillery pieces were destroyed in large numbers.[20] The equipment and men lost could not be immediately replaced. Strikes against positions well beyond Sarajevo, such as Doboj and Tuzla, underscored a NATO and UN policy of "disproportionate" and wide-ranging responses to Serb provocation.[21]

The two weeks of air and missile strikes not only weakened forces but also allowed time to reposition and improve the capabilities of *Armija, Hrvatsko Vijece Obrane* and *Hrvatska Vojska* units. Further, when *URAGAN '95* and *SANA '95* were launched as part of the September offensive, three days and one day before the termination of the NATO strikes, NATO aircraft served as de facto close air support for the allied forces, complementing the ground attacks. Indeed, the strikes created a dilemma for *Vojska* commanders during the initial days of the allies' operations. When their forces attempted to maneuver rapidly, they exposed themselves to losses from the air interdiction. When measures were imposed to counter the air interdiction, they could not move fast enough to counter the ground threat. *Vojska* forces surrounding Sarajevo were effectively taken out of the fight. By exploiting these advantages, allied forces turned the tide of the war in only a few days, capturing numerous strategic points and about 30 percent of the territory that had been controlled by the Serbs.

The September Offensive at the Operational Level

Acting in accordance with US Army doctrine taught by MPRI, *Armija, Hrvatsko Vijece Obrane* and *Hrvatska Vojska* commanders intended to throw their Serb opponents off balance with a powerful blow from an unexpected direction and continue vigorous operations until the opposition was destroyed. Initiative, depth, agility and synchronization characterized the allied commanders' thinking and operations. Units had to fight to gain and retain the initiative. The allied commanders needed to attack *Vojska* units in depth with fire or, if possible, maneuver units. To do this, they had to synchronize all elements of combat power. Further, they were required to develop the agility necessary to shift forces and fires to points of *Vojska* weakness more rapidly than enemy units could respond.

Initiative. Initiative is both a state of mind and an action-reaction cycle that dictate the terms of battle to an opponent. Thus it is a highly contested quality, and its balance swings on surprise, deception, speed of action, ingenuity and asymmetric comprehension. *Armija* commanders demonstrated their understanding of the importance of initiative throughout *URAGAN '95*.

Although *Armija* commanders' original operational plan for *URAGAN '95* anticipated only limited gains, they moved quickly to exploit the situation after the initial successes. Similarly, *Armija* achieved a rapid series of successes during

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A 49th Fighter Squadron F-15 Eagle undergoes a pre-flight check at Aviano Air Base, Italy, prior to take off for air strikes on Serbian targets in Bosnia, 30 August 1995.

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SANA '95. *Armija* units fought to retain the initiative by pushing forward and taking a chain of towns along a major highway connecting the Bosnian government-held cities of Zenica in central Bosnia and Bihac in the northwest. This highway enabled them to bring enough supplies to continue rapid offensive. Although strong efforts were made to coordinate the actions of *Armija, Hrvatsko Vijece Obrane* and *Hrvatska Vojska* forces, the reality in the field was that the latter did most of the fighting and provided much of the firepower during the offensive.[22] In the end, much of the territory they captured would later be returned to the Serbs or placed under the control of the Bosnian government under the Dayton Accords.

Depth. Depth requires both mental conceptualization and physical reach. It is applied as a reference to time, space and resources. For *URAGAN '95, Armija* commanders carefully planned for an attack against *Vojska's* depth, with artillery the main attack asset. Artillery units massed and struck hard at *Vojska* command and control positions and reserves.[23] The assault units destroyed command and control structures and cut lines of communication.[24] Many towns were taken and friendly road linkages were created.

Both the increased tempo of battle—through faster more mobile ground forces—and the increased ranges, accuracy and lethality of weapon systems have compressed time and space. *Armija, Hrvatsko Vijece Obrane* and *Hrvatska Vojska* commanders employed long-range guns and rockets and fighter bombers from the moment *SANA '95* began.[25] The resulting flow of refugees before the advancing forces and disorderly state of *Vojska* defenses attested to the success of *Hrvatska Vojska's* efforts to shock, demoralize and disrupt its

opponent and its ability to gain a decisive advantage early through its attacks in depth.

Synchronization. Synchronization required *Armija* commanders conducting *URAGAN '95* to manage the movements of great numbers of men and equipment operating both in tandem and cooperatively to produce combat power. It was key to achieving unity and efficiency of action.

In a military alliance such as that between the Muslims and Croats, there are great inhibitors to effecting synchronization. Differences in technology, doctrine and training act to erode efficiency and increase the potential for friction. These problems are not overcome simply through planning, although thorough planning is a key factor.

While the *Armija* commanders and the Bosnian government suffered disagreements and disappointments over some actions taken by *Hrvatsko Vijece Obrane* and *Hrvatska Vojska* forces, they still managed to coordinate and cooperate. Combat power and its means of support were brought to bear at the right time and place to win.

Agility. In battle vulnerabilities and opportunities open and close continuously; victory goes most often to the commander and force with the balance and insight to strike and shift within these windows. Applying strength against weakness in the advance reflected *Armija* commanders' understanding of this concept. However, given the challenge presented to the allied commanders in using operational concepts contained in US Army doctrine, some problems degraded agility during *URAGAN '95*. As a result of the rapid advance in the operation's first phase, a number of *Vojska* units were left cut off in the II Corps rear.[26] *Armija* commanders chose to divert manpower dedicated to the advance to clearing of the rear, effectively slowing the operation's tempo.[27] Moreover, heavy losses were incurred during the engagements with the remnant units of *Vojska*.[28] In addition to *Vojska* small units in their rear, II Corps units encountered great problems from scattered land mines and minefields.[29]

Once the early counterattack launched by *Vojska* in response to *SANA '95* was repelled, *Armija* commanders recognized that their forces presented an overwhelmingly superior force and they acted to fully exploit the situation. Units were driven as rapidly as possible through the retreating *Vojska*.[30] They paused long enough only to consolidate their gains and resupply.[31] UN observers noted that retreating *Vojska* forces could only react and were unable to regain the initiative.[32] Only *Vojska* units well to the rear of the forward lines could act to form defensive lines. However, they too suffered from relentless attacks in depth by *Hrvatska Vojska* artillery and *Hrvatske Zracne Snage* fighter-bombers.

Muslims and Croat commanders employed long-range guns and rockets and fighter bombers from the moment SANA '95 began. The resulting flow of refugees before the advancing forces and disorderly state of Vojska defenses attested to the success of Hrvatska Vojska's efforts to shock, demoralize and disrupt its opponent and . . . gain a decisive advantage early through its attacks in depth.

Vojska's Defensive Actions

Long before *URAGAN '95* was planned, *Vojska* units had established strong defense lines in the central Mount Orzen region and Vozuca area.[33] As *URAGAN '95* progressed, *Vojska* reinforced these positions. Nevertheless, when the operation began, the defenders were overcome by the massed *Armija* units. *Armija* established favorable combat ratios at decisive points. Establishing a static defense against a large, mobile force such as *Armija* soon became a recipe for disaster. Additionally, NATO aircraft and missile attacks on the command and control structures had taken their toll. However, when holding ground became imperative, *Vojska* units began to hold fast at all costs. A senior *Armija* commander noted that "The Serbs have brought in a lot of troops to try and shore up their positions. There is a lot of new artillery and we are meeting stiffer resistance than we met two weeks ago, when most of the Serbs simply fled."[34] They slowed down the operation and inflicted heavy losses upon *Armija* troops.

There is some debate as to whether the rapid retreat of *Vojska* forces throughout autumn 1995 was more the result of political factors. From that perspective, the Serbs' retreat was not a rout but a well-organized withdrawal initiated as part of the Serb negotiation strategy

Serbian T-54/T-55 tanks awaiting orders on a Bosnian road.

There is some debate as to whether the rapid retreat of* Vojska *forces throughout autumn 1995 was … part of the Serb negotiation strategy during the talks to end the war. This idea supports reports by European observers that the Serbs had retreated without pressure. The Serb decision to withdraw ostensibly calculated that the land relinquished would eventually be given up anyway. … However, it was also at this point that the Croatian Army decided not to undertake any further operations.

during the talks to end the war. This idea supports reports by European observers that the Serbs had retreated without pressure. The Serb decision to withdraw ostensibly calculated that the land relinquished would eventually be given up anyway in ongoing peace talks.[35]

However, it was also at this point that *Hrvotska Vojska* decided not to undertake any further operations in Bosnia.[36] Considering the important contribution in manpower and firepower that *Hrvotska Vojska* provided to the allies, its withdrawal may have also contributed to *Vojska's* defense of Republika Srpska during the period leading up to Dayton.

Aftermath of Operations *URAGAN '95* and *SANA '95*

In *URAGAN*, the Bosnian Federation secured over 280 square miles and placed Armijo units in a better strategic position relative to *Vojska* units.[37] In *SANA '95*, the allies captured over 770 square miles of territory, but engagements did not end after the operation.[38]

The fighting finally stopped on 14 December 1995, when the warring factions agreed to a ceasefire. Bosnia was divided into two entities: the Muslim-Croat Bosnian Federation and the Bosnian Serb Republika Srpska. An Inter-entity Boundary Line was established, and a NATO-led force entered the country to support the implementation of the Dayton Accords. For the most part, the lines drawn at the end of the war were those lines established by the September offensive.

It had been no small accomplishment for Bosnian and Croat commanders to master the thinking and actions necessary for operations patterned on US Army doctrine. The ability of allied commanders to mass fires and effects, protect the force, control the tempo of battle, achieve surprise and retain the initiative was decisive. During the two September offensives, allied commanders were able bring combat power and its means of support to bear at the right time and place to win. During the war, daily combat allowed *Armija, Hrvotsko Vijece Obrone* and *Hrvotska Vojska* commanders to understand the battlefield, their opponent and their units. This understanding proved crucial to their assimilation and application of US Army doctrine concepts. ***MR***

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Attack on America

The First War of the 21st Century

David J. Shaughnessy
Lieutenant Colonel Thomas M. Cowan, U.S. Army

The terrorist attacks of 11 September 2001 rocked the nation in ways that will reverberate for years. The authors discuss how these attacks signal shifts in the modus operandi of international terrorism—shifts in purpose, organization, weapons, and capability.

Today, our fellow citizens, our way of life, our very freedom came under attack in a series of deliberate and deadly terrorist acts.

—President George W. Bush in his address to the nation, 11 September 2001

As the sole superpower in a world increasingly defined by global markets, economic institutions, and societal norms, the United States is involved in world affairs to a degree unprecedented in its history. Its national success and prolific engagement, enacted within a framework of personal freedom, human rights, and Christian morals, have created resentment among other nations as well as religious, ethnic, and political factions in the world. Its national strengths—strategic location, economic strength, and military power—have served to protect it from conventional attacks resulting from these hostile views. However, its national character—democratic principles, individual freedom, and human rights—serve to increase its vulnerability to asymmetric, unconventional, or indirect actions. It remains clear that any campaign conducted against the United States, today or in the foreseeable future, will be a mix of asymmetric, adaptive, and conventional operations against the nation's vulnerabilities.

The 11 September 2001 terrorist attacks on the World Trade Center and the Pentagon, and the 2000 attack on the USS *Cole* are examples of asymmetric or asynchronous acts carried out by an adaptive and thinking opponent who continually studies the strengths and weaknesses of his perceived enemy and adapts his operations accordingly. These attacks were not without a larger purpose. They are part of an ongoing campaign that is likely to continue and expand.

The Nature of the Act

Terrorism is a tactical action that is designed to generate an operational or strategic effect. It is the creation of an event that has broader consequences than that created by the event alone. By its very nature, terrorism is asymmetric. It seeks to employ a capability that affords no defense or effective counteraction. This makes terrorism a viable means for less capable organizations to attack more capable opponents. At its very root, terrorism strikes at the will of the people, the credibility of the government, and the effectiveness of national security.

Terrorist acts can be linked together in the form of a campaign but will be more effective when employed as part of a strategy employing other elements of power in a more conventional framework. This permits consistent operations that are continuous and complementary. The application of other elements of power need not be overt and in fact might be more effective when employed covertly. They could involve information operations, diplomacy, or economic leverage as well as more conventional military

Terrorist tactics are normally employed in an asynchronous framework. It is their asynchronous character that gains the initiative for the terrorist. . . . Because these events are asynchronous, however, does not mean that they are not part of a larger, more synchronized effort. In fact, it is becoming increasingly more likely that future terrorist tactics will be employed in a more synchronous operational framework.

operations. For example, a state or organization that knows in advance that a significant event is going to occur could conceivably set economic conditions so as to profit from that event. It is the asymmetric nature of these tactics that affords the greatest opportunity for success against more powerful opponents, but it is their effect on conventional institutions that generates opportunity as a consequence of the event.

Terrorist tactics are normally employed in an asynchronous framework. It is their asynchronous character that gains the initiative for the terrorist. The terrorist picks the time and place of the event rather than having the time and place defined by its relationship to other operations. This represents an offensive framework that is driven by vulnerability, opportunity, and tailored capability rather than by fixed capability employed in a conventional construct. Because these events are asynchronous, however, does not mean that they are not part of a larger, more synchronized effort. In fact, it is becoming increasingly more likely that future terrorist tactics will be employed in a more synchronous operational framework. The ability to continuously choose the time and place of events allows the threat to control the operations tempo, thereby always retaining the initiative. To U.S. opponents, it is apparent that these tactics, planned and prepared in advance, allow a regional actor to keep a more capable adversary off balance without significant investment in visible and costly capabilities.

A Campaign Framework

History has demonstrated that single, isolated acts of terrorism may have profound effects on perceptions, policy, national strategy, or even national will; however, lasting effects involving significant change in the nature of government or long-term national goals have been unattainable through single acts. A long-term campaign with multiple lines of operation is required. This could be a campaign of asynchronous events to wear down and shape outcomes, such as the former Soviet Union sponsored events during the Cold War, or a campaign employing all elements of power in conjunction with and complementing terrorist acts.

As an accepted mode of operation, state-sponsored terrorism came of age during the Cold War when the Soviet Union guaranteed the survival of states that supported or conducted acts of terror against the United States and its allies. While today there are still states that sponsor terrorism, none do so overtly.

Terrorism remains a viable and effective tactic, but its use is less and less acceptable to the international community when employed in an asynchronous framework short of declared hostilities. Under conditions of limited warfare or in time of peace, it is a heinous act unacceptable to most nations. However, within a framework of total war, terrorism would be retitled asymmetric operations and become accepted for achieving national objectives. For this reason, many states hostile to the United

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Chicago firefighters join the rescue effort at the World Trade Center site. (Federal Emergency Management Agency)

Asymmetric operations are conducted within a campaign framework and strikes at the will of the American people, the perceived center of gravity of the United States, rather than at the fringes. Within the scope of unlimited war, all targets are justified population centers, infrastructure, industry, and the military. The end state for the terrorist or asymmetric operation is achieving operational or strategic goals, including denial, exclusion, or defeat of the United States and its allies.

States covertly support transnational organizations capable of conducting terrorist acts. These organizations are employed for campaigns short of war and permit distance and deniability by the supporting states within the international community. At the same time, these states are developing capabilities for employing asymmetric means and demanding legally admissible evidence. This level of proof does not normally exist because of the manner in which terrorists are organized and operate; when it is available, it often cannot be presented to the public without compromising intelligence sources or methods.

If the United States elects to attack, transnational terrorists frustrate targeting by having a signature undetectable to high-tech collection systems, by dispersing into complex terrain, or blending into the civilian population. All these techniques are designed to defeat the United States' undisputed asymmetric advantage in high-tech, precision standoff weapons. U.S. security procedures have been designed

primarily to detect, rather than to defend against, a determined attacker.

Information Operations

Regardless of whether he is responsible, the 11 September attacks raise bin Laden's prestige in the Muslim extremist world and attract additional followers and money to his cause. It also gives other organizations and states insights into U.S. vulnerabilities. The United States may appear weak to opponents if it is unable to respond to the attack effectively. The visibility of this event and its dominance in the media provide opportunities for a wide range of actors to take advantage of this act.

Carefully planned and executed adaptive campaigns of terror attempt to demoralize the nation, frustrate U.S. policies for reaction and retaliation, reduce U.S. regional presence, and paralyze the national will by exploiting the vast U.S. information system. Information systems expand the impact of the event and create strategic effects. On the international scene, well-publicized, effective events may serve to fracture coalitions by focusing other nations inwardly.

Furthermore, consistent denial of responsibility is a new tack taken by transnational terrorists. It counters the information and diplomatic superiority of the United States and creates doubt. It allows nations to support terrorism without international repercussions.

A successful attack on the United States must be conducted against the systems upon which it relies for its dominance. This consists in large part of military and economic complexes that have formed pillars of U.S. foreign policy. The attacks on 11 September were more than symbolic; they targeted the command and control of the nation's economy and military. Normally, isolated attacks not part of a conventional campaign can be expected to focus on symbolic targets for their media value and strategic implications. When asymmetric or terrorist attacks are conducted as part of a more conventional campaign, they will more likely target operational or strategic capabilities. Within the framework of a terrorist campaign, terrorists understand that defeating the United States is not a matter of winning battles but rather of continuously applying psychological and physical pressure to damage the political, economic, and military foundations of power.

Access denial. Strategic preclusion attempts to deter or reduce the deployment of U.S. forces. Sympathetic or supporting nation states lend support to strategic preclusion efforts by calling for the use of diplomacy, citing the absence of proof that links the group to the act and imposing economic measures that threaten coalition partners' interests. These actions are often disguised as respect for international law or a desire for a peaceful resolution.

Operational exclusion attempts to prevent regional neighbors from allowing or assisting the deployment of U.S. forces. Adversaries have long recognized the United States' need for significant staging areas. The adaptive transnational terrorist threatens regional neighbors with attacks and terror in the event they cooperate with or provide staging areas for U.S. forces. State sponsors of transnational terrorism conduct diplomatic and information campaigns to persuade regional states that the United States is an unreliable partner and that cooperation will lead to regional economic and diplomatic isolation.

Thwarting U.S. intelligence. Terrorist organizations rely on secrecy to plan and prepare attacks. Compartmented organization, brutal enforcement of loyalty, and recruiting criteria based on political and religious reliability allow better protection of information than is possible in the nation states that terrorists attack. In a strategic defensive posture, the United States is unable to force its opponent into an activity that might compromise locations and intentions. Not only does asynchronous timing lend security to terrorists, but it also necessitates vigilance by U.S. intelligence organizations to discern terrorist activities and intentions. Furthermore, to counter the ability of intelligence operations to detect plans and preparations, the terrorists employ deception. This includes deliberately leaking false information and statements to the media to mask the true plan and to desensitize and confuse intelligence analysis.

The vast U.S. intelligence system was designed to monitor the former Soviet Union and is built around technology. Human intelligence has been relegated to secondary importance and used largely to support diplomacy. This imbalance has created predictability and limited depth of collection. Also, the United States has focused on states rather than on transnational organizations, and U.S. analysis was designed to assess the conventional capabilities adversaries possess and employ. Last, the intelligence community functions well

(*Top*) Egyptian radical and doctor Ayman al-Zawahiri provides the al Qaeda organization with intellectual trappings while former Egyptian policeman Mohammad Atef (*above*) serves as chief of military planning.

(*Right*) Saudi-born Osama bin Laden and al Qaeda members training in Afghanistan from a recruitment video circulated throughout the Muslim world. (DOD)

Transnational terrorists rely on their strategically secure positions to deflect the conventional strengths the United States could otherwise employ to destroy their organizations. By seeking sanctuary in areas difficult to attack by using high-tech, precision standoff engagement, terrorist organizations protect themselves from forms of retaliation that they have limited means to counter symmetrically.

during times of crisis but lacks the analytical and human intelligence underpinnings to sustain the necessary level of effort this new operational environment requires. Success in the long term against an adaptive and determined transnational opponent demands a less predictable process, combined technical and human systems engaged against all threats, continuous operation at peak performance, and engagement well before a crisis.

Implications

Transnational organizations retain the strategic initiative and bring to bear the means of adaptive attack by controlling operations tempo. Acts of terror rely on surprise to magnify the psychological impact of each event. Unconstrained by the need to retain terrain or to follow one success with another, either of which would provide a predictable pattern of operations, the

The 11 September attack raises bin Laden's prestige in the Muslim extremist world and attracts additional followers and money to his cause. It also gives other organizations and states insights into U.S. vulnerabilities. . . . The visibility of this event and its dominance in the media provide opportunities for a wide range of actors to take advantage of this act.

transnational terror organization can select times and targets that suit its resources, planning abilities, and the security environment. The 1993 attack on the World Trade Center and the 2000 attack on the USS *Cole* had no effect on the long-term success of the campaign that eventually led to the highly successful 11 September attacks, nor was the timing of the attack related to any other tactical event, which made it impossible to determine a pattern or predict the next attack.

Terrorist actions are likely to be continuous in nature but not continuous in rhythm or frequency. Adaptive terror actions are not simply isolated events but are linked to other goals and operations—economic, political, and even military, when feasible. They are also likely to take many forms and contain several lines of operation working simultaneously or orchestrated in space and time. Terrorist activities will range from nonlethal activities such as information operations, to lethal activities such as direct action using varied conventional low- to high-technology means and weapons. Future terrorist actions involving weapons of mass destruction or effects cannot be discounted. Collection against these activities requires an intelligence system as flexible, proactive, and adaptive as the organizations it targets.

Unconventional attacks against the U.S. homeland are part of every future opponent's strategy and will be part of its force design and capabilities. Repeated attacks against the U.S. homeland change social, economic, and political behavior; limit personal freedom; impede free trade; inflict psychological stresses; and damage the nation's international standing as a world economic and military power.

Terrorists stress adaptation and flexibility to preserve their organization and ensure their continued power. They conduct strategic operations to degrade U.S. national will, fracture alliances and coalitions, and limit the scope of U.S. involvement abroad. Their ability to adapt faster than defensive measures can complicate U.S. efforts to remain in the strategic defensive. Operations conducted without discernible frequency or patterns require the United States to maintain a socially, politically, and economically expensive posture of constant readiness, which itself does not guarantee success. Intelligence operations assist in reducing the need for constant readiness but are not infallible and must be flexible, adaptive, and broad in scope. Taking the strategic offensive can eliminate an opponent, but it requires exceptional intelligence and an adaptive force capable of fighting on a battlefield of unprecedented complexity, fluidity, and lethality. These challenges can only be met by creating an adaptable military force capable of dominating this environment. ***MR***

To view "Attack on America: The First War of the 21st Century" as it was originally published in November-December 2001, visit https://www.armyupress.army.mil/Portals/7/military-review/Archives/English/JF-22/Original/Shaughnessy.pdf.

A Soldier from TF 2-37 AR approaches the 14th-century Ottoman Castle in old Tal Afar. (DOD)

Using Occam's Razor to Connect the Dots

The Ba'ath Party and the Insurgency in Tal Afar

Captain Travis Patriquin, U.S. Army

Occam's Razor is a rule in science and philosophy stating that entities should not be multiplied needlessly. It is interpreted to mean that the simplest of two or more competing theories is preferable, and that an explanation for unknown phenomena should first be attempted in terms of what is already known. In other words—the simplest explanation is most likely the best.

In an era that appreciates the power of statistical probabilities, Occam's Razor is especially useful when access to all the facts necessary to arrive at absolute certainty is difficult, if not impossible, to obtain. The problem at hand to which we might apply the principle involves discerning the most significant factors from among the many complex elements fueling the insurgency in Tal Afar, Iraq, and elsewhere in the country. The rational conclusions derived may seem glaringly obvious to some, but a sudden epiphany or even a total surprise to others.

The Turkoman of Tal Afar

A good way to begin to apply Occam's Razor to the situation in Tal Afar is to examine the city's history and demographic distribution from the perspective of city planning. Such an examination exposes compelling clues about the underlying nature of the insurgency there and points to the most likely leaders of the opposition to the coalition and the Iraqi government.

Ethnic background. We start by observing that the population of Tal Afar has historically been virtually 100 percent ethnic Turkoman—not Arab.[1] The Turkoman people first arrived in Iraq through successive waves of migration accompanying invading Turkic armies. They established themselves in permanent communities that became insular, xenophobic enclaves. A general suspicion of outsiders continues today: a city of at least 250,000 people, Tal Afar has never had a hotel and has no current plans to build one. Turkoman distrust of "uninvited guests" is indicative of a closely knit culture that neither desires nor welcomes outside interference.

In contrast to the more restive and predominantly Arab groups elsewhere in Iraq, Tal Afar's Turkoman population had, until relatively recently, a long history of comparatively peaceful relations despite sectarian divisions. This was mainly because they saw themselves as kinsmen within an ethnic group defined primarily by origin and language, not by affiliation with any religious sect. As a result, for over 1,300 years, millions of Turkoman Sunnis, Shi'ites, and Assyrian-Christians lived side by side in relative peace, frequently marrying across sectarian lines and, as a group, remaining relatively united politically against those perceived as outsiders. Occam's Razor therefore allows us to eliminate ethnic or religious friction as the principal cause of the ongoing conflict in Tal Afar. It leads us to conclude that the insurgency must have somehow been triggered by other—outside—motives or actions.

The Turkoman and outside influence. The mistake that most would-be occupiers have made in dealing with the Turkoman was to marginalize them on one hand while on the other leaving them enough autonomy to avoid assimilation. As a result, a resilient sense of Turkoman ethnic identity not only emerged, but intensified over time.

Starting with the British Mandate of 1921, colonial administrators went about carving up Middle Eastern lands to accord with schemes involving great-power spheres of influence. They created a host of arbitrarily drawn nation-states, mainly to keep emerging Middle Eastern entities docile and dependent on their former colonial masters. Turkoman enclaves, however, were clearly viewed as incidental to great-power politics, and so the British showed little regret when expediency dictated ceding control of Turkomani regions to the Ottoman Empire. In a similar vein after World War I, the British, having gained nominal rule over territory in which Turkoman enclaves survived, did little to help the Turkoman satisfy their independent ethnic aspirations.

One consequence of this policy was that Iraq's Turkoman population frequently and ferociously fought the British to expel them from what they regarded as a hereditary Turkoman homeland. They fought as a generally unified ethnic front, heedless of sectarian religious differences.

Ba'athist Co-optation

Following the departure of the British, the Turkoman enjoyed a brief period of relative regional autonomy that lasted until the rise of the Ba'athist Party under Saddam Hussein. In contrast to the former colonial powers, Saddam's regime took severe measures to extinguish minority identity in Iraq. In their attempts to stamp out non-Arab differences in the name of a unified Iraq, the Ba'athists sought to absorb the Turkoman into Iraqi society.

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Wide streets, good wiring, and plumbing mark Tal Afar's northern "retirement communities." U.S. Army Soldiers from the 1st Brigade, 1st Armored Division, on a combat patrol in Tal Afar, Iraq, on 9 April 2006. (DOD)

The southern, predominantly Shi'a section of town remains crowded and unimproved. 1st Armored Division Soldier SPC Anthony Bouley conducts a combat patrol in Tal Afar, Iraq, on 13 February 2005. (DOD)

As coalition partners now know well, Saddam's Ba'ath Party, for better or worse, became the unifying sociopolitical force that held Iraq together. Ba'athism was an unswervingly secular movement. Ruling with an iron grip for several decades until Saddam's overthrow in 2003, the Ba'athists brutally oppressed sectarian religious parties to prevent them from blocking the creation of a single Iraqi national identity. The Ba'athists maintained overall control of the population through a combination of policies that promoted fierce loyalty among party members while instilling terror in all who opposed them. Ba'athists manifested their loyalty to the party by performing without question ruthless and horrific acts aimed at keeping the party in power.

The fanatic loyalty of Ba'athist members was coupled with an incredibly diverse and efficient internal intelligence network that spied on every sector of Iraqi society. Together they created a society in which state-sanctioned acts of murder and intimidation aimed at eliminating internal political opposition became commonplace. The end result was a Ba'ath Party habituated to using domestic terror as a "legitimate" tool of governance, and a traumatized Iraqi public with deep and lasting psychological scars that remain as barriers to trust and faith in any central government today.

So deeply seated was the general public's fear of the party and its reprisals that there is no serious challenge to the proposition that, had the coalition not intervened in Iraqi affairs, the Ba'athists would still be firmly in charge today. In fact, many Iraqis believe the party would rapidly and mercilessly emerge to resume power if the coalition were to leave Iraq tomorrow.

Although the Ba'athists were widely loathed and feared, they were also envied in many quarters, mostly because of the power and privileges they enjoyed. Thus, one effective way to reduce the influence of ethnic minority identity was to recruit members of ethnic minority groups into the party via service in the Iraqi Army, and then co-opt those with the most promise by offering them economic opportunities, special status and privileges, and the ability to participate in administering coercive power. Under this policy, many soldiers recruited from the Turkoman population became ardent Ba'athists and supporters of Saddam's government.

The policy helped develop a loyal cadre of grassroots party members of diverse ethnic origin. These adherents were used to neutralize political and ethnic enclaves like the Turkoman. To hedge his bet, Saddam did not go so far as to promote minority Iraqi soldiers to high responsibility on the basis of merit—promotion to high rank in the military was reserved for those who were most politically reliable and had specific reasons for showing extreme loyalty to Saddam personally, such as being a close family or clan member. Nevertheless, despite these discriminatory practices, the Turkoman proved that they were very good soldiers and loyal to the regime. They often ended up in highly sensitive units, frequently serving as technical specialists for handling special weapons or for collecting internal intelligence.

To help motivate soldiers like the Turkoman and to ensure their loyalty, Saddam put in place an extended system of perks and privileges for those who had served the government faithfully. One of these perks was the right to live in specially built, Ba'athist-only communities equipped with amenities and privileges (e.g., priority for power and water service) not accessible to common Iraqis. That such privileges might arouse the ire of other Iraqis was unimportant to Saddam; in fact, the internal animosity and jealousy created may have been viewed as a positive benefit, since any chance to sow division among potentially rebellious ethnic groups would have been viewed as desirable.

In what amounted to resettlement schemes, many loyal Turkoman Ba'athist soldiers were rewarded upon retirement with land grants or given the right to purchase land cheaply, so that they might establish such communities. These settlements were strategically located among populations of suspect loyalty. Tal Afar was the site of one such Turkoman resettlement.

Ethnic Strife via City Planning

In applying Occam's Razor to the situation in Tal Afar, it is important to understand that Ba'athist policies divided the city, effectively pitting the north against the south. Tal Afar had been a significant urban center since the early Ottoman Empire. The pattern of construction and physical layout of the southern and eastern areas of town continues to reflect the priorities of a medieval city's political and community concerns. The city center is a communal gathering place with wells (harkening back to a time before running water was piped to individual houses), a marketplace, and

houses of worship. The streets through this area are narrow and difficult to negotiate with modern vehicles. They are easily congested. Freedom of movement is also limited because the streets were originally laid out not to aid movement, but to channel potential enemies into vulnerable locations. Today, not only the physical layout in south and east Tal Afar, but also the demographic tendencies engendered by current city planning, reflect medieval patterns of family associations, tribal law, and social traditions.

By contrast, the northern part of the city is characterized by more or less modern city planning and a cosmopolitan sense of secularism reflected widely in the attitudes and habits of its relatively new settlers—the loyalist NCO retirees of Saddam's army. The vast majority of these men were Turkoman, and after the end of the ill-fated invasion of Kuwait, they represented more than half of the military-age males in north Tal Afar—approximately 20,000 men.

The location of the new Ba'ath Turkoman community in the north was not selected arbitrarily; it was purposely situated to increase Ba'athist presence, influence, and control in key areas where loyalty to the central government was suspect. It was no accident that a community of Ba'athists of proven loyalty, consisting mainly of highly skilled military technicians who could be readily mobilized, was built on key terrain overlooking the vital Mosul-Sinjar Highway.

The Ba'athist neighborhoods of Hai al Sa'ad, Qadisiyah, and Hai al Bouri have central plumbing, square blocks, and wide streets built to accommodate motor vehicles. Unlike neighborhoods in south Tal Afar, they are ethnically diverse, with a mix of religious persuasions and secularist viewpoints. Thus, for reasons both ancient and modern, the more contemporary and secularist population of north Tal Afar is at odds on many different levels with the population of south Tal Afar, which remains dominated by traditional tribal and religious relationships rooted in older traditions. Clearly, Saddam's policies effectively split Tal Afar both physically and spiritually, giving him the ability, if he needed it, to convert the north's residents into networks of Ba'athist agents for the purpose of armed insurgency and terrorism.

Instigating Sectarian Strife

In apparent accord with other state policies aimed at broadening and deepening ethnic and religious divisions, Sunni imams began arriving in Tal Afar in 1988, not long after the Ba'athist Party had established its retirement community in the north.[2] These imams began to have considerable success in spreading extreme Wahhabi and Takfiri versions of Islamic beliefs, both of which are intolerant of the values and beliefs not only of Westerners, but of Shi'a Islam as well.

Owing to the tight control that Saddam exercised over every aspect of Iraqi life, such potentially divisive activity had to have been sanctioned in some way by the government itself. The social and political fractures engendered by Wahhabi zealots dovetailed so well with Saddam's overall divide-and-conquer tactics that coincidence seems out of the question. The imams' actions would have been especially attractive to Saddam since they served to stoke suspicion primarily against the Shi'a, a group the dictator personally loathed and had long considered to be a potential fourth column for Iran.

In the face of such a dramatic reversal of the former conditions of religious balance and tolerance among the Turkoman in Tal Afar, most Shi'a continued to attend their own mosques. Meanwhile, the majority of the Sunni population in the city's northern neighborhoods responded to the fiery message of the Wahhabi zealots and began to act with animosity toward the Shi'a. Not surprisingly, serious sectarian tensions and divisions emerged where none had existed before. Today, the legacy of tensions between Tal Afar's Shi'a and Sunni communities continues to exacerbate the political and social discord that prevails in the city.

The Insurgents Unmasked

Looking back at the conscious creation of north Tal Afar and other areas in Iraq as bastions of Ba'athist/Sunni loyalty, it is somewhat surprising that in the aftermath of Saddam's overthrow in 2003, various coalition leaders expressed astonishment, confusion, and even denial over how quickly a fairly well organized insurgency emerged. Some coalition figures still refuse to acknowledge the obvious, and assert instead that the insurgency is in the main a terrorist conspiracy fueled by foreigners working for Osama bin Laden. The major problem with this assertion is that very few of the insurgents captured or killed have been foreigners. Outsiders are certainly playing a role, especially as suicide bombers, but hardly in the

numbers one would expect if they were to be regarded as the driving force of the insurgency.

Other coalition leaders claim that the insurgency is mainly the result of support from Iran through a network of Shi'a contacts. This theory, too, is flawed. Although Iraqi Shi'a militias are only too glad to accept help from anyone offering it, for the most part the Iraqi Shi'a have little love either for Iran or the Iranians' fundamentalist brand of Shi'ism. Even more problematic is that the Shi'a appear to be the insurgents' main target. The vast majority of civilian casualties since 2003 have been Shi'a. This would seem to eliminate them from being the principal force behind the insurgency.

Why the identity and motivation of the insurgents should be regarded as such a mystery by some, given what we know about the history of Tal Afar under Saddam, is itself a kind of mystery. Nevertheless, many in the coalition still wonder aloud who the insurgents are, how they are able to coordinate their campaign, and how many of them there are, especially since the insurgency has proven to be virtually impenetrable to coalition infiltration efforts. Although it may be convenient to blame the rise in violence following the collapse of Saddam's regime solely on foreign fighters or on meddling by Iran, to do so is to overlook the simplest, most logical explanation, at least as far as Tal Afar is concerned—that the insurgency is being conducted through a deeply entrenched network of Ba'athists who are still connected via positions of authority and privilege held long before the coalition invaded. This network would logically include a large number of Ba'athists who show an outwardly benign, even cooperative face to the occupying forces, enabling them to move about openly in public. Thus, questions about the insurgents' identity and manpower can be answered simply by counting the number of Ba'athists who used to have power in each region prior to Saddam's overthrow, then subtracting the number of former Ba'athists who have proven themselves to be pro-government. This should give anyone a good estimate of the size of the insurgent force, including its supporters.

Unfortunately, this easiest explanation leads to a politically ominous conclusion: the insurgency numbers not in the thousands or tens of thousands, but in the hundreds of thousands, even though only a relatively small number might actually be engaged in fighting at any one time. Applying this logic in Tal Afar, we are probably looking at over 20,000 former Ba'athists involved in supporting the insurgency in some way, shape, or form.

Writer Scott Taylor provides support for this conclusion in a first-hand account of his captivity during Operation Black Typhoon. Taylor describes the resistance in Tal Afar as "purely Turkoman" and notes that his first encounter with a foreign fighter was when Ansar al Islam handed him over to an Arab terrorist in Mosul.[4] Colonel H.R. McMaster, commander of the 3d Armored Cavalry Regiment (ACR) in Tal Afar during Operation Restoring Rights, seems to second Taylor's observation. According to McMaster, the vast majority

Three days after he arrived in Iraq, Bremer dispatched an aide to Jay Garner's office with a copy of the de-Baathification policy. . . .

Garner read it. *Holy Christ*, he thought to himself. *We can't do this*.

He contacted the CIA station chief and asked him to meet him in front of Bremer's office right away. As Garner walked down the hall to the viceroy's suite, he ran into one of the State Department ambassadors and explained what was happening.

"We've got to put a stop to this one," Garner said. "It's too hard, too harsh."

Garner and the station chief barged into Bremer's office.

"Jerry, this is too harsh," Garner said. "Let's get Rumsfeld on the phone and see if we can't soften it."

"Absolutely not," Bremer said. "I'm going to issue this today."

Garner asked the station chief what would happen if the order were issued.

"You're going to drive fifty thousand Baathists underground before nightfall," he said. "Don't do this."[3]

—Rajiv Chandrassekaran,
Imperial Life in the Emerald City

of fighters captured during Restoring Rights were Iraqis, not foreigners.[5] It is also hardly coincidental that such foreign fighters as there are enter Iraq mainly from the last Ba'athist country in the world, Syria, which had many unofficial and familial ties to Iraq's Ba'ath regime prior to Saddam's ouster, and to where many of Saddam's supporters have fled.[6] Furthermore, a host of influential Tal Afaris who had close ties to the deposed regime still travel relatively freely between the city and Syria to those very areas that continue to supply foreign fighters and suicide bombers.

Thus, although there is no doubt that foreign fighters have provided many of the foot soldiers (and a lot of the cannon fodder) for the insurgency, a reasonable person who looks at things broadly and from the perspective of prior history will arrive at a simple conclusion: a network of Ba'athists established long before the 2003 overthrow of the regime is clearly active, and it enjoys widespread popular support in key areas of Tal Afar.

Strong secondary evidence supports this contention. When foreign fighters turn up in the insurgency, they often appear as suicide bombers. Several U.S. commanders have likened these bombers to "human cruise missiles."[7] Actually, they are more like laser-guided bombs, directed to their targets by someone on the ground who has done reconnaissance, figured out where the bomber might have maximum effect, and then taken pains to smuggle the bomber into Iraq, arm him, and direct him to the attack site. Without that ground support, each individual suicide bomber would have a difficult time becoming a significant threat. Which, then, should we regard as the more important component of such a threat, the foreign suicide bomber, or the insurgent network that devises the campaign for employing him and facilitates his attack? Peeling problems back to their essentials, Occam's Razor suggests that it is the local Iraqi insurgent—the plan synchronizer, bomb maker, attack coordinator, and propagandist—who is the actual center of gravity in the suicide bomber scenario. In Tal Afar, the principal threat is the former Ba'athist Turkoman put in place by Saddam long before the current war began.

In summary, a long history of ethnic resistance and cross-border smuggling, combined with Ba'athist resettlement policies and measures of control prior to 2003, provided the social dynamics, cadre, and physical infrastructure conducive to organizing resistance to the occupation. In the chaos following the regime's fall, Saddam's agents could easily have exploited the status quo in Tal Afar to establish and fund covert networks of loyal intelligence operators who would then organize resistance fighter cells. Organizational efforts would no doubt have included gathering weapons caches, establishing networked contacts to aid insurgent movement and activity, giving instructions and assistance to foreign volunteers, funding public relations efforts to sow discontent, and training others in the art of insurgency.

The above hypothesis jibes with the chronology of the insurgency in Tal Afar as related to me personally by a 30-year-old Sunni male resident of the city. This man stated that in late 2003 and early 2004, the first foreign fighters started to arrive in Tal Afar from across the nearby border with Syria and from other areas in Iraq, which they had had to flee. Welcomed and housed primarily in the Sunni neighborhoods, these fighters described themselves as *mujahadeen* and bragged in the local mosques and streets that they had come to fight the "invaders." They could not have arrived en masse uninvited and unassisted.

My contact also stated that the town leaders were primarily responsible for giving the foreigners the go-ahead to commence operations. Among those operations were activities aimed at intimidating Shi'ite families into fleeing from specific areas in northern parts of the city. The foreign fighters would then occupy many of the former households to gain control of key routes and ground, which they would exploit in future actions. At the same time, the insurgency initiated targeted assassinations and other terror attacks. One of the first citizens of Tal Afar killed in a terrorist attack was a Sunni contractor working with the United States who was murdered because he was getting "too rich." Another early casualty was Sheik Dakhil, of the Marhat clan. Significantly, his position was quickly filled by one Mullah Marhat, an individual of murky and suspect background.

Marhat entered the scene under a cloud of suspicion. As a rule, coalition forces routinely investigate the background of individuals stepping forward to assume public office. They interview would-be leaders and do background checks, especially with regard to previous military service in Saddam's army. Experience shows that most Iraqis are glad, even proud, to describe what

they did in the army. Marhat, however, was very reluctant to discuss his background or his military service. Moreover, despite a three-year search, coalition forces found no official record of his former activities. He was later arrested on accusations of being a Ba'athist operative. Interestingly, immediately following his arrest, Tal Afar experienced a sudden and precipitous decline in violent insurgent activity.

A U.S. Army M1 Abrams tank from the 1st Armored Division conducts a combat patrol in Tal Afar, Iraq, on 27 February 2005. (DOD)

The Marhat case ended successfully for the coalition, but it demonstrates a technique on the rise among the predominantly Ba'athist insurgency: the murder of certain prominent Sunni leaders clears the way for former Ba'athists to assume key leadership positions in Tal Afar's government, business sector, and tribes.

Coalition Mistakes with Iraqi Leaders

The coalition's experience with Mullah Marhat highlights a potential vulnerability in its approach to situations like those found in Tal Afar. This key vulnerability stems from a typically American overeagerness to make friends in the local community and to quickly establish a cooperative working relationship with locals. U.S. units initially engaged with anyone calling himself a sheik. Unfortunately, it now appears that they were frequently duped by persons who took advantage of U.S. ignorance of the Turkoman community generally, and of Tal Afar specifically, to successfully pass themselves off as sheiks.

Our naive and clumsy approach to community relations was particularly apparent in our initial dealings with the Marhat and Jolaq tribes, formerly relatively minor entities within the hierarchy of regional tribal-clan affiliations in and around Tal Afar. Ill-conceived coalition engagement with the sheiks of these groups, such as buying weapons from them or delivering food to them, proved to be a strategic error. Arbitrary as they were and undertaken without

Military officers meet with city officials in Tal Afar. (DOD)

considering the impact such intercourse might have on the entire local situation, these acts were interpreted as favoritism aimed at undermining the prestige and authority of other, traditionally dominant, tribal groups. As a result, we angered and alienated groups that could have acted as key agents in working with the coalition to stop insurgent elements and establish stability in the community.

We also empowered many supposed sheiks who were more interested in personal gain than in aiding their fellow Iraqis. The paucity of real progress in tamping down the insurgency and rebuilding parts of Tal Afar revealed that these unscrupulous men had no influence to guarantee compliance with the law and no ability to provide accurate information on insurgents in our area of responsibility. For example, we engaged with one Sheik Mullah because we had heard through the indigenous grapevine about his great concern for his people's safety and the economy. When we examined his activities closely, however, we discovered that he was primarily involved in reconstruction contracts for personal gain and empowerment.

Such activity is especially pernicious since resources diverted from helping the Iraqi people build their economy frequently find their way not only into the pockets of greedy men, but into the hands of insurgents themselves. It is well known that insurgents attempt to obtain money from coalition forces for supposedly legitimate ends and then use the money to fund their activities.

To uncover and counter such practices, Occam's Razor should be ruthlessly employed by enforcing an audit trail of the money paid to current sheiks. Failure to account for significant sums of money, or to produce the quality or quantity of products called for in a contract, are strong indicators that funds are being skimmed or pocketed for later use by insurgents.

Another simple analytical tool might be to correlate the visits a sheik makes to Syria with the incidents of terrorist attacks upon his return to Tal Afar.

Unfortunately, hasty engagement with the lesser or even spurious sheiks continued for some time and contributed to increasing dissension and insurgent activity in the Turkoman community. Eventually, Shi'ite leaders felt compelled to call upon the Ministry of the Interior to send forces from Baghdad. In an effort to maintain their power, the Sunnis in turn called for foreign fighters, and this precipitated a surge of violence.

The upshot was a conflict between Turkoman Shi'ites who rallied around the Jolaq sheiks and their American supporters, and Sunni (Ba'athist) insurgents who initiated a wave of attacks that successfully, albeit temporarily, gained control of the northern part of the city. Although the foreign fighters were chased out of Tal Afar during Operation Black Typhoon in 2004, they later returned unmolested when U.S. forces left the city proper.

The speed and ease of the insurgents' return speaks volumes about the quality and source of inside information they clearly were being provided by local supporters. Not surprisingly, the mayor and chief of police, both former Ba'athists, did nothing to stop the return of the insurgent fighters, who once again plunged the city into chaos. Thereafter, the stream of foreign combatants increased until the 3d ACR arrived in Tal Afar and began Operation Restoring Rights in August of 2005. However, even though the 3d ACR completely encircled the fighters, many of the latter simply disappeared from Tal Afar. This could not have happened without significant assistance from residents and the prior preparation of escape routes.[8] Clearly, the insurgents had a lot of indigenous support, much of it not apparent to outside observers.

In the final analysis, anyone applying Occam's Razor to the situation must conclude that the insurgents could not have moved in and out of the areas around Tal Afar without widespread assistance from persons well-versed in arms cache techniques, and without a functioning intelligence network manned by those with intimate knowledge of the area's geography. It is likely, too, that a large number of the insurgents were not foreigners at all, but members of the local population who could ditch their weapons and melt easily back into the general population.

The Razor and Cultural Awareness

During the 3d ACR's ensuing civil-military operations, many supposed sheiks and other figures came forward claiming to control key areas of the northern part of town. This was especially interesting—and suspect—because up until that time, most residents of northern Tal Afar had openly derided tribalism and its tradition of sheikdom, and no sheiks were known to have existed in the north.

However, investigation revealed that many residents of Tal Afar's northern neighborhoods had close ties to relatives living in the older, southern part of Tal Afar, where the city's traditional sheiks resided. These sheiks were usually modest men who willingly sheltered their relatives and friends fleeing the sectarian violence in the northern part of the city.

Originally, the identity of many of these sheiks was kept from coalition forces, but after evaluating the probable influence of the Ba'athist program of "Arabization" on Turkmenian cities, we concluded that tribes with Arabized names in north Tal Afar were, in fact, connected to tribes in the south with which the coalition had already developed a relationship. We discovered, for example, that "Hawday," a name prominent in the north, was an Arabized version of Jarjary, the name of a tribe in the south. The north Tal Afar Jarjarys had had to Arabize their name when they entered the army, to accord with Saddam's policy of forced assimilation. Thereafter, whenever we wanted information on members of the Hawday tribe, we went into south Tal Afar to the neighborhood of the Jarjarys. Understanding this imposed cultural anomaly assisted us in engaging sheiks and concerned citizens, who later helped us ferret out hostile Hawday tribal members.

Conclusions

Despite some officials' wishful thinking, a significant portion of Iraqis do not want democracy. For them, the conflict is driven mainly by Ba'athist loyalists who want some measure of power back without the limiting shackles of the democratic process. Any solution we formulate to the current insurgency must take this into account. We must acknowledge that the predominantly Sunni Ba'ath party is playing a major role in directing the insurgency, and then make our plans accordingly.

In Tal Afar, this is certainly true. Our enemy there consists mainly of Ba'ath party members who were

CPT Travis Patriquin

As is the custom of *Military Review*, articles accepted for publication undergo careful editing, and usually a number of rewrites, in close consultation with the author to satisfy mutual concerns and to ensure professional standards of grammar and usage are observed. Correspondence on such issues is usually done through e-mail together with phone coordination when possible. In the case of the above article, the staff of *Military Review* corresponded with the author, who was forward deployed in Iraq, over a period of several months. The process was more than usually challenging because the author was only able to work on the article periodically, in between professional responsibilities. The proposed final draft of the article was sent to him via e-mail several times during the second week of December, but without a final approving response. On 11 December, the staff of *Military Review* was saddened to learn through press accounts that the author, Army CPT Travis Patriquin, had been killed in action as a result of an Improvised Explosive Device attack in Tikrit. CPT Patriquin was reportedly a hard working, extremely pleasant individual who had a penchant for lifting the spirits of his colleagues by telling humorous stories and seeing the bright side of dark situations. He also seems to have had a rare gift for languages, having acquired not only Arabic, but Spanish, Portuguese, and two Central American Indian dialects. He is survived by a devoted wife and three young children. We presume he would have approved the final draft of his article, published here.

trained as Saddam's soldiers and are prepared to wage war until they regain some measure of the status they lost. Ethnic and sectarian religious strife is certainly complicating the picture, but the insurgency is being fought primarily by former Ba'athists. After fading into the background, these men stimulated disaffection and division in Iraq for their own purposes. It is more out of expediency than religious conviction that they have adopted "Allah Hu Akbar" as their current battle cry instead of "Saddam, Saddam."

If the problem in Tal Afar is essentially the product of an increasingly well-organized network of residual Ba'athist members operating in cooperation with Iraqi Ba'athists currently living in Syria and elsewhere, the way ahead seems clear: formulate a solution that will satisfy their aspirations, perhaps by giving them a share of power, while also taking effective action to deconstruct their network.

Occam's Razor would suggest that engaging the insurgents and supporters in north Tal Afar through the real sheiks who control Sunni families in the south part of the city is the simplest and most feasible way to defeat the insurgency. Dealing realistically with these leaders will be more productive than our current practice of engaging a handful of sheiks whose names were passed on to us by previous units.

We must also embrace the concept of amnesty for those who are willing to come in out of the cold, even for those who have killed coalition members. Insurgents who have no prospect of a job or a place in the new Iraqi society will have no reason to stop fighting; in fact, they will have every reason to continue. We will also benefit by engaging radical imams in a similar manner, if for no other reason than to gather intelligence on them and their followers.

Finally, the single-minded objective of such engagement must be to secure the Shi'ite population's safety and the Sunni population's compliance with the law. Joint meetings with Sunni and Shi'ite

sheiks might help the Turkoman reunite, and the sooner this happens, the sooner law and order will be restored. Tal Afar's unrest has been the result of insiders trying to build a power base, not random acts by terrorists. Bringing in a key leader from Baghdad to unite the town, agree on blood money, and settle tribal disputes (some of which we unwittingly took part in) should be our next step. Another key move should be to identify former Ba'athists and individuals with prior military experience.

A close look at former Ba'athists may uncover surprises as well. It is reasonable to assume that at least a few Kurds and Shi'a had a role in Saddam's secular army. Are Shi'a and Kurds operating against us in Tal Afar today? We won't know until we vet the population for former Ba'athists.

Tal Afar could become a shining example, a working Iraqi democracy in miniature. But we must first use Occam's Razor, tempered with cultural understanding of the Turkoman, to adjust our course. Only non-sectarian engagement in which the coalition does not take sides will lead to the intelligence and operational breakthroughs necessary to stabilize Tal Afar. A substantially larger, more loyal Iraqi security force now exists in Tal Afar, and the town has a powerful and popular mayor, but the future threat to the city should not be understated. We cannot, in good faith, turn Tal Afar over to the Iraqi Security Forces until the coalition has stabilized the security situation. ***MR***

Notes

1. Helen Chapin Metz, *Iraq: A Country Study* (New York: Kessinger, 2004), 85. Metz is my primary source for the information about Turkoman history in this article.

2. Information obtained by personal interviews and debriefings conducted by the author in Tal Afar, 2006.

3. Rajiv Chandrassekaran, *Imperial Life in the Emerald City: Inside Iraq's Green Zone* (New York: Alfred A. Knopf and Random House, 2006), 70-71.

4. Scott Taylor, *Among the Others: Encounters with the Forgotten Turkmen of Iraq* (Ottawa, Canada: Esprit de Corps Books, 2004), 208-228.

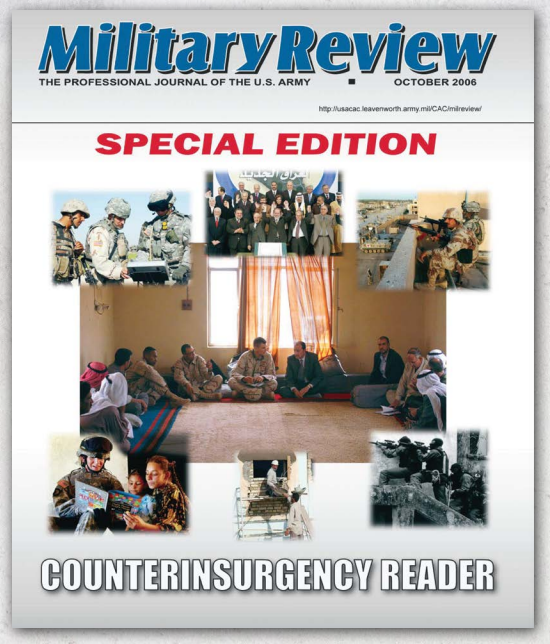
5. *Frontline* interview with Colonel H.R. McMaster, online at <www.pbs.org/wgbh/pages/frontline/insurgency/interviews/mcmaster.html>.

6. Thanassis Cambanis, "Iraq's Ba'athists Rebound on Two Fronts," *Boston Globe*, 15 May 2005, <www.boston.com/news/world/middleeast/articles/2005/05/15/in_iraq_outlawed_baathists_rebound/>.

7. Author's personal experience.

8. 3d ACR Operation Restoring Rights after action review, regimental archives, Fort Hood, Texas.

To view "Using Occam's Razor to Connect the Dots: The Ba'ath Party and the Insurgency in Tal Afar" as it was originally published in January-February 2007, visit https://www.armyupress.army.mil/Portals/7/military-review/Archives/English/JF-22/Original/Patriquin.pdf.



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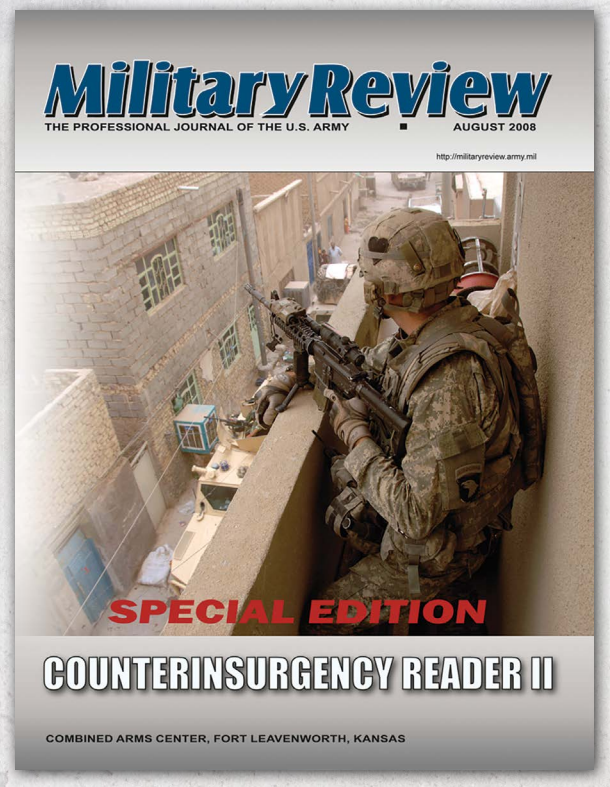

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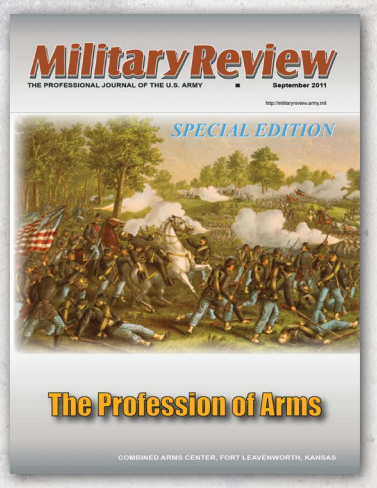

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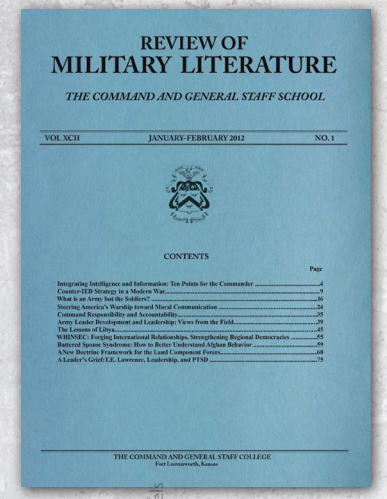

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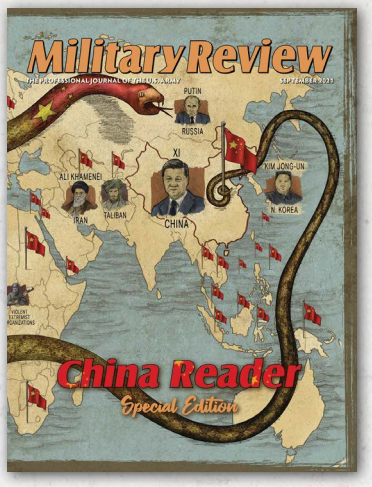

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Background photo by Mo, Pexels

A physician embarked aboard the multipurpose amphibious assault ship USS *Bataan* (LHD 5) describes a Haitian woman's injuries to visiting members of Doctors Without Borders while examining patients, Grand Goave, Haiti, 29 January 2010. (U.S. Navy photo by MCS2 Class Kristopher Wilson)

Foreign Disaster Response

Joint Task Force-Haiti Observations

Lieutenant General P.K. (Ken) Keen, U.S. Army
Lieutenant Colonel Matthew G. Elledge, U.S. Army
Lieutenant Colonel Charles W. Nolan, U.S. Army
Lieutenant Colonel Jennifer L. Kimmey, U.S. Army

All served in Joint Task Force-Haiti following the 12 January 2010 earthquake

The devastation in Haiti caused by the 7.0 magnitude earthquake on 12 January 2010 prompted the longest and largest U.S. military effort in a foreign disaster relief operation. The earthquake destroyed vast areas of Port-au-Prince, the nation's capital, as well as a number of communities to the west of the capital, killing an estimated 230,000 persons and leaving thousands trapped in the wreckage and over two million without shelter. At the peak of Operation Unified Response, 1 February 2010, Joint Task Force-Haiti (JTF-H) consisted of over 22,000 service members, 58 aircraft, and 23 ships. With the stand-down of JTF-H on 1 June, Operation Unified Response lasted nearly five months.

This article contains our initial observations and recommendations to after action reviews and lessons that our military and interagency community should learn from as we prepare for the next foreign disaster.

The Response

Within hours of the earthquake, President René Preval sent several of his ministers on motorcycles to the home of U.S. Ambassador to Haiti, Ken Merten, to request immediate assistance from the United States. The first request was to take control and open the Toussaint Louverture International Airport, whose terminal had been significantly damaged and tower disabled. Lieutenant General P.K. (Ken) Keen was with Ambassador Merten at the time, had already been in contact with Southern Command (SOUTHCOM), and was able to assure the ministers our military would respond. Runway conditions allowing, we were confident we had the capability to open the airfield.

On 13 January, General Keen was able to make contact with Haitian government officials at the airport and inspect the runway with UN officials. Under the direction of SOUTHCOM, elements of the Department of Defense (DOD) began to arrive on that day to assist the government of Haiti and the U.S. Embassy. The 1st Special Operations Wing reopened the international airport, while the U.S. Coast Guard Cutter *Higgins* and military aircraft began delivering relief supplies and evacuating American citizens. Department of Defense immediately ordered the USS *Carl Vinson*, USS *Bataan*, USS *Nassau*, and USS *Carter Hall* to Haiti along with additional forces from the 82d Airborne Division and XVIII Airborne Corps assigned to the Global Response Force. Recognizing the need to establish a command and control element for the rapidly growing force, SOUTHCOM established Headquarters, JTF-H on 14 January to conduct humanitarian assistance and foreign disaster relief operations in support of the lead federal agency, the United States Agency for International Development (USAID).

Joint Task Force-Haiti assumed responsibility for all U.S. forces and began directing activities to assist in providing timely relief. Immediately, the XVIII Airborne Corps assault command post, 2d Brigade, 82d Airborne Division, arrived along with 58 rotary-wing and fixed-wing aircraft with elements of the amphibious ready groups. These elements, together with members of SOUTHCOM, Joint Force Special Operations Component, and the 3d Expeditionary Sustainment Command formed JTF-H, which led efforts through the emergency phase and into the relief phase of the operation. Additionally, Joint Forces Command, Northern Command, European Command, Transportation Command, and other selected units mobilized personnel to augment JTF-H with required specialties.

On 20 January, the hospital ship USNS *Comfort*, equipped with surgical operating teams and orthopedic surgeons, arrived in the operations area. 82d Airborne's 2d Brigade Combat Team (BCT) supported multiple interagency humanitarian

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The Military Sealift Command hospital ship USNS *Comfort* (*T-AH 20*) at anchor off the coast of Haiti, 31 January 2010. (U.S. Navy, Senior Chief Mass Communication Specialist J. L. Chirrick)

aid distribution missions in the heaviest impacted areas of Port-au-Prince. By the end of January, JTF-H controlled over 22,200 troops both on the ground and offshore. Sixteen distribution sites were established to provide food, water, and medical care.

Joint Task Force-Haiti planners and leaders worked alongside their counterparts from the United Nations Stabilization Mission in Haiti (MINUSTAH), USAID, and nongovernmental organizations (NGOs) to develop plans for moving internally displaced persons at risk due to the impending hurricane season. Joint Task Force-Haiti conducted assessments and executed engineering projects with the UN and NGOs to mitigate the risk and reduce the number of people requiring relocation.

The Joint Force Maritime Component Command, composed of the 22d and 24th Marine Expeditionary Units, conducted missions outside Port-au-Prince to the west and north. Using the flexibility inherent in amphibious forces, Sailors and Marines brought relief to thousands of Haitians in the outlying regions.

On 15 March, United States Army South (ARSOUTH) deployed to augment JTF-H's staff, and on 18 March ARSOUTH conducted a relief in place and transfer of authority with the XVIII Airborne Corps. When the 2d BCT redeployed at the beginning of April, JTF-H retained 2d Battalion, 325th Airborne Infantry Regiment as its primary Army force. The JTF continued to provide relief support in the form of shelter and engineering projects, while international partners took responsibility for food and water distribution. As the rainy season approached, it became clear that JTF-H would continue operations through the end of May, when SOUTHCOM New Horizons exercises would provide the transition to continuing theater security cooperation activities.

From mid-March through mid-May, the JTF mission focused on mitigating the dangers of pending heavy rains, floods, and mudslides at nine designated internally displaced persons camps in Port-au-Prince, to include supporting Haitian government, UN,

The most significant challenge facing the U.S. military and the international community in the initial emergency phase was logistics.

USAID, and NGO partners in relocating displaced persons to transitional resettlement sites. Through these efforts, JTF-H postured for a seamless transition to the newly created SOUTHCOM Coordination Cell and Theater Security Cooperation activities represented by the New Horizons exercise.

Although Operation Unified Response was the longest and largest U.S. military foreign disaster relief endeavor, U.S. military support was only a part of the response. The support from the international community was phenomenal and together saved countless lives that could have been lost to this disaster.

The tremendous response from the international community was a blessing but also presented some unique challenges. The following are observations from the JTF-H perspective.

Respond Quickly and Effectively

Fundamental to saving lives in the onset of any disaster is responding quickly and effectively. In Haiti, this became even more pressing due to the devastation of the earthquake and a lack of Haitian government capacity to respond.

The rapid deployment of U.S. military forces and U.S. resources was quick and effective, but not always efficient. The initial surge of forces and relief efforts was ad hoc because no single agency or organization exists with the capacity to adequately respond to such an emergency. This effort was outside the formal U.S. military planning, sourcing, and tracking procedures, resulting in shortfalls in some areas. Because of the flexibility of our military forces and rapid deployment of the DOD Global Response Force, JTF-H helped avert a food and water crisis. Although more than 230,000 people died from the earthquake, the abundant and superior medical assistance provided by the U.S. military and the international community saved thousands of lives. The most significant challenge facing the U.S. military and the international community in the initial emergency phase was logistics.

Overall, the U.S. military's logistics response was proactive and robust. Three areas presented challenges:

(1) Incomplete situational awareness in the early hours after the quake made it difficult to determine requirements and priorities.

(2) Absence early on of a unified and integrated logistics command and control structure to integrate the overall logistics effort led to gaps in reception, staging, and movement of forces, equipment, and supplies into Haiti.

(3) Initial reliance on the only airport into Haiti, Toussaint Louverture International Airport, for the throughput of personnel and relief supplies forced the U.S. military to develop a system for validating and prioritizing global international flights to ensure critical equipment, supplies, and personnel were available.

Joint Task Force-Haiti worked through these challenges and issues, but our logistical system is designed and focused primarily on internal support to our own forces, rather than external support in a humanitarian assistance and disaster relief operation. A more thorough look into capabilities required for this type of operation is necessary.

There are two primary ways to deliver aid directly to Haiti. The first is by air through the international airport in Port-au-Prince. This airport has only one runway and one small taxiway. Further, the earthquake rendered the control tower and the terminal unusable. Establishing an aerial port of debarkation within the first few days of the earthquake was critical. Within 28 hours of the earthquake, Airmen from the 21st, 23d, and 123d Special Tactics Squadrons had supervisory control of the airport. They oversaw airport and runway operations around the clock until it transferred to the Haitian Airport Authority in March. The throughput the Airmen managed increased from 13 flights per day (prequake) to a peak of 150 flights per day to enable the needed flow of personnel, equipment, and relief supplies. However, even this increase in capacity could not meet the demand, so SOUTHCOM's 12th

A Haitian boy watches as U.S. Sailors in rigid-hull inflatable boats from the amphibious dock landing ships USS *Fort McHenry* (LSD 43) and USS *Carter Hall* (LSD 50) arrive at the New Hope Mission in Bonel, Haiti, 19 January 2010. (DOD, MCS2 Kristopher Wilson, U.S. Navy)

Air Force, in coordination with the United Nations, developed a system of prioritization by creating slot times and priorities driven by the Haitian government.

The other primary means of delivery is by sea through the Port-au-Prince seaport. The earthquake rendered both northern and southern piers unusable. Joint Task Force-Haiti, with assets from U.S. Transportation Command supported by the Army and Navy, initially established a Joint Logistics Over-the-Shore capability to bring supplies in from the sea. This more than doubled the number of shipping containers received compared to prequake numbers. SOUTHCOM also established the JTF port opening element to repair the damaged southern pier and establish a temporary port capability using two contracted Crowley barges. This enhanced the flow of relief supplies and reduced some of the pressure on the international airport.

Less than 48 hours after the earthquake, the lead elements of 2d BCT, 82d Airborne Division, landed at the airport and moved to the heavily damaged area of Port-au-Prince. Along with USS *Carl Vinson* and its fleet of helicopters, the force provided vital relief supplies in a sustained manner. Almost as important at the time was a visible sign for the Haitian people that support was arriving. It provided hope for many Haitians.

Maritime forces were logistically self-sufficient and did not need to use either the aerial port or seaport. Aircraft carrier and amphibious ship operations provided lift assets to move supplies in support of the JTF. The Navy and Marine Corps pushed forces ashore to execute critical humanitarian assistance operations, which were instrumental in the overall success of the mission. Placing a Navy flag officer from the Joint Force Maritime Component Command in the JTF headquarters and officers in the Joint operations center ensured operations were fully synchronized and provided a common operating picture.

All these efforts were instrumental in saving lives in the initial weeks of the response. As we prepare for the next foreign disaster in support of the lead federal agency and partner nation, we should do the following:

- Develop a robust and capable team to deploy trained and equipped personnel in an early-entry package to conduct assessments and develop requirements, as well as render immediate life-saving assistance.
- Examine the requirements for an enduring Joint logistics organization, with the appropriate command and control, as part of the Global Response Force.
- Continue Joint Logistics Over-the-Shore and Joint task force port-opening deployments and exercises, and increase education on these capabilities across all services.
- Maintain the Global Response Force with a responsive Joint capability that can operate in both a permissive and nonpermissive environment with forced entry capability.

Protect the People

When the lead elements of 82d Airborne Division's 2d BCT arrived in Haiti, we talked with the troop commander about the existing permissive but uncertain environment in Port-au-Prince. We discussed the requirement to focus on the needs of the Haitian people, the rules of engagement, and the nature of our humanitarian assistance mission. While we would be security conscious, we were not there to deliver aid through the barrel of a gun, but by reaching out with a hand of friendship. To that end, our leaders and troops showed tremendous flexibility and agility. Field Manual 3-24, *Counterinsurgency*, states that the "focus of counterinsurgency is the people: provide for the people, protect the people, and convince the people of their government's legitimacy."[1] Haiti certainly illustrated that the focus of a humanitarian assistance mission must be the people. The fundamentals of counterinsurgency doctrine are very applicable in a foreign disaster relief mission.

From the beginning, the focus was to save lives and mitigate suffering. Every member of the task force understood this focus and the three initial priorities—provide critical medical aid, distribute water and food, and support the search and rescue efforts. Throughout the operation, JTF-H's close relationship with the Haitian people ensured mission success.

The people of Haiti affected by the earthquake were our operational center of gravity and the centerpiece of all our efforts. Leaders and troops were in constant contact with Haitians in their assigned area of operations. They worked to understand the culture. "Creole" speakers at the platoon level ensured units could communicate effectively in the predominant language of the people on the street. Troops reached out with a hand of friendship and provided hope where none existed.

Gang violence was a concern since over 4,000 prisoners, including many prominent gang leaders, escaped from a major prison immediately following the earthquake. It was uncertain how this would affect humanitarian efforts. Fortunately, a lack of security was never an impediment to executing humanitarian assistance operations. The Haitian people viewed U.S. troops as helping them to recover from the earthquake and protecting them from those that would do them harm. Our close working relationship with MINUSTAH forces and their efforts in security operations enabled the Joint task force to focus on humanitarian assistance operations and specific security tasks in support of that effort.

To conduct humanitarian assistance, security must be established to protect the people from looting and acts of violence. In Haiti, the presence of UN forces on the streets following the earthquake and the integration of the arriving U.S. forces deterred the possibility of a deteriorating security situation.

Protecting the people, understanding their culture, speaking their language, living among the populace, and developing a relationship with the community leaders are key in accomplishing this mission. We offer this as a model for our next foreign disaster response.

Build Partnerships

Success in a foreign disaster relief operation hinges on partnerships. Operation Unified Response could not have succeeded without the strong partnerships shared and developed with the government of Haiti, UN, USAID, and NGO counterparts. General Keen's relationship with Major General Floriano Peixoto, MINUSTAH force commander from Brazil, dates back to 1984 when both were captains.[2] This friendship helped the staffs to work closely together and share a common operating picture in Haiti.

In the first few days following the earthquake, the two generals discussed how it was necessary for JTF-H to operate within the envelope of a safe and secure environment provided by MINUSTAH forces. Major General Floriano Peixoto's force of roughly 4,000 troops in Port-au-Prince would provide the necessary security so JTF forces could support the

From right, U.S. Army LTG P.K. (Ken) Keen, the commanding general of Joint Task Force-Haiti, Brazilian army MG Floriano Peixoto, the commander of the United Nations Stabilization Mission in Haiti, and U.S. Army COL Timothy McAteer, the commanding officer of the 2d Brigade Combat Team, 82d Airborne Division, share a moment at McAteer's command post in Port-au-Prince, Haiti, 11 March 2010. (DOD, by MCSCS Spike Call, U.S. Navy)

humanitarian assistance mission. Bringing both staffs together early in the operation ensured the two commanders aligned priorities. It also enabled the task force to support the delivery of food, water, and emergency medical care. This would not have been possible without a shared sense of trust and partnership. Developing relationships and partnerships early is essential. Leaders at every level must devote time and energy to make it happen. Regular meetings with all parties ensured understanding, aligned priorities, improved communication, and contributed to unity of effort and mission accomplishment.

One notable example of this was the development of the first major food distribution plan. The World Food Program, JTF-H, MINUSTAH, and various UN agencies and NGOs spearheaded the initial delivery of food throughout the city of Port-au-Prince and surrounding communities at 16 food distribution points. The result was that more than two million Haitians received much-needed food and water. This initial food distribution plan was flawlessly executed because of the Joint and combined planning and partnerships that were cultivated. There are two tasks we should take on to build partnerships:

- Leaders at every level should seek out the key partners to build a relationship that will ensure unity of effort.
- We need to conduct exercises with partner nations, UN, and other U.S. agencies to develop relationships and refine processes/systems.

Coordinate and Collaborate to Achieve Unity of Effort

The JTF operated in a complex, dynamic, permissive environment, yet an uncertain one. It included

Members of the Miami-Dade TF1 rescue of a 2-year-old from the rubble of a destroyed building in Haiti. USAID deployed the Miami-Dade TF1 squad as part of the comprehensive U.S. response to the earthquake that struck Haiti, 19 January 2010. (USAID)

the government of Haiti, United Nations, USAID as the U.S. lead federal agency operating with the U.S. Embassy and host of interagency partners, and hundreds of NGOs. One key to JTF success was the ability to coordinate and collaborate with all the organizations. Establishing JTF-H's humanitarian assistance coordination cell at the operational level facilitated this coordination and collaboration. The cell served as the conduit for bringing different organizations and functions together under one "coordination and collaboration roof." It pulled together the efforts of JTF-H, MINUSTAH military forces, the UN humanitarian community, USAID, and the NGOs to build a common understanding of the requirement. Led by a JTF-H general officer, the coordinating cell was comprised of more than 30 U.S. military members. It interfaced with every Joint interagency, intergovernmental, and multinational organization to ensure synchronization of effort.

To coordinate and collaborate with nonmilitary partners, it was necessary to share information. Early on, we decided to be open and transparent. To do this, JTF-H operated on unclassified systems and used commercially available programs such as Google Earth to build a humanitarian assistance common operating picture at the tactical level.

Coordination and collaboration was critical at the operational and tactical levels. For instance, JTF-H did not have command and control of the area of operations, and MINUSTAH and the JTF both occupied the same tactical terrain. Camp managers representing NGOs primarily oversaw the thousands of spontaneous internally displaced persons camps. The JTF simply overlapped forces in the area and familiarized

ourselves with the camps to provide capabilities where needed and enable those we worked with to accomplish their mission.

The daily collaboration of unit leaders from the platoon to the brigade level with community leaders, MINUSTAH military forces, and NGOs was key to developing an understanding of the environment, determining requirements, maintaining situational awareness, and supporting the Haitian people.

To achieve unity of effort we need to use nontraditional methods:

- Develop an unclassified humanitarian assistance common operational picture with the available tools to share information with nonmilitary partners (interagency, NGOs, UN, etc).
- Codify the use of coordination centers like the JTF Humanitarian Assistance Coordination Center, UN Coordination Support Committee consisting of the leadership of the Haitian Government, the UN, humanitarian assistance agencies, and JTF and Joint Operations Tasking Center when conducting foreign disaster relief.

Communicate, Communicate, Communicate

On 14 January, about 36 hours after the earthquake, the ramp of the Toussaint Louverture International Airport was occupied by hundreds of journalists and camera crews from all over the world. The tragic circumstances surrounding the earthquake had focused the eyes of the world on Haiti. We recognized that the JTF must be transparent, approachable, and responsive to the public—Haitian and U.S. as well as international audiences. The permissive environment allowed the JTF to reach out through both traditional and social media forums. The news media was embedded at every level and was proactive in telling the story of what the "whole of government" was doing with UN and NGO partners in support of the government of Haiti.

Facebook (with over 5,000 followers) and Twitter (with over 270 followers) were used to counter possible misinformation. On the first day of the movement of displaced persons from one of the spontaneous camps to a new settlement site, JTF public affairs personnel used cameras on their cell phones to "Twitpic" Haiti's president visiting the new resettlement location. The photos were posted on Twitter and on JTF's Facebook within seconds. This was one of many examples of leveraging social media to communicate to the world.

Another organization that furthered the JTF's communication efforts was the Joint Information and Interagency Center. The center served as the hub for coordinating and synchronizing communication efforts from the strategic to the tactical levels. The goal was to ensure that all U.S. government personnel providing humanitarian relief in Haiti spoke with one voice and provided timely and accurate information. One of the products that grew from the Joint Information and Interagency Center was daily talking points that provided the overall communication goal, core themes, target audiences, and top-line messages. This product evolved into the "JTF Two Pager" that included Operation Unified Response themes, priorities, talking points, facts, and figures. It was distributed throughout the JTF, SOUTHCOM, and the U.S. Embassy in Port-au-Prince.

JTF-H … used commercially available programs such as Google Earth to build a humanitarian assistance common operating picture …

To further communication with all agencies, we recommend the following:

- Codify the use of a joint information and interagency center when employing a JTF.
- Add a social media expert on the joint manning document for the JTF public affairs office.
- Examine and revise policies and procedures where possible to allow the maximum use of unclassified means and mediums for information sharing to include social media, blogs, and websites.

Support the Lead Federal Agency

Being in Haiti at the time of the earthquake enabled us to personally see the magnitude of destruction and get a sense of its impact on the Haitian people. The evening of 12 January and the following morning, we

knew the United States and the world would have to immediately respond with a massive effort. President Obama declared that providing relief to Haiti was a priority, and his administration issued guidance that it would be a unified whole-of-government effort with USAID as the lead federal agency. This early national commitment provided strategic intent and DOD resources for a rapid response, but policy, preparation, organizational issues, and civilian capacity challenged longer-term implementation.

USAID stood up the Office for Response Coordination in Haiti, led by Ambassador Lew Lucke. From the start, the roles, responsibilities, authorities, and required capabilities of the lead federal agency were not clearly defined. While the designation as lead federal agent gave broad authority to coordinate efforts, there was no specification of subordinate support relationships or division of labor. USAID had few personnel on the ground to form and lead the robust planning required early in the crisis, so the JTF provided planners to USAID and worked to ensure the JTF was enabling and supporting USAID in all efforts.

When a whole-of-government approach is needed and directed, we should ensure all government agencies understand their role and responsibilities. The lead federal agency should have clearly defined roles and responsibilities and appropriate resources and authorities. Department of Defense, Department of State, and the lead federal agency should work together to determine the conditions that must be met to redeploy military forces at the end of the emergency and relief response phases.

For future foreign disaster relief operations, we need to:

- Examine how to mobilize civilian capacity to support the lead federal agency and explore with the UN the idea of forming an international civilian and military capability to respond to disasters.
- Examine how to improve the integration and capacity of our military and civilian disaster assessment teams, and consider the development of small, medium, and large teams that can respond within 12 hours of a disaster.
- Examine policies and procedures that will allow DOD greater flexibility to leverage the support of the public/private sector.

Pull From All Available Resources to Form the Joint Task Force

The capabilities and the command and control necessary to build a Joint task force for a contingency of this nature were not included in the Global Response Force, and due to other possible contingencies, SOUTHCOM's Army component was not available. Consequently, JTF-H was formed ad hoc. Fortunately, the XVIII Airborne Corps had a trained and ready force that could deploy immediately as the core for the JTF. This was key to success. However, the Corps lacked key enablers, so other organizations had to provide depth.

Southern Command, Joint Forces Command, Joint Enabling Capabilities Command, Joint Communications Support Element, Joint Public Affairs Support Element, Northern Command, European Command, U.S. Air Force and U.S. Navy elements, as well as numerous liaison officers, responded and filled the gaps. Initially, the JTF depended on the embassy to provide workspace and communications equipment to operate. The close proximity of the JTF to the U.S. Embassy facilitated the initial whole-of-government response and the development of relationships among the various staffs. The JTF later established its headquarters next to the embassy and close to the MINUSTAH headquarters, which facilitated continued coordination, collaboration, and communication. Unless we posture the proper capabilities in the Global Response Force or in the combatant commands, we will have to continue to build future JTFs during a crisis response in a similar ad hoc fashion. To use all available resources for foreign disaster response operations, we should:

- Review U.S. combatant command components and Joint Force Command headquarters' capacity and role in forming a JTF.

When a whole-of-government approach is needed and directed, we should ensure all government agencies understand their role and responsibilities.

Brazilian military MG Floriano Peixoto, commander of United Nations Stabilization Mission in Haiti, and U.S. Army LTG P.K. (Ken) Keen, deputy commander of U.S. Southern Command and commanding general of Joint Task Force-Haiti, talk with the camp leader of the Ancien Aeroport Militaire internally displaced persons camp in Port-au-Prince, Haiti, 11 March 2010. (U.S. Navy, MCSCS, Spike Call)

- Review the capability and deployability of the Global Response Force in support of forming a JTF headquarters.
- Locate the JTF headquarters where it can best coordinate and communicate with the embassy, partner nations, and other key organizations.

Include the Host Nation Government

Our response to a foreign disaster relief mission is at the request of the host nation. We should ensure the host nation provides the necessary leadership to coordinate its efforts. In order for the host nation government to have legitimacy with its citizens, it must provide early and consistent leadership of all aspects of the humanitarian assistance and disaster relief efforts.

The earthquake significantly impaired the government of Haiti, which was a weak institution even before the earthquake. Fourteen of sixteen ministry buildings were destroyed and hundreds of government workers perished in the earthquake. Many who survived were understandably traumatized by the catastrophe. It was important to reassure the people that their government was in charge and working to address their needs. This proved to be a challenge as the people complained of the lack of visible national leadership.

During disasters, government leaders need to get out among the people and communicate with citizens. They should also be involved in the humanitarian response and reconstruction planning early to provide guidance and ensure the efforts of the international community support their nation's long-term plan. It was critical that the government of Haiti be included in all aspects of planning and decision making.

RECOMMENDATIONS FOR DISASTER RESPONSE

1. Develop a more robust and capable disaster response assessment and initial life-saving response team.

2. Have combatant commands maintain a JTF capable force trained and ready to deploy in support of a foreign disaster relief operation with requirements from the Global Response Force.

3. Develop an international disaster response framework for nations to deploy civilian and military capability to respond to disasters.

4. Conduct exercises to develop relationships and refine processes and systems.

5. Codify the use of coordination centers like the U.S. JTF-Haiti Humanitarian Assistance Coordination Center, UN coordinating support committees, and Joint operations tasking centers; make them adaptable to any existing partner-nation center.

6. Develop and codify unclassified information sharing tools like All Partners Access Network and JTF-Haiti's humanitarian assistance common operating picture; make them adaptable to any partner-nation's existing system.

7. Examine how best to integrate and support the NGOs and public/private sector in support of humanitarian assistance/foreign disaster relief.

8. Tackle the internally displaced persons challenge immediately.

Work Closely with the UN Humanitarian Community

In Haiti, one cannot effectively conduct humanitarian assistance or foreign disaster relief without working closely with the UN and the vast number of NGOs that have been there for years. These agencies are crucial when it comes to humanitarian assistance and foreign disaster relief support, but they add complexity when it comes to governance and building host nation capacity. There are reportedly over 1,000 NGOs working with the UN Office of Coordination of Humanitarian Assistance in Haiti. As the scouts and soldiers of the humanitarian effort, NGOs manage displaced persons camps, conduct food and shelter distributions, establish medical facilities, and deliver all types of relief. While critical, their work should ultimately help build the capability of the government of Haiti to govern.

Initially, the JTF commanders and staff did not fully appreciate the number of humanitarian organizations that were in Haiti before the earthquake. It became apparent the JTF would have to reach out and integrate them into their systems and processes to be successful, so the JTF worked with the UN to develop UN-approved coordination processes to include government of Haiti-led "coordinating support committees" and a UN-led "joint operations tasking center" where requirements were validated and tasked to the appropriate organizations. When working with the UN, the JTF also had to understand and coordinate within the UN "cluster system" to achieve unity of effort.

Much like working within a "whole of U.S. government" effort, we must work within a "whole of international community" effort at the macro level. This can only be accomplished by good coordination and collaboration after clearly defining the roles and responsibilities of all the players.

Anticipate Challenges with Internally Displaced Persons

Natural disasters are historically followed by the displacement of people. The number of displaced persons depends on the magnitude of the disaster and the country's ability to respond to it. This earthquake created a challenge that will be with Haiti for decades. As the emergency response phase began to pass, it became apparent that the major challenge facing the

government of Haiti and the international community was the estimated one-to-two million internally displaced persons who had established approximately 1,300 spontaneous settlements in Port-au-Prince. The magnitude of the destruction forced many to live under sheets, tarps, tents, or nothing at all. Some camps emerged in areas prone to flooding and mud slides. With the rainy season approaching, this challenge became the number one priority of the government of Haiti and the international community.

The JTF's mission of saving lives and mitigating suffering then focused on the top nine internally displaced persons camps most likely to flood or have mud slides. These nine camps were home to over 100,000 people. Even after engineering projects lessened the effects of the rain in each of these camps, approximately 6,000 people needed to move to safer ground. To assist in the effort led by the UN, the JTF provided engineer support, transportation assets, and civil affairs teams at each priority camp. The JTF also supported camp managers and NGOs as they performed critical tasks. At the strategic level, the JTF and USAID worked closely with the UN and the government of Haiti to develop an internally displaced persons strategy. While none of these requirements were anticipated in the initial days of the disaster, we knew that issues regarding displaced persons had to be addressed following most natural disasters. To plan and execute an acceptable solution requires host nation leadership as well as cooperation and coordination among the international partners.

Conclusion

In Haiti, the U.S. military was a supporting element of a larger humanitarian assistance disaster relief network. Militarily, this can be frustrating at times. Chain of command is inherent to the military. Once an order is given, it is executed. Because of the enormity of the situation and the myriad organizations with disparate goals supporting the Haitian earthquake disaster response, there was no collective command and control structure. Rather, it was about all organizations coordinating, collaborating, and communicating toward a common purpose—to save lives and mitigate suffering.

The JTF-H chain of command directed a great deal of effort toward working with the different leaders at each level of support. From the strategic to the tactical level, it was imperative that JTF-H spoke with one voice and acted as a catalyst to achieve unity of effort. Our ability to assist in maintaining focus enabled overall mission success. Haiti has many challenges ahead. It will take not only an enduring U.S. commitment, but also an international community commitment for Haiti to "build back better" and give its people an opportunity to recover, reconstruct, and prosper in the decades to come while being prepared for the next natural disaster.

Shown above are some recommendations as we look for lessons that the U.S. military, interagency, UN, and international community can apply in preparing for the next disaster response. ***MR***

Notes

1. 2d Battalion, 5th Marines website, at <www.state2ndbn5thmar.com/coinman/notes/counterinsurgency>. Notes on FM 3-24, *Counterinsurgency* (Washington, DC: U.S. Government Printing Office, 28 February 2008).

2. See Ken Keen, Floriano Peixoto Vieira Neto, et al., "Relationships Matter: Humanitarian Assistance and Disaster Relief in Haiti," *Military Review* (May-June 2010): 2–12.

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Meeting the Challenge of Large-Scale Combat Operations Today and Tomorrow

Lt. Gen. Michael D. Lundy, U.S. Army

While our Army learned invaluable lessons over the last seventeen years of limited contingency operations, the experience culturally imprinted a generation of Army leaders for one type of warfare. An increasingly volatile operational environment (OE) characterized by great power competition demands that our Army adapt to the realities of a world where large-scale ground combat against a peer threat is more likely than at any time in recent history. Preparing for the most lethal and challenging threats to our nation warrants continued bold changes in how we man, equip, train, and employ Army forces, especially at echelons above brigade.

Over the last decade and a half, our peer and near-peer competitors studied us as we optimized our

force for limited contingency operations. They fielded more professional forces with advanced capabilities, improved training, and combined arms formations designed to contest us and our multinational partners across all of the domains. They adapted, improved, and continued to advance. In addition to violent extremist organizations with global reach, the current and future strategic environment is defined by a revanchist Russia, an expanding China, a rogue North Korea, and a calculating Iran.[1] It demands a U.S. Army prepared to continually (and persistently) shape the security environment to our advantage, deter adversary aggression through strength, and when necessary, prevail in large-scale ground combat as a member of the Unified Action team.[2] We are in great power competition today, and with competition, conflict is always a risk—this is not just a problem for tomorrow's leaders.

Success in large-scale combat operations against peer threats requires that we continue to evolve from a focus on predictable rotational deployments for stability operations to expeditionary operations in contested domains with few indications or warnings. With the renewed focus on readiness to meet the challenges of great power competition or conflict, we must continue to master the required skills to enable the Army's four strategic roles for the joint force: shaping security environments, preventing conflict, prevailing in large-scale ground combat, and consolidating gains to make the temporary permanent.

> *For decades the United States has enjoyed uncontested or dominant superiority in every operating domain. We could generally deploy our forces when we wanted, assemble them where we wanted, and operate how we wanted. Today, every domain is contested—air, land, sea, space, and cyberspace.*
>
> —Jim Mattis, Secretary of Defense[3]

There will always be tension between readiness for the worst case of large-scale ground combat and the requirements of limited contingency and shaping operations the Army conducts daily around the world. These adjustments will be at least as difficult as those made by our predecessors after Vietnam. Unlike post-Vietnam, however, as we make these adjustments, we cannot eschew the lessons of Iraq and Afghanistan. Retaining the hard-won lessons learned within our doctrine and training while also expanding our expertise in the required tactics, techniques, and procedures for large-scale ground combat is essential.

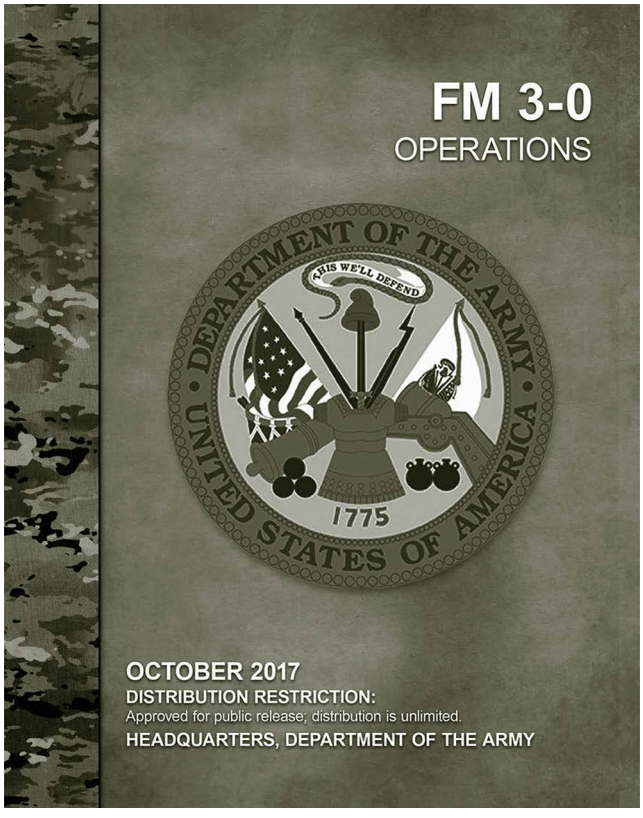
The Army is on the right path to developing leaders and units with the requisite skills and attributes to prevail in large-scale ground combat against peer threats. Our combat training centers have increased the intensity and realism of our unit decisive action rotations, unit home station training occurs at higher operational tempo and under more demanding conditions, and we have made significant adjustments to the rigor and focus of our professional military education and functional training.[4] Mastering the skills and experiences acquired during training, education, and operations requires repetition. Sustaining and improving what we are doing now is our challenge. Preparing and certifying leaders, hardening the force for the chaos and lethality of large-scale combat operations, and reorganizing our formations while fielding advanced technologies and new equipment requires an enduring and persistent focus.

To drive this cultural change, we renewed the focus on combined arms operations in large-scale ground combat with our newest doctrine, Field Manual (FM) 3-0, *Operations*. FM 3-0 is the Army's capstone tactics manual for execution of unified land operations against peer and near-peer threats in contested multi-domain environments.[5] It serves as a pivot point to steer the Army toward both persistent competition below armed conflict and, when necessary, armed conflict against highly lethal and adaptive peer and near-peer enemies. FM 3-0 does not disregard what we've learned over the last seventeen years. In fact, it reinforces and provides deeper context to the value and necessity of persistently competing, prevailing, and consolidating gains across the range of military operations and the conflict continuum.[6] To address the continuum, FM 3-0 is organized in accordance with the Army's four strategic roles it uniquely performs for the joint force: shape the security environment, prevent conflict, prevail in large-scale ground combat, and consolidate

Previous page: Soldiers assigned to 1st Battalion, 63rd Armor Regiment, 2nd Brigade Combat Team, 1st Infantry Division, move to assault a simulated objective 7 May 2017 during Decisive Action Rotation 17-06 at the National Training Center in Fort Irwin, California. (Photo by Spc. Dana Clarke, U.S. Army)

gains.[7] It emphasizes that maintaining positions of strategic advantage requires enduring outcomes favorable to U.S. interests.

FM 3-0 acknowledges we will not always enjoy the full domain superiority we have come to expect since the early 1990s. It recognizes that, with fewer forward-deployed forces than just twenty years ago, our force posture and activities must be optimized to successfully compete below the threshold of armed conflict. We do this by seeing, understanding, and preparing the environment; continuously setting the theater; conducting cyber and information operations; deploying rotational forces; and building readiness. By improving our own readiness for armed conflict and that of our partners, we maintain access and demonstrate the capability and will to win as part of a larger team. Multinational and joint operations are essential to this approach. How we build capacity and maintain access while denying adversaries positions of cognitive, virtual, temporal, and physical advantage are increasingly important to a largely CONUS-based Army.[8] To assure allies, we must be able to deter. To deter, our adversaries must believe we will prevail.



FM 3-0 addresses the challenges of the current and near-term multi-domain operational environments and guides our approach to winning against all possible competitors. Aspects of emerging multi-domain concepts have been integrated into FM 3-0 including space, cyber, electronic, and information warfare. These capabilities reinforce our combined arms approach to the traditional aspects of warfare in the land, air, and maritime domains. FM 3-0's new operational framework provides an expanded physical, virtual, cognitive, and temporal perspective to account for the multi-domain extended capabilities of friendly and threat forces. The physical and temporal considerations pertain to space and time, while the cognitive considerations apply to enemy decision-making, enemy will, and population behavior. The virtual considerations address friendly and threat cyberspace activities, cyber-enabled capabilities, and the entities that exist in cyberspace. Collectively, these considerations allow commanders and staffs to better converge multi-domain capabilities at echelon with the tempo and intensity necessary to present the enemy with multiple dilemmas from positions of tactical, operational, and strategic advantage.[9]

Central to the challenge of evolving the Army's culture is reenabling our division, corps, and theater armies to operate and fight as combat formations. Beginning with a perception in the mid-to-late 1990s of a reduced risk of great power conflict and exacerbated by ongoing limited contingency operations, the Army transformed from a division-based to a brigade-based modular force. As a result, echelons above brigade (EAB) transformed from highly-capable warfighting formations to headquarters that could be force-tailored with warfighting "modules" to accomplish a variety of missions. Over time, the separate modular components were further optimized for the prevailing fight—counterinsurgency and other stability operations.[10] When coupled with heavy reductions during directed downsizing, EAB headquarters became much less capable of supporting anything more than limited contingency operations. While required at the time, the degradation of echelons above brigade formations and their capabilities significantly reduced the Army's ability to meet the entirety of its primary function—to execute

prompt and sustained land combat to defeat any threat throughout the range of military operations.

As we adapt today's EAB headquarters into warfighting formations in doctrine, we also keep an eye on tomorrow through future concept work. The "U.S. Army Concept for Multi-Domain Combined Arms Operations at Echelons Above Brigade, 2025-2045" provides the foundation for the experimentation and development of future EAB capabilities. Informed by the Joint Warfighting Assessments, Mission Command Training Program lessons learned, the Multi-Domain Task Force pilot, and numerous battle lab and Army level experiments, the EAB concept has been continuously refined to identify the most critical doctrine, organization, training, materiel, leadership and education, personnel, facilities, and policy requirements for future EAB formations. This concept work has revealed key foundational requirements at each EAB echelon to defeat peer threats during both competition and conflict in the future.

Future Theater Armies

Uniquely-tailored future theater armies maintain enduring operational initiative. The theater army is unique as it is the only persistent Army echelon for a geographic area of responsibility. As an Army Service component command, all theater armies share the same basic set of theater management tasks distilled to five primary categories: setting conditions in the theater for the employment of landpower (setting the theater), Army support to theater security cooperation, Army support to other services, administrative control over all Army forces in the area of responsibility, and operational control and sustainment support of any assigned or attached Army forces until the combatant commander attaches those forces to a subordinate joint command.[11] To shape the security environment, prevent conflict, and, when necessary, prevail in large-scale combat operations in peer-adversary theaters, theater armies require greater operational warfighting organic capabilities. These capabilities include threat-specific intelligence, surveillance, and reconnaissance; electronic warfare; air and ballistic missile defense; cyberspace, space, information warfare capabilities; and hardened command and control. Theater armies enable freedom of movement during transitions from competition to armed conflict and back. In the future OE, theater armies are central to winning in competition below armed conflict and ensuring that Army and coalition forces can operate from distributed and protected positions of advantage during armed conflict.[12]

Future Field Armies

Threat-focused future field armies provide credible deterrence, execute multi-domain competition against peer threats, and enable a rapid transition to and execution of large-scale ground combat operations (LSGCO). While all theaters require an operational capability, some theaters have adversaries that present enough risk of LSGCO that they require an additional standing echelon to manage specific operations within the area of responsibility and then transition rapidly to a land component command. Historically, this has been a field army commanding two or more corps. A field army is employed to relieve the operational burden on the theater army when attention to a specific operation in a subordinate geographic area would detract from the theater army's ability to support strategic objectives in the theater as a whole. The field army is forward stationed to account for the higher probability of LSGCO or other vital geopolitical considerations that may require partner assurance. It is required in areas of persistent, intense competition with a peer threat capable of rapidly transitioning to large-scale land combat. The field army can serve as the foundation for a joint task force, joint forces land component command, or merge into a standing—but underresourced—alliance headquarters. A standing field army allows rapid transition from competition to conflict. The presence of a field army changes the threat's risk calculus and helps prevent conflict or sets the conditions for success in LSGCO where multiple corps are required to defeat a peer enemy.

Future Corps

The future corps is the linchpin of EAB versatility and agility. The corps of tomorrow must be the most versatile echelon in the Army because no other echelon can. Since

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Armored elements from Company A, 1st Battalion, 63rd Armor Regiment "Dragons," 2nd Armored Brigade Combat Team, 1st Infantry Division, Fort Riley, Kansas, conduct convoy operations 2 May 2018 during Combined Resolve X at Hohenfels Training Area, Bavaria, Germany. (Photo by Spc. Andrew McNeil, U.S. Army)

Soldiers of 3rd Armored Brigade Combat Team, 4th Infantry Division fire an M109A6 Paladin howitzer 21 August 2017 during Exercise Combined Resolve IX at the Grafenwoehr Training Area in Germany. (Photo by Sgt. Matthew Hulett, U.S. Army)

future theater armies are tailored to their respective theaters and operational support of Army missions defines their functions, their versatility is limited. Similarly, a future field army is sharply focused on succeeding in competition below armed conflict against a specific peer threat within the theater and setting conditions to rapidly transition to armed conflict as a multi-corps land component command. Meanwhile, future divisions maintain an uncompromising emphasis on readiness for the task of integrating multiple brigade combat teams (BCTs) and enabling formations as a highly-lethal, tactical formation to win the close fight during armed conflict. This limits some aspects of versatility at the division level. The future corps, functioning as the link between the operational and tactical levels of war, emerges as the echelon that affords the greatest potential for adaptation in response to the uncertainty of both future threats and the environment. This agility mitigates the operational risk naturally found in warfare when predictions of the future OE frequently fail to match reality.

> *We want a military, across the board, to be unbelievably lethal and unbelievably dominant, so that no nation will ever challenge the U.S. militarily.*
>
> —Gen. Mark A. Milley[13]

Highly versatile, future Army corps are the U.S. Army's intermediate tactical warfighting formations for large-scale combat, assigned with redundant capabilities and capacities to see and understand, decide, shape, strike rapidly, and endure. Concept development, experimentation, and lessons learned demonstrate that the most effective future corps organizational design includes assigned military intelligence, multi-domain reconnaissance and security, fires (artillery and air defense), maneuver support, space, cyberspace, information warfare, electronic warfare, sustainment, and aviation formations. These future subordinate formations enable the corps to conduct deep operations physically, temporally, virtually, and cognitively and enable subordinate divisions to dominate the close fight.[14] While assigned to the future corps, these capabilities can be

task organized to directly support a subordinate division as the main effort.[15]

Future Divisions

Tactically-focused future divisions shape, dominate, and win the close fight. The division's role of commanding and sustaining multiple BCTs and enabling formations in tactical operations remains its primary focus and is the crux of the Army's ability to gain and maintain contact and defeat an enemy maneuver force in violent close combat. This requires future Army divisions to singularly focus on lethal, tactical warfighting; it is the principal tactical echelon above brigade. Future Army divisions must have assigned reconnaissance and security, aviation, fires, maneuver enhancement, and sustainment formations in addition to capable BCTs. When properly force-tailored, postured, and positioned, divisions—along with other echelons above brigade formations—are a powerful, credible, and devastatingly lethal deterrent to any would-be threat.[16]

Conclusion

Large-scale ground combat is more likely today than at any point since the end of the Cold War. And the risk of great power conflict will likely persist into the distant future. While the last seventeen years of limited contingency and counterinsurgency operations were necessarily brigade-centric, conflict with peer and near-peer threats requires a continued culture shift as well as the optimization of EABs into highly capable divisions, corps, field armies, and theater armies. These EAB multi-domain fighting formations, coupled with requisite training, leader development, and modernization, enable the Army to shape security environments, prevent conflict, prevail in large-scale combat, and consolidate gains to make tactical success strategically enduring—today and tomorrow. ■

Notes

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15. CAC, "The U.S. Army Concept for Multi-Domain Combined Arms Operations at Echelons Above Brigade."

16. Ibid.

To view "Meeting the Challenge of Large-Scale Combat Operations Today and Tomorrow" as it was originally published in September-October 2018, visit https://www.armyupress.army.mil/Journals/Military-Review/English-Edition-Archives/September-October-2018/Lundy-LSCO/.

A 15-kiloton nuclear artillery round is fired from a 280-mm cannon 25 May 1953 at the Nevada Proving Grounds. Hundreds of high-ranking Armed Forces officers and members of Congress were present to observe the test. In future large-scale combat operations against enemies who possess nuclear weapons, doctrine needs to stipulate detailed planning required to preclude enemies from employing such weapons effectively against friendly forces. (Photo courtesy of the National Nuclear Security Administration/Nevada Field Office)

Emerging U.S. Army Doctrine

Dislocated with Nuclear-Armed Adversaries and Limited War

Maj. Zachary L. Morris, U.S. Army

In October 2017, the U.S. Army released the new Field Manual (FM) 3-0, *Operations*, and other related doctrine for future conflicts.[1] Military doctrine is an important component of any national grand strategy means-ends chain, conceptually designed to achieve national objectives.[2] Doctrine focuses on the military means a state expects to employ and how it expects to employ them, and often centers on the preferred mode of fighting wars.[3] Because military doctrine drives concepts about what military means are required and how to employ them, the doctrine must be integrated with the political grand strategy. Without coherent and integrated doctrine, the Army and other services are unlikely to be an effective means of achieving national military objectives.[4] Ineffective military means either inhibit the options of political authorities, result in catastrophic failure, or increase costs and risks.[5]

FM 3-0 serves as the principal doctrine addressing tactics and procedures for conducting large-scale ground combat operations against peer and near-peer enemies, and supports many Army leaders' inherent preference toward conventional war and decisive battle.[6] However, FM 3-0 fails to adequately address the problem that three of America's four potential peer or near-peer adversaries—Russia, China, and North Korea—possess nuclear weapons.[7] In the past, nuclear weapons have typically limited war, as the alternative was to escalate to a nuclear exchange.[8] Considering most American peer adversaries possess nuclear weapons, decisive victory will likely prove elusive in the future, and limited war and stability operations appear far more likely.

The U.S. Army and its allies should resist the urge to focus on large-scale military operations or, at a minimum, frame their approach to large-scale operations in a manner commensurate to the operational environment. The Army should also amend emerging doctrine to address the current gap related to nuclear weapons and include a discussion of operational approaches necessary for success against nuclear-armed adversaries. The Army is becoming too focused, doctrinally and conceptually, on large-scale war and requires more emphasis on smaller, limited conflicts. The figure (on page 242) depicts the U.S. Army's focus on conventional military operations in the conflict spectrum and its limited attention on other more likely and more dangerous potential future conflicts. As the figure displays, it is arguable that the current FM 3-0 is only useful for a conflict against Iran since it is a potential large-scale threat without nuclear weapons.

Ivan Bloch foresaw many of the realities of World War I in *La Guerre Future*.[9] He predicted that, because of technological advancements, war would become extraordinarily lethal and prevent armies from achieving decisive victory. He essentially argued that because of the current conditions, war—and by extension the military—was temporarily obsolete for resolving political disputes.[10] Ignoring the more likely and dangerous potential future conflicts increases the risk that the Army will commit operational or strategic errors resulting in nuclear escalation, or, once again, make the service obsolete for resolving political disputes.

The Future Near-Peer Environment and Limited War

FM 3-0 is primarily focused on large-scale ground combat operations, conceptually centered on fighting Army Chief of Staff Gen. Mark Milley's 4+1 threats: Russia, China, North Korea, Iran, and violent extremist organizations. While FM 3-0 does many things exceptionally well—including developing the concepts of consolidating gains, shaping operational environments, and preventing conflicts—the three core chapters are dedicated to defeating peer and near-peer enemies during large-scale ground combat operations.[11] However, these chapters fail to take into account the reality that these combat operations will happen against nuclear-armed opponents and thus either remain extremely limited (i.e., not large-scale) or probably result in a nuclear exchange.

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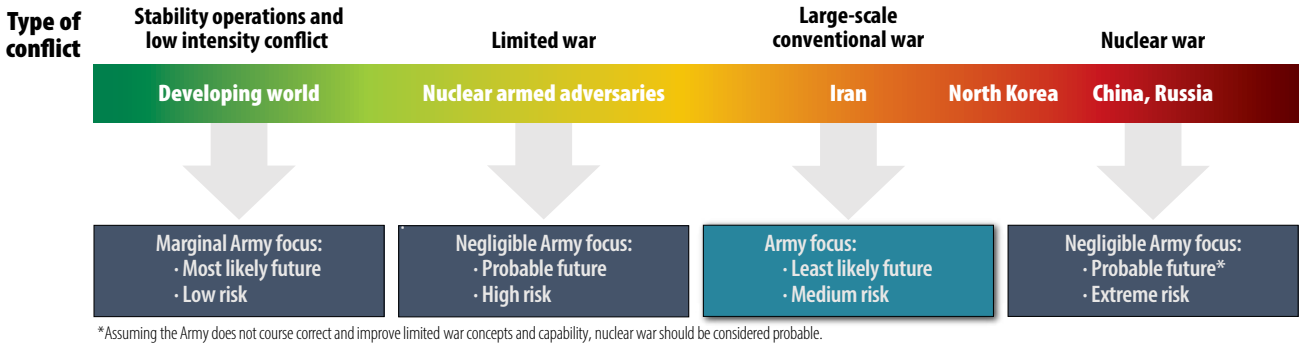
Wars between nuclear-armed powers have been, and will likely remain, extremely limited because of the risks nuclear escalation poses to both sides. Many scholars have discussed the limiting impact of nuclear weapons, and how any defeat that threatens core interests dramatically increases the risks of inadvertent escalation.[12] Each historical direct conflict between nuclear powers, such as the 1969 Sino-Soviet border conflict and 1999 Indo-Pakistan conflict, has remained limited in scope, time, forces employed, methods used, and desired objectives.[13] Even though these conflicts would be likely due to either miscalculation or a U.S. adversary removing restraints on nuclear use because of an existential crisis.[17]

A future conflict against a nuclear-armed adversary should be characterized by managing escalation and focusing on limited objectives and means; if not, the United States should expect, and prepare for, nuclear war. Escalation management implies fighting—at all levels of war—in a manner designed to prevent inadvertent escalation to the nuclear exchange threshold. This threshold is difficult to determine but would most



(Figure by Maj. Zachary L. Morris)

Figure. Potential Near-Future Conflict Spectrum and Army Focus

remained extremely limited, serious escalation risks and concerns arose. Any attempts to achieve decisive victory concerning vital interests for either opponent would almost certainly result in nuclear escalation.[14]

If the United States seeks a decisive victory, often by altering an adversary's government, there would be little reason for an adversary to avoid using nuclear weapons.[15] China, Russia, and North Korea are all highly centralized states that view internal stability and control as a vital interest of the government. All three states also have historical narratives that see themselves as victims of aggression by foreign powers and are extremely sensitive to potential oppression. Even if the United States avoided regime change, these potential adversaries would probably view any type of decisive military defeat as an existential threat to their internal stability and control. Further, miscalculation and misunderstandings in a large-scale conflict are likely and could easily lead to accidental escalation.[16] Thus, in a conventional war, escalation likely be crossed by causing an existential threat for one side. Because Army doctrine emphasizes the use of overwhelming force to achieve decisive results, the United States could easily cause an adversary to cross the nuclear threshold. Rather, future war may require returning to President Woodrow Wilson's conception of "peace without victory," because the threat of nuclear escalation makes it politically and strategically impractical to achieve a total victory.[18]

American peer and near-peer adversaries are likely to employ nuclear weapons in a large-scale conflict. These states are thinking about the use of nuclear weapons and how to operate in a difficult future environment. Russia, for example, has exercised nuclear concepts extensively. During Zapad 2009, Russia reportedly ended the exercise with a nuclear strike on Warsaw, Poland. Further, in October 2016, Russia conducted a massive exercise evacuating the government from Moscow after a simulated nuclear attack.[19] These exercises reflect conceptual changes in Russia about

the utility of nuclear weapons. A 2012 U.S. National Intelligence Council report recognized that American and Russian nuclear ambitions have evolved in opposite directions, and while America is reducing the role of nuclear weapons, "Russia is pursuing new concepts and capabilities for expanding the role of nuclear weapons in its security strategy."[20]

While Russia clearly advocates the use of nuclear weapons in an existential crisis, leaders have also begun exploring the concept of escalate to deescalate. Russian doctrine explicitly states that nuclear weapons are useable in a conflict that threatens the existence of the Russian Federation.[21] In a large-scale conflict, the use of nuclear weapons would likely become a viable option because conflict against overwhelming U.S. force would threaten the Russian Federation's survival. In 2009, the commander of the Strategic Missile Troops, Lt. Gen. Andrey Shvaychenko said, "In a conventional war, [nuclear weapons] ensure that the opponent is forced to cease hostilities, on advantageous conditions for Russia, by means of single or multiple preventive strikes against the aggressors' most important facilities."[22] Unless conflict with Russia remains extremely limited, it appears likely Russia would escalate to nuclear use.

While China has a no first use policy for nuclear weapons, many experts have begun debating if China *would* employ nuclear escalation in a conventional war with the United States.[23] Caitlin Talmadge, an assistant professor of political science and international affairs at the George Washington University, argued that nuclear escalation is plausible but not inevitable. She argues the danger comes primarily from China's concern about broader U.S. intentions once war has begun—such as regime change or decisive victory that threatens vital Chinese interests—rather than the threat a U.S. conventional campaign would pose to China's nuclear arsenal.[24] These fears are well-founded, given U.S. history and military focus on decisive victory, as well as American predisposition to fight by disrupting an adversary's command-and-control functions. A major war between China and the United States—if fought the way the U.S. Army desires as reflected in FM 3-0—would likely result in conditions that could encourage China's use of nuclear weapons. Finally, North Korea, and its leader Kim Jong Un, have demonstrated even less restraint, more explosive rhetoric, and extensive nuclear testing; the United States should assume large-scale conflict against North Korea would result in a nuclear exchange.

FM 3-0 and Emerging Doctrinal Problems

FM 3-0 fails to adequately bridge the tactical and strategic levels of war because of the logical disconnect created by focusing on near-peer adversaries possessing nuclear weapons, without attempting to account for how to fight in a limited and highly constrained environment. While FM 3-0 mentions considering the risks of escalation in a few passages, the doctrine does not explain how the U.S. Army will, or should, operate in a limited war environment.[25] Beyond stating that escalation is a concern of the joint force commander, the doctrine provides little discussion or concept development for how nuclear escalation might affect operations. Much of the discussion related to nuclear weapons focuses downward toward the tactical level of war and emphasizes the tactical measures necessary to manage consequences after use or to protect the force.[26] The doctrine essentially focuses on enabling operations rather than on creating a concept for realistic military action designed to achieve political and strategic objectives in a constrained environment. There is also no discussion about how operations may occur or may look after the exchange of nuclear weapons. Both tactical and strategic nuclear weapons are a vital and influential aspect of any war against a nuclear-armed adversary. Ignoring the probable realities created by these weapons does not improve the odds of avoiding their use. Rather, not understanding or not thinking about the effects of these systems on future operations degrades the value and utility of FM 3-0 and inhibits the potential future effectiveness of U.S. Army combat operations.

Rather than develop potential tactics, techniques, and procedures that could limit or control escalation in a future war, the new doctrine espouses many escalatory tactics. The doctrine advocates the traditional aspects of modern American war such as attacking a host of potentially dual-use capabilities, including command-and-control functions, integrated air defense systems, and integrated fire commands.[27] Attacking these systems, especially if they reside within the borders of the nuclear-armed state, would be escalatory, as these

are considered a precursor to disarming a first strike or enabling a decisive victory—increasing a "use it or lose it" mentality in the target state.[28] FM 3-0 also encourages directly targeting nuclear weapons, facilities, and delivery capabilities.[29] Explicit targeting of nuclear capabilities would almost certainly escalate conflict and significantly threaten to achieve strategic objectives. The doctrine also espouses many concepts that are indirectly escalatory, such as deep and rapid advances, and exploitation operations, which could threaten conflict stability.[30] Rapid advances and exploitation could be escalatory depending on the context. Deep penetration into an adversary's territory, which threatens vital interests such as political stability or the loss of significant ground forces, could cause an adversary to consider using nuclear weapons to stabilize the situation. These concepts reflect the Army's fixation on the tactical and operational levels of war rather than appreciating the probable challenges and limitations that will occur at the strategic and political level.

Instead of the large-scale conflicts that U.S. doctrine addresses, future peer and near-peer conflict will have significantly different characteristics. These conflicts will be severely restricted in size, scope, and location, and they will probably fought by proxy or in locations distant from either states' home borders. Warfare in a nuclear-constrained environment may exhibit some characteristics of high-intensity warfare but with severely limited ends, ways, and means. These conflicts could involve combat between highly capable forces operating under stringent political and strategic limitations such as forces restricted from exploiting maneuver opportunities, destroying an enemy force, or achieving a decisive victory. Additionally, these conflicts could involve proxy wars or limited conflicts distant from significant national interests to reduce the threat of miscalculation or escalation. Limited conflict in these conditions could resemble prolonged siege warfare designed to slowly exhaust the enemy nation, conceptually resembling Russia's efforts in Ukraine. In fact, Russia's conflict in Ukraine is probably a better picture of future war than most other conflicts. It depicts combat between lethal adversaries that cannot achieve decisive military victory for strategic and political reasons. Because of these limitations, strategy and operations will probably require indirect methods to exhaust the enemy's will to resist.

These wars might resemble the stalemate in Korea between 1952 and 1953, not because the United States is incapable of breaking the deadlock but because military success is politically and strategically inadvisable. Limited conflicts will require much greater synergy between the political, strategic, operational, and tactical levels of war than previous conflicts to achieve objectives and prevent accidental escalation to nuclear conflict. Further, this environment would likely require utilizing an indirect approach to achieve marginal objectives, deter adversaries, or simply deny adversaries' objectives using strategies of exhaustion or attrition. The United States has struggled in the past in these types of conflict due to the historical American power advantage and desire for decisive victory, and the new doctrine does little to help prepare the U.S. Army for a limited war future.

Conclusion

The United States should alter emerging doctrine to focus on limited war concepts and address the current flaws necessary for success against nuclear-armed adversaries. As three of the four potential American peer or near-peer adversaries already possess nuclear weapons, war will become increasingly constrained due to escalatory risks. Strategic and political constraints created by potential nuclear escalation makes decisive victory, and large-scale combat, unlikely. FM 3-0 does not adequately address these risks or challenges and fails to bridge the tactical and strategic levels of war. The emerging doctrine's focus on peer adversaries without properly addressing the impact of nuclear weapons on war sets the military up for strategic failure and could force adversaries to escalate the conflict. Further, the new doctrine demonstrates flaws due to its inherently escalatory tactics and methods of war. Rather than large-scale conflict, a future war between peers will require focusing on limited war and managing escalation. Without this limited and controlled approach, current adversaries are incentivized with the threat to use nuclear weapons.

If the U.S. Army cannot develop concepts and operational methods for the limited warfare environment of the future, then the service risks losing its utility to resolve many political conflicts. Without realistic potential solutions, U.S. political leaders should avoid employing the Army unless the interest in question is so vital that a nuclear exchange is an acceptable risk. Without limited tools, the United States should expect nuclear war, not large-scale ground operations. The problem FM 3-0 depicts is

that Army doctrine continues to advocate the use of overwhelming force and decisive victory as the primary and, arguably, the only way to achieve success for the Army against a peer or near-peer adversary once war erupts. Unless nuclear capabilities are nullified, nuclear weapons serve as a deterrent to war but also prevent decisive victory. ■

The opinions expressed here are the author's and do not represent the U.S. Army or the Department of Defense.

Notes

1. Field Manual (FM) 3-0, *Operations* (Washington, DC: U.S. Government Publishing Office [GPO], 2017); Army Doctrine Publication (ADP) 3-0, *Operations* (Washington, DC: U.S. GPO, 2017), 1. Operations bridge tactics and military strategy and are defined as "a sequence of tactical actions with a common purpose or unifying theme."

2. Barry R. Posen, *The Sources of Military Doctrine: France, Britain, and Germany between the World Wars* (Ithaca, NY: Cornell University Press, 1984), 13.

3. Ibid., 13–14; ADP 1-01, *Doctrine Primer* (Washington, DC: U.S. GPO, 2014), 1-2. The U.S. Army defines doctrine "as fundamental principles, with supporting tactics, techniques, procedures, and terms and symbols, used for the conduct of operations and which the operating force, and elements of the institutional Army that directly support operations, guide their actions in support of national objectives. It is authoritative but requires judgment in application."

4. Posen, *The Sources of Military Doctrine*, 25.

5. Ibid.

6. FM 3-0, *Operations*, foreword; Lawrence Freedman, *Strategy: A History* (Oxford, UK: Oxford University Press, 2013), 240; Hew Strachan, *The Direction of War: Contemporary Strategy in Historical Perspective* (Cambridge, UK: Cambridge University Press, 2013), 40, 49, and 62.

7. Nick Routley, "How Many Nuclear Weapons Each Country in the World Has," Business Insider, 14 August 2017, accessed 31 August 2018, http://www.businessinsider.com/how-many-nuclear-weapons-each-country-in-the-world-has-2017-8.

8. Numerous authors argue that nuclear weapons limit and constrain war and that in a conflict between nuclear powers, escalation is a significant risk. Several prominent sources include: Thomas C. Schelling, *Arms and Influence* (New Haven, CT: Yale University Press, 2008), 20; Matthew Kroenig, *Exporting the Bomb: Technology Transfer and the Spread of Nuclear Weapons* (Ithaca, NY: Cornell University Press, 2010), 18; Scott D. Sagan and Kenneth N. Waltz, *The Spread of Nuclear Weapons: An Enduring Debate*, 3rd ed. (New York: W. W. Norton, 2013), 9; Barry R. Posen, *Inadvertent Escalation: Conventional War and Nuclear Risks* (Ithaca, NY: Cornell University Press, 1991).

9. Michael Howard, *War in European History* (New York: Oxford University Press, 2009), 105.

10. Ibid.

11. FM 3-0, *Operations*, foreword.

12. Schelling, *Arms and Influence*, 20; Kroenig, *Exporting the Bomb*, 18, 20, 180, and 185; Sagan and Waltz, *The Spread of Nuclear Weapons*, 9 and 15; Posen, *Inadvertent Escalation.*

13. Kroenig, *Exporting the Bomb*, 25 and 124.

14. Sagan and Waltz, *The Spread of Nuclear Weapons*, 6.

15. Ibid.

16. Posen, *Inadvertent Escalation*.

17. Ibid., 20. Posen discusses the fog of war and how it can impact the risk of escalation by making it harder for civilians to control military operations and creating conditions of heightened fear. Schelling, *Arms and Influence*, 92–125. Schelling discusses the manipulation of risk and the inherent danger of miscalculation extensively, and also highlights how opposing nations may increase risk and ambiguity to try and achieve success while simultaneously increasing the risk of escalation.

18. Gideon Rose, *How Wars End: Why We Always Fight the Last Battle* (New York: Simon and Schuster Paperbacks, 2010), 19.

19. Matt Payton, "Russia Launches Massive Nuclear War Training Exercise with '40 Million People,'" *Independent* (website), 5 October 2016, accessed 31 August 2018, http://www.independent.co.uk/news/world/europe/russia-nuclear-weapon-training-attack-radiation-moscow-vladimir-putin-a7345461.html.

20. National Intelligence Council, *Global Trends 2030: Alternative Worlds* (Washington, DC: National Intelligence Council, December 2012), 69, accessed 31 August 2018, https://www.dni.gov/files/documents/GlobalTrends_2030.pdf.

21. Embassy of the Russian Federation in the United Kingdom and Northern Ireland, "Military Doctrine of the Russian Federation," press release no. 2976, 29 June 2015, sec. III, para. 27, accessed 31 August 2018, http://rusemb.org.uk/press/2029; also discussed in Olga Oliker, *Russia's Nuclear Doctrine: What We Know, What We Don't, and What That Means* (Washington, DC: Center for Strategic and International Studies, 2016), 3.

22. Mark B. Schneider, "Escalate to De-escalate," *Proceedings* 143, no. 1,368 (August 2017), accessed 31 August 2018, https://www.usni.org/magazines/proceedings/2017-02/escalate-de-escalate.

23. Caitlin Talmadge, "Would China Go Nuclear?: Assessing the Risk of Chinese Nuclear Escalation in a Conventional War with the United States," *International Security* 41, no. 4 (Spring 2017): 50.

24. Ibid., 51.

25. FM 3-0, *Operations*, 4-1, 4-18, 4-21, 5-3, and 7-3. The references to escalation on these pages constitute the extent of guidance provided for managing nuclear escalation.

26. Ibid., 5-3 and 5-7.

27. Ibid., 7-8, 7-45—7-46.

28. Posen, *Inadvertent Escalation*, 65-67. Posen discusses the conclusions and analysis of a possible air interdiction and suppression of enemy air defenses campaign against the Soviet Union.

29. FM 3-0, *Operations*, 2-51, 7-8, and 7-45.

30. Ibid., 7-46.

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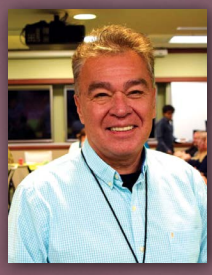

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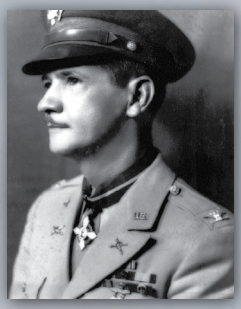

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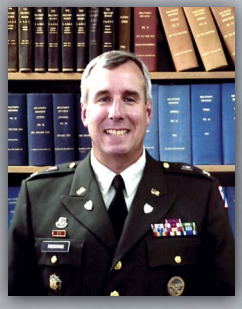

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