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CONSIDERATIONS FOR OPERATIONS ON URBAN TERRAIN
BY LIGHT FORCES

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A thesis presented to the Faculty of the U.S. Army
Command and General Staff College in partial
fulfillment of the requirements for the degree

MASTER OF MILITARY ART AND SCIENCE

By

JOHN C. LATIMER, MAJ, USA
B.S., The Citadel
M.S. Florida Institute of Technology

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MASTER OF MILITARY ART AND SCIENCE

THESIS APPROVAL PAGE

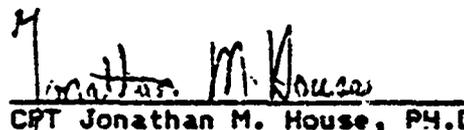
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The opinions and conclusions expressed herein are those of the student author and do not necessarily represent the views of the U.S. Army Command and General Staff College or any other governmental agency. References to this study should include the foregoing statement.

ABSTRACT

Considerations for Operations on Urban Terrain by Light Forces, by Major John C. Latimer, USA, 214 pages.

This study examines three historical examples of military operations on urbanized terrain and identifies the doctrinal and tactical considerations present in each. The examples used in the study were: Stalingrad, 1942; Hue, 1968; and Beirut, 1982. These considerations are analyzed collectively in the study to ascertain the degree of commonality existing among the three examples.

The study found that a degree of congruence existed in techniques, doctrine and weapons or weapon systems although the three examples were dissimilar in time, geography and national origin of the participants. For this reason, the study states that these areas should be of interest and concern to doctrine writers and force developers in determining future doctrine and requirements for MOUT.

The study concludes that light forces can be effective against armor heavy forces in an urban environment for a significant period of time under certain circumstances. It comments on the needs of light forces in such an environment. The study also addresses the operational and strategic implications of urban warfare demonstrated in the three examples.

ACKNOWLEDGEMENTS

I would like to express my sincere appreciation to the members of my thesis committee - Mr. Jim Schneider; LTC Gary Bounds and; CPT Jon House. Without their assistance, encouragement and recommendations, this project would not have been possible. Special thanks must go to Jon House for the many hours he spent correcting style and punctuation.

My thanks also go to the members of the staff of the Combined Arms Research Library for their invaluable assistance during the research of this thesis. I would like to particularly recognize Carol Ramkey for the time she spent procuring reference materials.

Finally, I would like to thank my wife Janice and our children, Wendy and Patrick for their support, toleration and understanding during the time it took to complete this project.

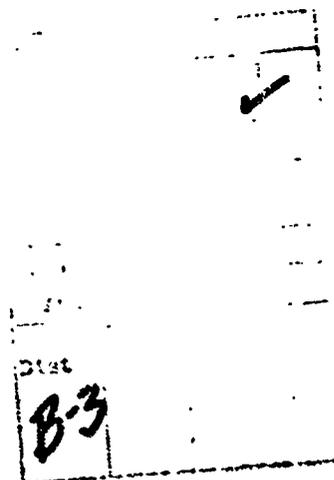


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CHAPTER I

INTRODUCTION TO THE STUDY

I. INTRODUCTION

The tremendous growth of urban areas in Western Europe since World War II has significantly decreased the amount of open, maneuverable terrain available to either attacker or defender. Within the Federal Republic of Germany (FRG) alone there are an estimated 21,000 villages with populations of less than 3,000, 235 small cities and towns with populations between 3,000 and 100,000, 49 cities which exceed 100,000 and 4 cities with populations exceeding 1 million.¹ As a result of this growth many urban areas have grown together and now form conurbations, such as the Rhine-Ruhr conurbation, which extend for hundreds of kilometers and form giant urban obstacles across the traditional movement corridors of World War II.²

Another significant aspect of the changing nature of the environment within the FRG is the impact which government afforestation and road building programs have had on these same areas. In 1976 forested areas were increasing

at the approximate rate of .08 percent per year and areas covered by roads by approximately 1 percent. The heavy reliance of Warsaw Pact forces on wheeled support vehicles indicates control of major road networks through urban areas may be of prime concern in any future conflict in Western Europe.³

The degree to which urbanization will affect future military operations in Western Europe - specifically in the FRG - has caused considerable speculation on the part of many military observers. One author advocates that urbanized terrain could be integrated in North Atlantic Treaty Organization (NATO) defensive plans to form a "Super⁴ Maginot Line, echeloned in depth across Western Europe." Other authorities, while not disagreeing with the concept, point out that a primary concern of West European governments appears to be the prevention of fighting in cities.⁵ Still others indicate that a combination of forces may be appropriate -- static city defenses by infantry forces in order to "entangle" enemy forces in urban areas and highly mobile armor and mechanized forces used to attack into the flanks to encircle entangled enemy forces or drive them deeper into urban areas.⁶

Paralleling the debate within NATO about the role of urban terrain in any future conflict, is a similar concern by NATO's major adversary. Soviet Major-General A.K. Shoukolovich's comments relating to the actions of a motorized rifle battalion clearly indicate that the Soviet

Union regards combat actions in built-up areas as not only significant, but also inevitable.

Under present-day conditions, combat action in a city will be a frequent occurrence. There are one or two large cities on an average for every 200-300 square kilometres. This means that in the course of offensive operations troops will have to fight to seize a city every 40-60 kilometres. As a rule, cities are located on important axes in regions rich in natural resources. They play an important role in the economic and political life of a country. Consequently, cities will have great military importance in any future war the imperialist might unleash.⁷

The U.S. Army's "How-to-Fight" manual on urban combat, FM 90-10, Military Operations on Urbanized Terrain (MOUT), appears to substantiate the validity of the Soviet view by listing five reasons for defending urban terrain.

Built up areas ... may be incorporated in the plan for the defense of an urban area in order to:

- o Control avenues of approach.
- o Act as a combat multiplier
- o Conceal forces.
- o Retain key transportation centers.
- o Deny strategic/political objectives.⁸

If the preceding views and rationale are accepted, the question of whether combat in built-up areas will be a reality in future wars is no longer a point of discussion, but a certainty. Granting the truth of this proposition, the question then becomes how prepared are U.S. forces to conduct such operations and how much thought has been given to fighting in such an environment.

The 1976 version of FM 100-3, Operations, the Army's

Keystone How-to-Fight manual appropriately expressed the doctrinal inadequacy of U.S. Army forces at that time to conduct combat operations in built-up areas by stating that "the whole subject of combat in built-up areas is one in which the U.S. Army is not well versed." The 1982 version of the same manual acknowledges the necessity of preparing for operations on urbanized terrain and directs the reader to FM 90-10 for details on how to fight in such terrain.

Although the army has acknowledged the importance of achieving proficiency in MOUT and has even published two field manuals on the subject since 1976, a recent article in the Military Review (July, 1984) indicates that such operations are still not receiving the needed attention and emphasis.

In his 1984 White Paper on the Light Infantry Division and the Army of Excellence, the Chief of Staff of the Army (CSA) acknowledged that the Army must have the capability to fight and win over a broad spectrum of conflict. To do this, the Light Infantry Division structure was created. Although "light," this force is tasked with being able "to fight -- anytime, anywhere, and against any opponent." The paper also states that "these divisions will be capable of rapidly reinforcing forward deployed U.S. Forces in NATO." In addition to the White Paper, in his "Commandant's Notes" in the January-February 1984 issue of Infantry Magazine the commandant of the United States Army Infantry School pronounced the "need for infantry units to

master the complexities of fighting in a MOUT environment." He further stated that "this is the type of fighting in which light infantry units, with the proper support, will excel."¹³

II. THE PROBLEM

Statement of the Problem

Current doctrine and tactics governing MOUT appear insufficient and in some cases inadequate. This study thus proposes to identify and analyze those considerations which bear on the employment of infantry forces in military operations in urbanized areas, thereby helping remedy this lacuna.

Analysis of the Problem

The problem of warfare in urbanized areas requires an examination of the following questions:

1. Which weapons are most effective in urbanized terrain?
2. What, if any, special equipment is required for the conduct of operations on urbanized terrain?
3. What tactics and task organization are most effective for operations on urban terrain in a high intensity environment?
4. What kind of urban terrain is best for employment of forces in defensive/offensive operations?

5. What are the psychological implications for employment of forces on the urban battlefield?

6. Are there unique personnel qualifications for fighting in the urban environment?

7. What types of munitions are best suited to the urban environment?

8. What special considerations for urban combat must be accorded the areas of intelligence, medical and logistics support?

9. What special considerations need to be given to command and control in urban areas?

10. What forms may potential threats to U.S. forces employed on urban terrain assume?

Assumptions

For the purpose of this study, the following assumptions have been made:

1. The probability that US Forces will be involved in urban warfare in the future is high. US troops have been involved in thirteen of the thirty-five major cities contested this century.¹⁴

2. A non-nuclear environment is assumed. Although a conflict in Western Europe could result in the use of tactical or strategic nuclear weapons, there are no precedents in urban combat where nuclear weapons have supplemented the defense or been used to attack and subsequently occupy such areas. Additionally, there are

indications that should war occur in Western Europe, Warsaw Pact forces might attempt to use "city hugging" tactics to preclude NATO use of first strike nuclear weapons.¹⁵

3. Historical examples provide significant insight into preparing for the actual conduct of future urban warfare. If we accept the statement of S.L.A. Marshall that "in looking at the problem of urban warfare in the future there is no other choice than to guide on the past," it becomes evident that historical examples provide the "touchstone" for analyzing future urban warfare requirements.¹⁶

Scope and Limitations of the Problem

The study does not attempt to rewrite MOUT doctrine, but is intended to provide a starting point for writers of doctrine by identifying common doctrinal denominators in examples studied.

The study does not attempt to delineate a type of weapon or weapons systems which should or should not be provided to forces which might fight in urbanized terrain, but rather provides a historical trail for force developers to follow in order to make such determinations.

The study limits itself to three major historical examples (of the more than 35 which have occurred during this century) and makes no claim of universal applicability.¹⁷

Lastly, the study addresses only combat in cities

classified by FM 90-10 as large cities. Large cities are
18
cities with populations in excess of 100,000.

Importance of the Study

The first part of this chapter alluded to the changing nature of the Western European environment and the importance which operations in urbanized terrain could assume should war occur. Although the Western European battlefield holds the highest risk, the findings of this study are intended to relate to operations in urbanized terrain worldwide. If MOUT doctrine and tactics are deficient as earlier suggested, the findings of this study should be useful tools for doctrine writers and force developers in correcting such deficiencies if they exist.

III. PROCEDURES

Research Methodology

This study examines three historical examples of military operations on urbanized terrain and seeks to identify the doctrinal and tactical considerations present in each conflict. These considerations are then analyzed collectively to ascertain the degree of commonality existing among the three examples. The three examples are:

- o Stalingrad, 1942
- o Hue, 1968
- o Beirut, 1982

The examples were chosen for a number of reasons. First, because they were representative battles for cities which occurred in three separate conflicts spanning a period of approximately forty years. Conflicts occurring prior to World War II were not considered due to the technological advances in weaponry which occurred just prior to and during World War II. These battles were also chosen because they represented city combat in three distinctly different geographical locations and the primary participants in each case were of different nationalities. The intent in choosing these battles was to determine if the similarities in doctrine, tactics and weapons which linked them were greater than the differences in time, geography and nationality which set them apart.

The further observation may be made that while no

conflicts in Western Europe were selected, the city of Beirut is representative of many Western European cities due to the influence on architecture and city planning caused by the French Mandate (1921-43). Additionally, there are no European examples of combat in cities which are representative of fighting within the modern, high-rise type structures which abound today. Beirut is as representative an example of this type of fighting as could be found. The fighting in and around Beirut also permits an examination of the effectiveness of modern U.S. and Soviet weapons as both were employed.

Finally, where analysis of the examples indicated a degree of congruence in techniques, doctrine, weapons or weapon systems, it was assumed that consideration of such areas was of importance to both doctrine writers and force developers.

IV. ORGANIZATION OF THE STUDY

Chapter I provides an overview of the problem.

Chapter II presents a synopsis of related literature.

Chapters III, IV and V are the respective case studies of Stalingrad, Hue and Beirut.

Chapter VI summarizes the study and provides observations and conclusions.

CHAPTER I

END NOTES

1. Department of the Army, FM 90-10, Military Operations in Built-Up Areas (MOU), (1979), pp. 1-2, 1-3.
2. Paul Bracken, "Urban Sprawl and NATO Defense," Survival 18, (1976), p. 256.
3. Ibid., p. 257.
4. Ibid., p. 260.
5. Rand Corporation, Military Operations in Built-Up Areas: Essays on Some Past, Present, and Future Aspects, (1976), p. iii.
6. James J. Schneider, "The Retiarian Operational Concept and the Destruction of the Second Echelon," (1983), pp. 36-38.
7. Major-General A.K. Shoukolovich, "Boyevyye Deystviya Motostrel'noy Batal'ona v Gorode," (Combat Action of a Motorized Rifle Battalion in a City), Order of Labor Red Banner, (1971), p. 3.
8. FM 90-10, p. 3-13.
9. U.S. Army, FM 100-5, Operations, (1976), p. 14-19.
10. U.S. Army, FM 100-5, Operations, (1982), p. 3-8.
11. John J. Mahan, "MOU: The Quiet Imperative," Military Review, (1984), pp. 44-45.
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13. Major General James J. Lindsay, "Commandant's Note," Infantry, (1984) pp. 2-3.
14. U.S. Army, FM 90-10-1, An Infantryman's Guide to Urban Combat, (1982), p. 1-4.

15. Bracken, p. 259.
16. S.L.A. Marshall, "Notes on Urban Warfare," (1973) p. 7.
17. FM 90-10-1, p. 1-4.
18. FM 90-10, p. 1-2.

CHAPTER II

REVIEW OF RELATED LITERATURE

The purpose of this chapter is to provide a synopsis of literature related to the conduct of military operations on urbanized terrain (MOUT) in general and specifically to review literature which examines, compares and seeks to draw conclusions from historical operations. This review is primarily limited to sources available for research through the Combined Arms Library at Fort Leavenworth, Kansas. A number of foreign sources are in existence and undoubtedly would add to this study if resource constraints were not a consideration.

When compared with information available on other types of military operations, literature on MOUT is relatively scarce. Although the Army has acknowledged the importance of MOUT in recent years, a review of doctrinal literature during the mid-1960s to early 70's reveals an apparent reluctance to deal with the issues of MOUT.¹ A number of reasons contribute to this lacuna in literature. One of the most prevalent is the fact that MOUT has

generally been regarded as an expensive operation, both in terms of resources and time, and one which should be avoided unless specific advantages can be realized.² Additional reasons for the void in literature have been a general reluctance to engage in combat because of: the impact which such fighting has on the civilian populace and the creation of large numbers of refugees; the degradation of command and control which usually accompanies such an operation; the increased psychological and physiological demands of MOUT; the increased difficulties encountered in maintaining logistical support for either defender or attacker; and the political impact of fighting in cities.

As there are reasons for avoiding city confrontations, there are also reasons for conducting operations within cities. These reasons have contributed to the increased interest concerning MOUT within the Army in the last decade. One of the most pressing reasons for conducting operations in cities is that of necessity. The European environment of World War II has changed to such an extent that avoiding combat in cities may no longer be possible.³ Other reasons include, but certainly are not limited to, defense of cities to preserve important political, industrial and logistical facilities; blockage of enemy forces through urban areas that could not otherwise be bypassed; and use of light infantry forces in an economy of force role. For these and other reasons, the Army has taken steps to fill the void in MOUT literature.

Literature addressed in this chapter will be grouped under the following headings: (1) doctrinal literature, and (2) historical studies and reports. Doctrinal literature will be confined to an examination of US Army doctrinal publications concerning MOUT. Historical studies and reports will review only works which examine historical examples of combat in cities and draw conclusions concerning lessons learned from the examples.

Doctrinal Literature

Prior to the 1968 Tet offensive and the Marine Corps and 1st Cavalry Division experience in Hue, little doctrinal literature on MOUT existed. Until 1979, the primary US Army document on fighting in built-up areas was FM 31-50, Combat in Built-up and Fortified Areas. Although this 1964 manual contained sixty pages, only thirty-four actually concerned combat in urban areas. The manual addressed urban combat in a general nature and provided virtually no guidance on fighting in major built-up areas. Technological advances in machines and weaponry, characteristic of the late 60's and early 70's, were obviously not addressed.

Prior to the mid-1970's, a number of doctrinal field manuals, other than FM 31-50, addressed MOUT, but did so in a general manner. Most devoted less than one page to the subject. Ironical as it may seem, the field manual which provided the most information on MOUT, other than FM 31-50, was FM 17-1, Armor Operations. In addition, FM 7-20, The

Infantry Battalion, FM 7-30, The Infantry Brigades, FM 01-100, The Division, and FM 100-5, Operations of Army Forces in the Field provided limited general information on MOUT.

The 1974 publication of FM 100-5, Operations, signaled a renewed interest in MOUT within the Army. Eleven pages of the new manual were devoted to the subject of MOUT.⁴ This renewed interest resulted in the formation of an Ad Hoc Group on Military Operations in Built-up Areas (MOBA) by the Army Science Board in 1977. The group's final report in 1978 concluded:

Our conviction is that our inability to carry out conventional combat in the MOBA environment is a deficiency of the first order and one that demands a deliberate program response.⁵

One of the results of this indictment was a re-evaluation of combat in built-up areas by the Army and the publication of a new field manual on the subject.

FM 90-10, Military Operations on Urbanized Terrain (MOUT), was published in August of 1979 and superseded FM 31-50. This was the first "all encompassing" attempt by the Army to field a manual exclusively on fighting in the urban environment. The manual details how urban terrain has changed throughout the world and particularly in Western Europe, how the threat can be expected to both attack and defend in such areas and how commanders can respond. It is not a detailed "how to" manual and in fact states in the introductory pages:

It supplements the basic HOW-TO-FIGHT manuals describing urban terrain and the application of

tactical principles at all echelons from division to fire team.It provides basic doctrine, tactics, techniques, and procedures of employment for command and control of the combined arms team during offensive and defensive operations in an urban environment.⁶

In 1982, the Army moved from the "Active Defense" to the "Airland Battle." With this move came a revision of the Army "keystone" manual, FM 100-5, Operations, and an increased appreciation for the impact of urbanization on modern warfare. Although the new manual has only two pages addressing urban terrain, it refers the reader to FM 90-10 for details on fighting in such areas. It is interesting to note that the discussion of urbanized terrain in FM 100-5 centers on the changing nature of Western Europe and specifically addresses the Rhine-Ruhr conurbation and the effect which such areas will have on the way commanders and their staffs will plan and fight future conflicts. Commanders are encouraged to use urban terrain to their advantage and although there are cautionary notes, it is apparent that FM 100-5 is encouraging the use of urban terrain in the defense, when a specific advantage may be realized.

As a result of initiatives taken by the United States Army Infantry School, FM 90-10-1, An Infantryman's Guide to Urban Combat was published in 1982. In the preface, the manual states, "This manual provides infantry doctrine, tactics, and techniques for urban combat at battalion level and below."⁷ Although it describes the changing nature of

the battlefield and provides some threat methodology for attacking and defending urban areas, FM 90-10-1 is exactly what it professes to be, a manual of low-level doctrine and tactics.

Other doctrinal manuals, such as the "71-" HOW-TO-FIGHT series, address MOUT, but are for the most part verbatim extracts of the manuals referred to above. For this reason these manuals will not be addressed. Branch specific manuals, such as FM 5-100, Engineer Combat Operations, usually address MOUT in an appendix. These could also be accused of providing only general information extracted from the basic MOUT manuals, such as FM 90-10 and 90-10-1.

Historical Studies and Reports

Although considerable "general historical data" exists concerning operations in urban areas, relatively little specific information has actually been collated. Part of the reason for this is unquestionably due to the preponderance of small unit actions found in such operations and the difficulty of accumulating meaningful statistical data upon which to base conclusions. There are, however, a number of studies which have attempted to fill this void in recent years. Six such studies have been identified for review.

In 1974, the Defense Advanced Research Projects Agency of the Department of Defense engaged Intrac,

Incorporated, to conduct a study to accomplish the following objectives:

(a) to determine whether there are significant deficiencies in the information available for evaluating the city fighting effectiveness of standard U.S. ground force weapons, and (b) where physical testing could address such deficiencies, to develop the nature of the tests needed.⁸

The result of this directive was a two volume report, Weapons Effects in Cities, which analyzed urban combat since World War II to determine weapon effectiveness and combat functions in MOUT. The following are findings and recommendations of the study:

1. Review of the pattern of growth of dense city centers and newer, more open urban areas in Central Europe since WWII, combined with historical analysis of the reasons for city fights, provides no basis for the assertion that the incidence or importance of city fighting will be greater in the foreseeable future than it was in WWII.

2. In most of the city battles reviewed, troops had to learn city fighting skills during combat -- at a considerable cost in lives. Significant increases in city fighting effectiveness are more likely to result from better tactical training for combat in cities, built-up and fortified areas than from weapons developments or modifications.

3. Due to the resulting penalty in effectiveness in other higher-priority forms of combat, there is little reason to develop single purpose weapons that improve only city fighting capabilities. There are excellent reasons and opportunities for improving selected weapons for use across the spectrum of combat types.

4. Weapons developments that, if feasible, could prove useful for general purpose combat as well as city fighting include a shoulder-fired anti-tank weapon with no backblast and a hand-emplaced charge to create man-sized breaches in walls. Also useful would be the adoption of effective HEAT and anti-personnel rifle grenades and a

gammon grenade.

5. Because of the widespread need for demolitions in most forms of combat including city fighting--and because sufficient numbers of combat engineers are rarely available--insuring that a sizable proportion of infantrymen are trained and current in combat demolitions skills can significantly enhance infantry effectiveness.

6. Communications are vital in city combat--however, they are frequently interrupted by radio line-of-sight problems and wirecutting by artillery fragments. A non-weapons test of importance to city fighting would be a communications field test of standard infantry radios in cities.

7. The most important effectiveness information deficiencies are common to city fighting and higher priority forms of combat; these deficiencies include lack of valid estimates for the anti-personnel effects of most projectiles, the anti-tank lethality of current tank and anti-tank weapons, and the combat accuracy of most direct-fire weapons.⁹

Although some of the conclusions reached in Weapons Effects in Cities have been disputed, this study marked one of the first real attempts by the army to use historical examples of urban combat to improve city fighting effectiveness.

A technical report produced by Ketron, Inc. in 1975 for the Army Material Command, entitled Selected Ammunition Employment in Military Operations in Built-Up Areas, provides a brief historical analysis of the effects of certain weapon systems used in urban terrain. This analysis includes a number of pre and post-World War II examples of city combat. Although no conclusions, as such, are drawn from these examples, the effects of certain weapon systems are described. The importance of snipers is accentuated and the value of indirect artillery and tactical air is

questioned, as well as the vulnerability of tanks in the close urban environment. Additionally, the need for a man-portable wall breaching system is discussed.

A 1976 report, Military Operations in Built-Up Areas: Essays on Some Past, Present, and Future Aspects by the Rand Corporation, and sponsored by the Defense Advanced Research Projects Agency, is not a true historical study. It is included for comment because one of the four essays which comprise it analyzes and draws conclusions from six urban warfare battles, five of which occurred in World War II and one in the post war period. The study consists of four separate essays which deal with the fundamental issues of .10UT, however, only the essay outlined above is historical in nature and will be discussed. The findings included in this essay were:

...that improvisation and leadership on the part of combat commanders can play a decisive role ... that morale and motivation on the part of the civilian population that is pressed into service and must endure great sacrifices and hardships are of critical importance.10

A discussion of Hitler's "Breakwater Doctrine" is also included.

The final three studies reviewed are all products of Abbott Associates and were conducted for the U.S. Army Human Engineering Laboratory. They are: Military Operations in Selected Lebanese Built-Up Areas, 1975-1978, produced in 1979; Military Operations in the Gulf War: The Battle of Khorranshahr; and Recent Military Operations on Urban

Terrain, the latter two both produced in 1982. The first of these studies, Military Operations in Selected Lebanese Built-Up Areas, 1975-1978, analyzes the fighting between Christian and Syrian forces in and around Beirut. The study concentrated on the use of weapons, tactics and communications in the urban environment. The following are general findings:

In general, AA weapons systems (especially when mounted on jeeps), recoilless rifles, and Rocket Propelled Grenade (RPG) launchers such as those found in Eastern Bloc countries, were found extremely useful in MOBA. Also effective were armored cars such as the M-113 APC, the Panhard, and the Staghound.

... the data collected discloses little concern over communications problems in Lebanon, especially on the part of the Christian forces. Equipped with AN/PRC-77s, AN/VRC-46s and -47s, CB radios, GE portable UHF radios, as well as telephones, the Christians carefully developed communications assets in advance with an eye toward effective netting. Syrian forces relied heavily on land lines (consistent with their practice) eliminating reception problems entirely and making it more difficult for their transmissions to be intercepted. However, Syrian transmissions over land lines were frequently intercepted by tapping.11

Military Operations in the Gulf War: The Battle of Khorramshahr reports on the Iraqi attack of the Iranian commercial port of Khorramshahr during the Iran-Iraqi war. Although this report provides findings and makes comments concerning the use of weapons, tactics and command, control and communications (C³), these comments are ancillary to the primary finding. The most important conclusion of this report is that circumstances exist when a force, although

inferior in weapons, training and numbers, can not only delay a vastly superior force, but inflict severe losses on it as evidenced by the month-long delay of an Iraqi division by 3,000 Iranian defenders. Although Iraq finally captured the city, the report points out it failed to achieve the political and military objectives originally set and lost between 1,000 and 5,000 killed and another 3,000 to 4,000 wounded.

The final historical report, Recent Military Operations on Urban Terrain, compares the 1967 battle for Jerusalem and the 1973 battle for Suez City, both of which occurred in Arab-Israeli wars. The report provides descriptions of the cities involved, concepts and conduct of the operations, a description of the combatants, innovations, and findings concerning weapons, tactics and C. Both of the cities described in the report held special significance to both defender and attacker. Suez City was important not only because of its control of the southern entrance to the canal, but because it also controlled the line of communication (LOC) for the Egyptian Third Army. Jerusalem was politically important as the Israeli capital and culturally important because of the religious significance attached to it by both the Jews and Arabs.

The findings of the report, besides detailing the similarities outlined above, also address the differences between the two battles. In Jerusalem, both sides were reluctant to use heavy weapons because of cultural ties to

the city. This allowed a relatively unorganized Jordanian defense to inflict heavy losses on the Israeli attackers, even though most of the attackers were intimately familiar with the city. Suez City was the reverse. It was prepared in detail and a coordinated defensive plan developed, resulting in the Israeli army suffering heavy losses and failing to take the city.

Several innovations are noted by the report. The Hosam grenade, a shaped charge grenade which adheres to tanks, was used by the Egyptians in Suez City quite effectively. Israeli forces used the "Zelda," an M-113 mounting three or more .50 caliber machineguns, to provide firepower in the multiple directions so necessary in urban warfare. Another Israeli innovation was the development and use of an explosive charge designed to demolish houses which could not be penetrated by other weapon systems. The report concludes with the acknowledgement that both battles provide excellent examples of the advantages conferred upon the defender in the MOUT environment, and the costs to the attacker.

In summary, a review of current doctrinal literature within the U.S. Army reveals that doctrinal literature, although possibly outdated or inadequate, is available for the battalion level and below. Doctrinal literature for levels above the battalion appears to be deficient, if not totally absent. Additionally, a review of historical studies and reports concerning MOUT, undertaken or

contracted by the U.S. Army, reveals that although such studies are relatively scarce, there is an apparent interest in acquiring more information in order to fill the void which currently exists.

This chapter provides only a synopsis of selected reports and publications which draw conclusions from historical observations and in no way reflects the total resources used for this paper.

CHAPTER II

END NOTES

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CHAPTER 3

STALINGRAD, AUGUST 1942 - FEBRUARY 1943

In the name of the People of the United States of America, I present this Diploma to Stalingrad to mark our admiration for its valiant defenders, whose bravery, strength of spirit, and selflessness during the siege from September 13, 1942, to January 31, 1943, will forever inspire the hearts of all free people. Their glorious victory halted the wave of the invasion and became the turning point of the war of the Allied Nations against aggression.

Franklin D. Roosevelt
President

I. INTRODUCTION

The six and one half month battle for the city of Stalingrad was not only the largest and most costly urban conflict in history, but one of the most unusual as well. It was unusual for a number of reasons. It was unusual because of the city's geographical position and design - over 500 miles southeast of Moscow, the Stalingrad of 1942 stretched like a giant snake for thirty-five miles along the west bank of the Volga River and was only two and one-half miles at its widest point. It was unusual because it occurred over a city that Hitler did not intend to capture

and that the Russians had never planned to defend, and yet what occurred there marked the beginning of the end for the Third Reich.³ Stalingrad was not an Odessa, a Brest-Litovsk, or a Sevastopol. In fact there were none of the prepared defensive positions characteristic of those city fortresses.⁴ It was unusual because of the military problems it presented to both attacker and defender. An attacker faced the problem of attacking on a thirty-five mile front consisting entirely of urban terrain. The defender of such a city had a depth of less than two and one-half miles in which to defend.⁵ Finally, it was climatically unusual, with temperature variations of over 150 degrees Fahrenheit.⁶

The battle for Stalingrad, aside from its significance as the turning point of the war on the Eastern Front, is important today to the Soviet Military establishment. They believe that should war occur in Western Europe, the increased urbanization of that region⁷ will result in frequent and unavoidable combat in cities. As a result of this philosophy, they have developed and continue to develop tactical doctrine for use in future war based on the lessons learned from their World War II experiences.⁸ Of these, Stalingrad is one of the best documented. The numerous books and articles which recount the struggle for Stalingrad provide literally hundreds of accounts detailing city fighting in unlimited war. If for no other reasons than these, the battle for Stalingrad is

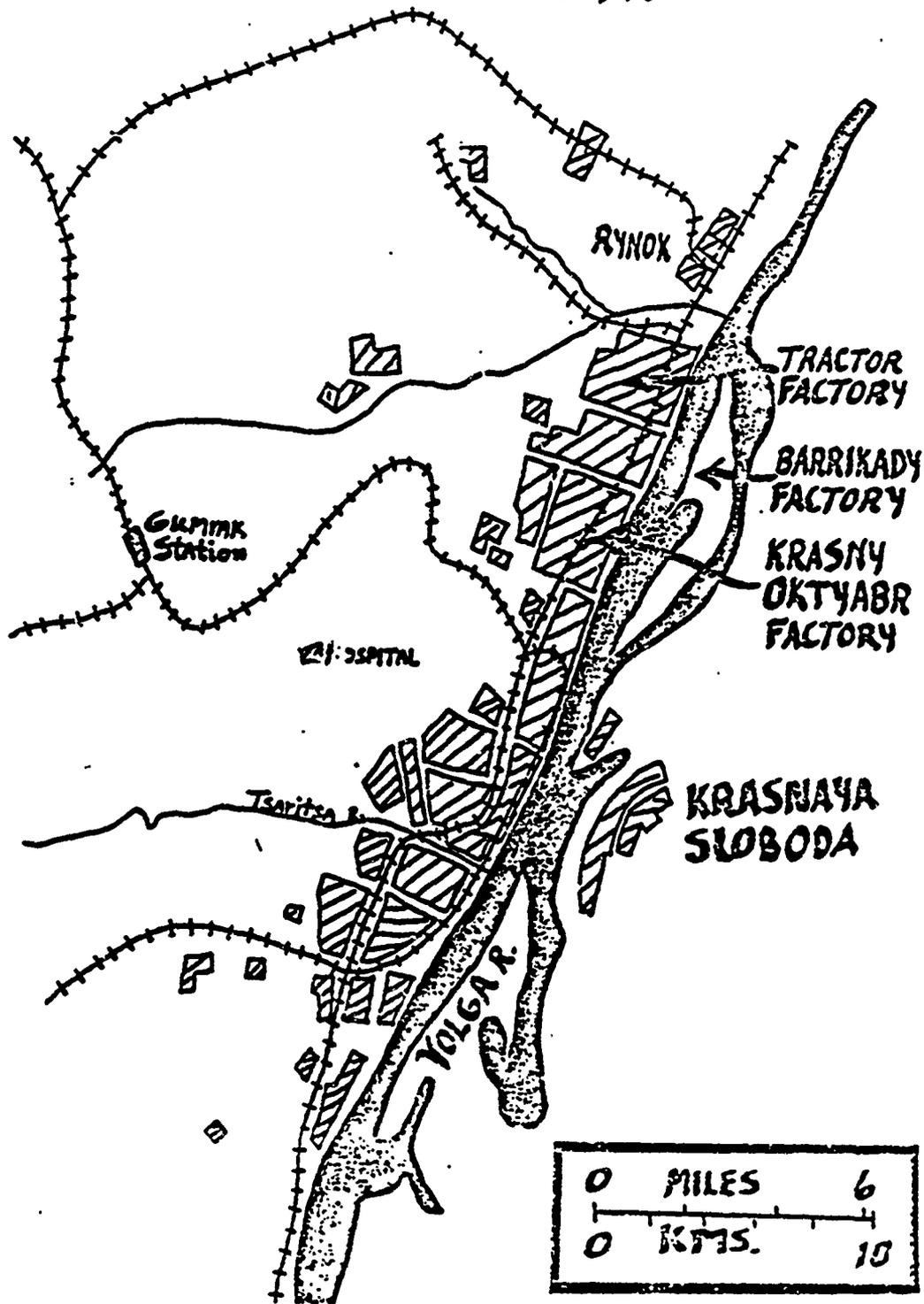
worthy of careful analysis and study by the U.S. Army today.

This intent of this chapter is not to recount the battle for Stalingrad in detail, but rather to synthesize the significant aspects of urban warfare provided by some of the works which chronicle this epic struggle. In order to accomplish this, the majority of this chapter is dedicated to a discussion of those aspects of the battle deemed significant to the urban battlefield and which relate directly or indirectly to answering the questions in Chapter I. To give the reader information necessary for an understanding of these, a narrative providing a description of the city, the reasons leading to and a brief account of the battle and the outcome is provided.

Stalingrad - The City

Stalingrad is located on a plateau along the west bank of the Volga River at a point where the Volga and Don Rivers are separated by a strip of land less than forty miles wide. (see map 1) The city, linear in design, stretched some thirty-five miles from north to south in 1942. It did not radiate out from a center hub like most cities nor had it extended across the Volga. The fact that Stalingrad was an industrial city with factories which required large amounts of water provided the primary reason for extending in a linear fashion beside the Volga. Worker settlements were built adjacent to the factories. Because of the seven ravines which extended from the west to the

MAP 1
STALINGRAD 1942



Volga, the city was actually divided into six or seven different settlements. The total population in 1942 was approximately half a million.⁹ Although industries could be found throughout the city, most were in the northern half.

To the west of the city was the steppe region which rose gently to the Don River. The most prominent piece of terrain in the city was Mamaev Hill, which, at a height of 336 feet, allowed an observer to see most of the city and crossing sites over the Volga. The terrain to the east of the Volga was absolutely flat and open to observation as far as the eye could see.¹⁰

The following, from William Craig's Enemy at the Gates, provides a colorful description of the Stalingrad industrial complex as it was prior to the battle.

To the north was the awesome network of industrial plants that had made Stalingrad a symbol of progress within the Communist system. Almost at the base of Mamaev were the yellow brick walls of the Lazur Chemical Plant. They covered most of a city block and were girdled by a rail loop resembling a tennis racket. From the Lazur, trains puffed north past an oil-tank farm on the bluff beside the river, then on to the Red October Plant with its maze of foundries and calibration shops, from which poured small arms and metal parts. Further north, the trains passed the chimneys and towering concrete ramparts of the Barrikady Gun Factory, whose outbuildings ran almost a quarter mile to the Volga bank. Beyond the Barrikady loomed the pride of Russian industry, the Dzerzhizinsky Tractor Works. Once the assembly point for thousands of farm machines, since the war it was one of the principal producers of T-34 tanks for the Red Army.

Built in eleven months it ran more than a mile along the main north-south road. Its

internal network of railroad tracks measured almost ten miles;

On the other side of the main road, paralleling the eleven miles of industrial park ... More than three hundred dwellings, some six-stories high, housed thousands of workers. Clustered around carefully manicured communal parks, they were only a few minutes' walk from summer theaters, the cinema, a circus, soccer fields, their own stores and schools. the model community that Stalin had fostered was a showpiece of the Soviet system.¹¹

Reasons for the Battle

Allegedly, Hitler's original reason for the attack and capture of Stalingrad was to interdict the wheat, oil and mineral shipments flowing north on the Volga. The following quotation by Hans Adolf Jacobsen substantiates this supposition, but also causes the reader to question whether this was Hitler's only reason.

.... Hitler said, 'I wanted to reach the Volga at one specific point, at one specific city. It was happenstance that the city bore Stalin's name. But I did not press forward there for that reason -- the city could have had an entirely different name. I went there because it was an extremely important point. Thirty million tons of freight including almost nine million tons of oil were transhipped in the city. Wheat from the Ukraine and Kuban was gathered here for shipment to the north. Manganese ore was delivered there. There was a gigantic freight center. It was this that I wanted to seize....'¹²

Although Hitler stated his reason for the capture of Stalingrad, there have been questions concerning the wisdom of this decision when the possibility of interdicting the Volga by smaller forces outside the city might have been less costly. ¹³ Some have suggested that although the original reason for capture of the city was economic, it

soon changed. Ronald Seth states in Stalingrad: Point of Return,

For Hitler it (Stalingrad) was to become the object of a Fuhrer-prestige obsession; for Stalin it was to become the symbol of the ultimate Russian defiance.¹⁴

For the Russians, the decision to defend Stalingrad was one of necessity. The third largest industrial city in the nation had to be defended. The Red Army had already abandoned critical industrial and agricultural areas to the Germans and to abandon Stalingrad would not only further weaken the country, but create a threatening situation in the south. From Stalingrad, the German Army could turn north toward Moscow having cut the "Volga lifeline." It was under these circumstances that Stalin issued his now famous Order No. 227, parts of which read:

Every commander, every Red Army soldier and political worker must understand that our resources are not limitless, that the territory of the Soviet State is not a desert, and that the people are workers, peasants, intellectuals, they are our fathers, mothers, wives, brothers, children. After the loss of the Ukraine, Byelorussia, the Baltic States, the Don Basin and other regions, we are left with much less territory - which means that we are left with much less bread, metal, mills and factories. We have lost more than 70 million of our population, more than 50 million kilograms of grain a year, and more than 10 million tons of metal a year. We now have no superiority over the Germans either in human reserves or in grain stocks. To retreat further will mean the ruin of ourselves, and at the same time, ruin of our Motherland.

It follows from this that it is time to stop retreating.¹⁵

As the actual battle for the city of Stalingrad materialized, Stalin and his two chief military advisors,

Georgi Zhukov and Alexander Vasilevsky, realized the desperate situation in which the Red Army found itself. The city had virtually been destroyed, but the German 6th Army was tied to Stalingrad by Hitler's apparent obsession to take and hold it. It was this situation which caused Zhukov and Vasilevsky to recommend an alternate solution to the Stalingrad dilemma. Their solution was a two-pronged counteroffensive encircling German forces inside the Don salient and the city. The purpose of defending Stalingrad had changed - it was now to hold German forces in prolonged and exhausting battle while they were encircled and eventually destroyed.

The Battle

Hitler's original plan for the campaign in southern Russia called for Army Group South to drive east to the Volga and then south to the Caucasus oil fields. Army Group South was organized in two sub-groups - Army Group A, consisting of the 17th and 1st Panzer Armies, and Army Group B, consisting of the 6th, 2nd and 4th Panzer Armies. These two groups were to be followed by two Rumanian, one Italian and one Hungarian army. ¹⁶ Convinced that the Red Army was finished and that it was merely a matter of time until its total collapse, Hitler changed the plan and issued Directive No. 45 on the 23rd of July, 1942. In Directive No. 45, the following tasks were assigned:

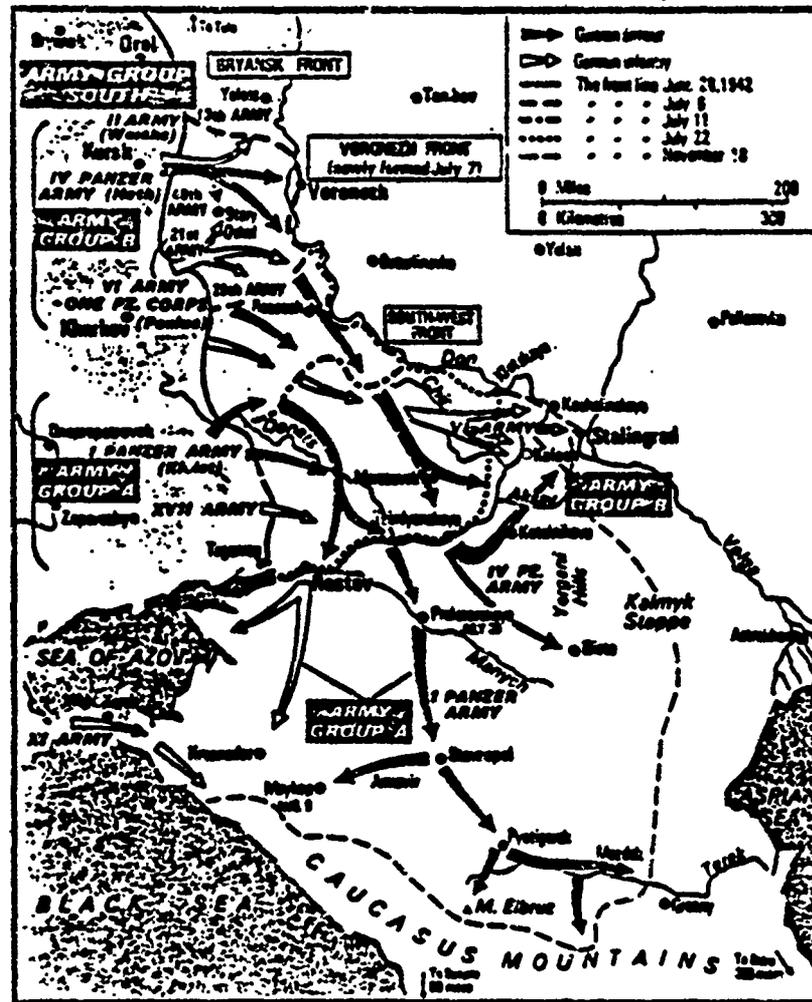
Army Group A to advance southward across the Don, with the aim of taking possession of the Caucasus with its oil resources;
Army Group B to attack Stalingrad, smash the enemy concentration there, take the town and cut off the isthmus between the Don and the Volga.17

(see Map 2) With this directive, Hitler and the German High Command had decided to accomplish both aims simultaneously, a decision which ultimately proved disastrous. Acting in accordance with the tasks assigned by Directive No. 45, Army Group A turned south toward the Caucasus oil fields and Army Group B southeast toward the Don River salient and Stalingrad.

For the attack to the east, Army Group B was organized into three sub-groups. The Northern Group, with four infantry, two motorized and two Panzer divisions, was to attack from the vicinity of Golovski and Perelazovski towards Verkhne-Buzinovka to capture the bridge over the Don at Kalach. The Central Group, consisting of two infantry and one Panzer divisions, also had the mission of moving to Kalach, but was to originate its attack from the vicinity of Oblivskaya and Verkhne-Aksenovski.

While the Northern and Central Groups acted as the "anvil," the 6th Army, under the command of Col. General Friedrich Paulus, was tasked with moving on the trapped Russian forces from the west. With these forces destroyed, the Southern Army Group, consisting of four infantry, one Panzer and one motorized division, was to cross the Don at Tsimlyans' and move on Stalingrad from the south. The

MAP 2



Reprinted from Stalingrad: The Turning Point by Geoffrey Jukes (New York: Ballantine Books Inc., 1958), pg.30.

Northern and Central Groups would also move on Stalingrad from their positions in the west and northwest after destruction of enemy forces in the Don River salient, but the actual task of capturing Stalingrad fell to the German 6th Army.¹⁸ Having designating the attack south to the Caucasus oil fields as the schwerpunkt, Hitler ordered the 4th Panzer Army attached to Army Group A.¹⁹

Red Army forces facing this awesome German war machine consisted of the 1st Guards, 62nd and 64th Armies, and the 1st and 4th Tank Armies. Between them, the 1st and 4th Tank Armies possessed a total of two hundred and forty tanks and were organized less than two weeks prior to the offensive.²⁰

In terms of force ratios, German forces held a distinct advantage, outnumbering the Red Army defenders approximately 2:1 in personnel, 2:1 in tanks and artillery and 3:1 in aircraft. Because the aircraft which the Red Air Force possessed were, for the most part, obsolete, German forces held a considerably greater advantage than the 3:1 force ratio indicates, and as a result were able to achieve almost total air superiority over the battlefield during the initial stages of the battle.²¹

The battle can be divided into three stages - the battle on the approaches to the city, the battle for the city, and the Russian counter-offensive. The battle on the approaches to Stalingrad is generally classified as the events which occurred between 17 July and 13 September 1942.

It was during this time that the Russian 62nd and 64th Armies defended from the area west of the Don River back to the outskirts of Stalingrad.

The 62nd Army was located in the north and had actual responsibility for the city of Stalingrad. On the 23rd of August the Luftwaffe launched a devastating air attack on the city and ground forces broke through to the Volga north of the city, isolating the 62nd from units on its right flank. The air attack by more than 600 planes, flying an estimated 2,000 sorties, turned the city into a burning heap of rubble, killing more than 40,000 people.²² Power, water and transportation facilities within the city were all destroyed by the air attack.

The 64th Army was deployed on the 62nd's southern flank. On the 3rd of September elements of the 6th Army penetrated the area between the two Russian forces and reached the Volga south of the city. The 62nd now faced German forces on three sides and a mile-wide river to its rear.

During this stage of the battle, the time bought by the 62nd and 64th Armies allowed the citizens of Stalingrad to construct some 300 miles of defensive works around and within the city.²³

The second stage of the battle is generally considered as that period of time between September 13 and November 18 during which the now historic fight between the 62nd Red Army and the German 6th Army occurred. It was also

during this time that command of the 62nd Army was given to Lieutenant-General Vasili Chuikov.

Although the 6th Army was able to take nine tenths of the city and succeeded in driving the 62nd into a small area in the center of the city, it was never able to capture the entire city. Failure to capture the west bank of the river in the Russian sector of the city allowed the 62nd to resupply at night. As the struggle between the two forces continued, the 6th became continually weaker due to depletion of its forces and the failure of the logistical system to effectively support two army groups on diverging axes. For the 62nd Red Army, the reverse was true. Although it encountered extreme difficulty and great frustration in resupplying across the Volga, it was able to sustain itself.

German forces saw the speed and shock action which characterized "Blitzkrieg," and had allowed them to march over 1500 miles into the heartland of Russia, replaced by close combat in which gains were measured in feet. German General Hans Dorr described the situation within the city:

The time for big operations was over.... As a measure of length, a metre now replaced a kilometre. Fierce actions had to be fought for every house, workshop, water-tower, railway track, wall or cellar, and even for every heap of rubble.... The no-man's land between us and the Russians was reduced to an absolute minimum, and, despite the intensive activity of our bombers and our artillery, there was no means of widening this "close combat" gap. The Russians were better than the Germans at camouflage, and more experienced in barricade fighting for separate houses; their defense lines

24

were very strong.

The final phase of the battle consisted of operations conducted between 19 November 1942 and 2 February 1943. While the 62nd Army continued to engage the German 6th Army in the city, the Russian General Staff prepared plans for the two-pronged counter-offensive which would surround the embattled German forces. On 19 November, the attack of the northern pincer was launched and one day later the southern arm began to move.

The Russians had concentrated 11 armies, a number of separate tank and cavalry units, 13,500 guns, 1,100 anti-aircraft guns, 115 detachments of rocket artillery, over 900 tanks and approximately 1,115 aircraft north and south in preparation for the counter-offensive.²⁵ Under the direction of Marshall Zhukov and Colonel General Vasilevsky, the counter-offensive pincers were closed in just four days,²⁶ surrounding more than 300,000 German and axis troops.

Although German forces in the south attempted to break through and relieve the encircled forces, they were unable to do so. Part of the failure for this operation must be attributed to Hitler's refusal to permit the encircled 6th Army to attempt a break-out and link-up with the southern army group and his order to Paulus to hold Stalingrad at all costs.²⁷ On the 2nd of February, 1943, a decimated German 6th Army surrendered, astounding their Russian captors who believed they had only trapped 85 to 90,000 troops in the trap.²⁸

Significance of the Battle

The significance of the Battle for Stalingrad can best be summarized by Hanson W. Baldwin's introduction to Marshall Chuikov's book, The Battle for Stalingrad.

Stalingrad and the campaign of which it was a part was a decisive battle of World War II. It was the high-water mark of German conquest; after January 31, 1943, when Field-Marshal Friedrich von Paulus surrendered what was left of the German 6th Army, the paths of glory for Hitler and his legions led only to the grave..... The Battle of Stalingrad was even more important politically and psychologically than it was militarily. An entire German Army was destroyed for the first time in World War II; of some 334,000 men, only about 93,000 survived to surrender (plus some Rumanians and 30,000 to 40,000 German non-combatants and Russian "auxiliaries" and civilians). The shock upon the German mind was terrific; the myth of invincibility had been forever broken.²⁹

In addition to the immediate significance of Stalingrad in 1943, it holds significance today for those involved in the operational art of war. The defense of Stalingrad and the eventually counter-offensive provide a perfect example of a tactical city defensive used as part of an operational offensive.

Finally, it was significant because of the blow it struck to the German war effort. When viewed from the military perspective, the material losses to the German Army between August 1942 and February 1943 were staggering. The equipment loss at Stalingrad was of sufficient quantity to equip approximately seventy-five divisions or one-quarter of the German Army.³⁰

II. SIGNIFICANT ASPECTS OF URBAN WARFARE DEMONSTRATED IN
THE BATTLE FOR STALINGRAD

³
C - Command, Control and Communications

The command and control of large forces on the battlefield is difficult and challenging under the best of circumstances. It is compounded dramatically in the urban environment by large buildings and framed structures which block radio signals, by bombardment and rubble which cause telephone wires to be cut and by the isolation of individuals, units and headquarters which inhibit the use of messengers. Although the difficulty of communication in the urban battle is increased, effective communication is more critical, as discovered by the defenders of Stalingrad, and illustrated by the following.

.... communications were of especial importance, because on their clear, uninterrupted operation depended the fate of the city's defense. Whereas in field conditions reports on military operations can take an hour or more to go from the forward positions through divisional H.Q. to Army H.Q.; in the conditions of city battle this is inadmissible. For instance, if an Army H.Q. duty officer receives a report during the night from a division operating with broad room for manoeuvre, he can think about whether to wake the commander or give him the report in the morning, but in our case such a delay could have meant disaster In field conditions, when in an hour's fighting or a night's fighting the enemy might advance a mile or two, he only makes a dent in the defenses. In the city, however, where in places the depth of our defense positions was measured in hundreds of yards, such an enemy advance would really mean disaster. Only clear and continuous communication by radio and telephone, and properly thought-out signaling with lights, could ensure effective administration of the Army.³¹

In Stalingrad, division and army command posts were located between 300 and 1,000 yards from the forward line of contact. By situating their command posts close to the fight, commanders were able to personally sense changes in the battle and take appropriate action in a timely manner. ³²

Wire and radio were the primary means of communication between commands in the city and with units on the east side of the Volga. In regard to the latter, a special problem was encountered in providing communication support across the river. Red Army signal units did not possess waterproof telephone line and were faced with the replacement of the cross-Volga line approximately every four days due to the deterioration of the standard telephone cable used under the water. On the west side of the river, although they shared cable drops with other divisions, all divisions were provided multiple lines by different routes, thus increasing the probability of maintaining continuous communications. ³³

Losses in signal units supporting the Stalingrad defense were high. Because the city was constantly under bombardment, telephone cables were frequently broken or burnt and had to be replaced - a job which often resulted in death. ³⁴

The difficulties encountered in the command and control of units in the battle for Stalingrad caused General Chuikov, the Russian 62nd Army commander, to adopt decentralized command and control methods which allowed more flexibility at lower levels. The following provides his

description and solution to the dilemma of command and control of units in the city.

Fighting in a city is much more involved than fighting in the field. Here the "big chiefs" have practically no influence on the course of operations, since the initiative passes into the hands of the officers commanding units and sub-units, and into those of the soldiers themselves.³⁵

You cannot be a commander if you do not believe in the soldier's abilities.... we decided to change our tactics. We were going to break down the formations that existed in the Army: alongside platoons and sections in our companies and battalions appeared new tactical units - small storm groups.³⁶

A detailed discussion of the "storm group" is provided in a later section.

An additional problem of command and control which faced the 62nd Army command was that of coordinating the introduction of replacement units brought across the Volga. Because these units came in as reinforcements/replacements for a force which was under constant bombardment and attack, it was difficult to coordinate any effective counter-blows. As a result, these units were normally thrown into the battle immediately to take the place of or reinforce units decimated by extended attack and bombardment.³⁷

Camouflage

A distinct advantage possessed by the Russian soldier over his German counterpart was his mastery of camouflage in the city. The Russian soldier used the rubble created by the aerial and ground bombardment of the city to his

advantage. As a German observer of the battle stated, "The Russians were better than the Germans at camouflage."³⁸

On City Movement

Except at night or under the cover of artillery or air attack, movement during daylight hours in the streets of Stalingrad was almost suicidal due to the number of snipers employed by both the Germans and the Russians and the ease with which they were able to hide in the rubble and burned-out buildings. In the words of the 62nd Army commander, General Chuikov, "Whoever stuck his head out or ran across the street was inevitably shot by a sniper or tommygunner."³⁹

Discipline

Discipline in the Red Army had deteriorated to such a point that many believed that the Germans could no longer be stopped. Thousands of refugees had fled through Stalingrad in the wake of the German advance and many in the city were preparing to do the same. As a result of the panic which went before the German invaders, Stalin issued Order No. 227, parts of which have been previously quoted. The following is also from Order No. 227 and is indicative of the state of discipline in the Soviet Army at the time of the attack.

.... Not another step back!
We must defend every inch of Soviet territory to the last drop of our blood;....
Can we withstand attacks and then throw the enemy back toward the west? Yes, we can,

What is it then that we lack?
We lack order and discipline in the companies and in the battalions, we lack it in the regiments, the divisions, the tank units, and in the air force squadrons. We must establish iron discipline and the strictest order in our Army if we want to save the situation and defend our Motherland.⁴⁰

The order was also to "suppress with an iron hand propaganda to the effect that we could and should retreat even further east."⁴¹ It also provided for penal battalions. Commanders who withdrew their units without permission or direction to do so suffered severe consequences.

As a result of Order No. 227, the "Green Hats" of the NKVD set-up roadblocks and checked the papers of anyone attempting to go east. Individuals suspected of desertion were shot without question and thousands died as a result.⁴²

In the newly designated 64th Army the desertion rate reached epidemic proportions and the commander resorted to draconian measures. To stem desertions, he lined the division up in regiments, announced that they were as much cowards as those who had already deserted and proceeded to shoot every tenth man until his revolver was empty.⁴³

During the battle, troops crossing the Volga as replacements were accompanied by politrook or political agitators. Their job was not only to provide political indoctrination to replacements, but to shoot them if they attempted to jump over the side of the boat to avoid their patriotic duty.⁴⁴

Although the methods used to create and enforce discipline within the Red Army seem harsh by western standards, they appear to have been effective in the culture in which they were used.

Fire Support

At Stalingrad, artillery indirect fire support for the 62nd Army was provided by units located on the eastern side of the Volga. A variety of guns and calibers were used, however, the "Katyusha" mortar, or rocket launcher, proved to be one of the most valuable indirect fire weapons. Although probably luck, a battery of the mortars is reported to have wiped out an entire German battalion.⁴⁵ Because the artillery was located on the far shore of the Volga, resupply lines were secure and support was almost constantly available, a luxury that would probably not have existed had the natural barrier of the Volga prevented interdiction. The following emphasizes the importance of artillery and Katyusha support.

We could certainly not have held Stalingrad had we not been supported by artillery and Katyushas on the other bank all the time. I can hardly describe the soldier's love for them.⁴⁶

Artillery fire support in the direct fire role was provided by guns as large as 203mm. These were normally assigned as part of assault forces in the latter stages of the battle and were used to reduce German strongpoints. Smaller artillery pieces and guns assigned to the regiments as anti-tank weapons were used in the direct fire mode to

reduce enemy strongpoints as well. High explosive shells proved to be the most effective against personnel in buildings.⁴⁷

Artillery observation posts were integrated into forward units down to and including storm group level. This allowed for responsive fire support as enemy targets were detected. Additionally, one regiment of the "Katyushas" was kept in reserve at all times and was used to block enemy attacks as they were detected.⁴⁸

Defensive positions were placed so as to funnel enemy armor forces into pre-registered kill zones along the approach roads into the city. Supporting artillery and mortars proved quite effective in separating armor and infantry support forces.⁴⁹

Aerial fire support for the Red Army was almost non-existent in the early stages of the battle as the Luftwaffe dominated the air and decimated the Red Air Force's older and inferior planes. In the latter stages of the conflict, as Soviet planes were improved and produced in greater quantities, the Red Air Force began to provide aerial fire support and were able to achieve air superiority as the Luftwaffe was forced to fly resupply missions in an attempt to sustain the encircled 6th Army. Most of the credit for interdiction of the German air resupply effort was directly attributable to the constant operation of Soviet pursuit planes.⁵⁰

Fortifications

When it became evident that the Germans intended to attack the city, a great fortification effort was undertaken by the army and the civilian population. An antitank ditch fifteen feet deep and twelve feet wide was constructed from the Tractor Factory in the north and extended for approximately twenty-five miles to the south. Inside this main defensive belt, other trenches were dug to complement the terrain. Streets were barricaded at their western ends and successively in depth. The intent of these multiple barriers was to inhibit enemy advance and to simultaneously provide points upon which defenders could fall back if necessary.⁵¹

In addition to antitank ditches and barricades, tanks were positioned in critical locations and literally dug into the ground with only their turrets exposed. Many were covered with concrete to reinforce their capacity to withstand hits.⁵² One-hundred and seventy turrets from the Tractor Factory were moved by truck to critical locations and dug-in. These were manned by two men since the turret⁵³ contained both a machinegun and cannon.

The German air attack of 23 August, in addition to killing 40,000 of the population and burning most of the city, created considerable rubble. This rubble contributed to the strength of existing fortifications as it added to the difficulty of intracity movement for the attacker and provided concealed locations from which Russian antitank

guns and snipers could fire without being observed. It also allowed defenders to occupy positions inside burned buildings without fear of fire from future enemy attacks.

Intelligence and Deception

Intelligence on the urban battlefield is as important as it is on the open battlefield with miles of maneuver room. In Stalingrad, intelligence was gathered by both sides using elements of the population left in the city. The 62nd Army used a young man, a cobbler by profession, who while repairing the shoes of German officers, gathered information concerning unit strengths and areas of employment. After a day of repairing German boots, his nights were spent providing information to Red intelligence officers.⁵⁴

German intelligence gatherers also used members of the civilian populace to obtain information on Soviet forces. They were not as successful at recruiting these individuals as the Red Army. However, there is one recorded occasion where a German soldier, masquerading as an old woman, provided radio reports of Red artillery locations on the far shore of the Volga. A Red soldier washing in the river one morning ended this lucrative intelligence asset when he overheard the "old woman" talking into the waterbucket which held her radio.⁵⁵

In the area of deception, German troops, dressed as Russian soldiers, once attempted to infiltrate a Red Army

defensive sector that had delayed their progress. The masquerade was discovered and the majority of the Germans killed.⁵⁶

Leadership

In any fight, the resolve of the commander and the impression he imparts to his subordinates is important - in the city fight it is critical. In Stalingrad, the first commander of the 62nd Army, General Lopatin, had been under constant pressure as the 6th German Army advanced and units of the 62nd fell before it. Apparently feeling that he could not hold the city, he ordered withdrawal without the permission of the front commander, General Yeremenko. Perceiving that the 62nd was on the verge of total collapse due to the attitude of its commander and his lack of resolve, Yeremenko relieved Lopatin and replaced him with a man he felt would defend the city and provide the leadership necessary to rally the demoralized unit. The following comment by Lopatin's replacement, General Chuikov, describes the command atmosphere and Lopatin's mental state.

On September 14 I met the former commander of the 62nd Army [Lopatin]; I was struck by his mood of despair, by his feeling that it was impossible and pointless to fight for Stalingrad.... As politely as possible, I suggested he report to the War Council [on the other side of the Volga] - in other words leave Stalingrad altogether. This depressed mood of the former commander was contagious.... Three of my aides, the men in charge of tanks, artillery and the engineering troops, all claiming to be ill, hastened to go beyond the Volga.... All this was beginning to affect the ordinary troops.⁵⁷

Chuikev was known as a resourceful, inspiring and tenacious commander. His selection as commander of the 62nd was based on the decision of Yeremenko, the front commander and the Political Commissar, Nikita Khrushchev. Based on his performance in Stalingrad and later at Berlin, their decision was apparently a sound one.

Logistics

During the battle in the city resupply for units of the 62nd Army was provided by logistics units located on the east side of the Volga. The arrangement had both advantages and disadvantages. It was advantageous in that it provided a relatively secure line of communication (LOC) to the river, and although the far bank came under attack from enemy air, it also provided fairly secure storage. Logistics support for the artillery units supporting the battle from the east bank was excellent due to the secure LOC. There were however disadvantages to the situation and those disadvantages were apparent when supplies had to be moved forward, across the river, to the 62nd.

All resupply of the 62nd Army had to cross the Volga by one of three modes - ferry, footbridge or aerial delivery. In the early stages of the battle, ferries were used extensively to deliver troops and supplies to the west bank, however, as the battle progressed, many of these were disabled or sunk as a result of air raids and artillery. Daytime crossings by any method became almost impossible

after German attacks penetrated to the Volga in the northern part of the city. Night crossings were primarily used afterwards and even then were in jeopardy.

Aerial delivery of supplies was almost an impossibility. During the period in which the Volga had drifting ice and ferrying was limited to icebreakers and armored ferries, some aerial resupply did occur. Planes dropped supplies on the narrow strip of land located adjacent to the river below the city. The period during which ice was beginning to form in the river and the time it froze solid were pressing times for the defenders as resupply was almost impossible.

Three footbridges were also built to assist in the resupply and reinforcement effort. These bridges were built using empty barrels and were constantly in need of repair due to artillery and air attacks. All supplies had to be carried across these bridges, and needless to say it was an experience for anyone caught on a footbridge in the middle of an artillery attack. Medical evacuation was also carried out over the footbridges as well as the ferries.⁵⁸

Getting supplies to the west bank was only the beginning of the resupply problem. Once supplies and equipment reached the city, they had to be hand-carried to units since vehicular transport in the city was not available. This often necessitated soldiers physically carrying supplies forward at night and then fighting all day. In some areas sewers were used as access routes to

resupply engaged units.

In Stalingrad, the municipal water system was under constant attack and had to be repaired continuously by squads of plumbers. Anticipating this problem, all available cisterns were ordered filled before battle. High temperatures encountered in the early stages of the battles and the vast amounts of water consumed, coupled with the eventual loss of the municipal water system made this a critical logistical decision.

In the early stages of the battle, the Tractor Factory continued to produce and deliver tanks to the 62nd Army. As the battle progressed and tanks were damaged, workers at the Tractor Factory were able to repair many and return them to the fight. In October the factory fell into German hands and this was no longer possible.

As summer turned to winter, Russian troops were provided with the winter clothing needed to cope with the severe Russian winter. German troops did not receive such an issue and as a result many literally froze to death, not to mention the degradation of overall combat efficiency which took place as a result.

In summary, the logistics effort needed to sustain the fight in Stalingrad was tremendous and incredibly difficult considering the circumstances. Fortunately indirect fire support artillery, one of the leading "consumers," was located in an area where a secure LOC provided the vast quantities of ammunition necessary for

sustained support. Food, medical supplies, mortar and some artillery ammunition, mines, demolition material and major pieces of equipment required in the city, all had to be hand carried to the point of consumption or use. To carry out these tasks day after day for over six months was an exhausting process which detracted from the soldier's fighting capability. Fortunately for the 62nd Army, Russian industrial output and seemingly limitless manpower allowed these massive amounts of supplies and equipment to be provided.

Medical Care and Evacuation

The evacuation and treatment of wounded was a process which required considerable manpower and dedication of mobility resources. Although medical personnel were assigned to units, wounded were normally transported to field hospitals by members of their own unit. Surgical facilities were set-up on the west bank of the Volga to perform lifesaving surgery and to prepare the wounded for evacuation across the river. Although the Volga presented a formidable obstacle to the evacuation of wounded, it also provided a secure area on the far shore for further treatment and evacuation if necessary.

Prior to winter and the freezing of the Volga, the craft of the Volga River Fleet provided evacuation of wounded as well as resupply for the besieged forces of the 62nd Army. Each vessel carried medical personnel who loaded

and cared for the wounded during transit. Because the Germans were able to observe most of the Volga crossing sites, artillery took a severe toll on evacuation efforts. Even under these adverse circumstances, many field hospital units were able to evacuate in excess of six hundred wounded per day.⁶⁰

Additional evacuation problems were encountered when large chunks of ice floated down the river prior to the winter freeze. During this time ice breakers were used to evacuate the wounded, however, the number of wounded far exceeded the evacuation capability. After the Volga froze, wounded were evacuated by vehicles across the ice.

Medical facilities were set up in basements, cellars, dug-outs and even sewer pipes to provide care and protection for the wounded. Although marked with red crosses, medical care facilities were bombed continuously by the Luftwaffe.

The demand for medical supplies and equipment, like mines, demolitions and artillery ammunition, was tremendous during the battle. Field surgical units were in constant need of medical supplies. Evacuation vessels and vehicles carried blankets and used hot-water bottles which were chemically heated to provide warmth for the wounded.⁶¹

In addition to medical treatment for wounds, there was also the need for medical care of casualties from improper sanitation. Epidemiological teams were used extensively to curtail these non-battle casualties. Millions of lice, the result of the unsanitary conditions,

presented problems for soldiers on both sides and were a primary source of discomfort for the average soldier.

Mines and Booby Traps

In the city, mines and booby traps were responsible for almost as many fatalities as small arms fire and grenades.⁶² The original defense of the city called for minefields, both anti-tank and personnel, in depth throughout the city. As the battle progressed, both sides placed mines and booby traps in craters and rubble. This caused considerable psychological consternation to the soldier attempting to move from concealed position to concealed position and often resulted in the loss of life.

Of the thousands of mines used in Stalingrad, many were fabricated from wooden boxes filled with TNT and armed by a simple lever-type firing device. Others utilized tripwires strung across roads or building entrances. 10,000 anti-tank and anti-personnel mines were reportedly laid in less than two months in one divisional sector.⁶³ Although the mining effort slowed German progress and resulted in numerous casualties, it also caused Russian forces to experience difficulty in mounting counter-attacks and night actions.

In addition to anti-tank and personnel mines, Russian sappers used other mining techniques. In several instances, tunnels were dug underneath enemy strongpoints and filled with explosives, which when detonated, usually resulted in

the reduction of the enemy's position. Although this technique required a considerable amount of time, it also produced substantial dividends on several occasions and in one instance resulted in the death of over one hundred and ⁶⁴ fifty Germans.

Population Control and Assistance

In anticipation of the attack on the city, great numbers of the population were used to dig the massive tank ditches described previously under the section on fortifications. Prior to the bombing raid of 23 August, approximately 100,000 of the population had been evacuated from the city. These were primarily the elderly, young children and their mothers. Two months prior to the German attack, all males in the city between the ages of fifteen and fifty had been registered for military service and organized into units. Many of these manned defensive positions alongside members of the 62nd Army.

After the bombing attack of 23 August, in which 40,000 of the population were killed, the city was left in virtual ruin. As a result of this, the City Defense Committee decided to evacuate the city. The History of the Great Patriotic War of the Soviet Union indicates that approximately 300,000 inhabitants were evacuated across the ⁶⁵ Volga as a result of this decision. Other accounts indicate that Stalin prohibited the evacuation of the city because he felt that soldiers would be more psychologically

inclined to fight for a "live" city.⁶⁶

Although most of the population were eventually evacuated, many stayed, or were forced to stay, to help in the defense of the city. Of those who stayed, the workers in the Tractor Factory contributed, perhaps, the most towards the defense of the city. These workers repaired tanks damaged in the battle and continued to produce tanks and deliver them to the front lines until the factory was destroyed.

In addition to the factory workers, Komsomol members also made significant contributions to the defensive effort. Eight hundred girls of the organization volunteered to serve as communicators and medical technicians, while another two hundred served in reconnaissance squads and provided detailed information on the city and assisted in numerous special missions.⁶⁷

The evacuation of the city was carried out under the direction of both the military command and the City Defense Committee. Party Regional Committees and Komsomol detachments were used to organize the local populace to effect the evacuation. Actual transport across the Volga was provided by the Volga Flotilla and other ships of the river fleet.⁶⁸

Psychological Aspects of the Battle

There were a number of psychological elements present in the battle. Three illustrations of such aspects have

been previously mentioned. These were: the use of draconian discipline in dealing with desertion; Stalin's directive that Stalingrad should not be evacuated because soldiers were more likely to fight for a "live" city than an empty one; and the use of political agitators on vessels carrying reinforcements across the Volga. These actions were aimed at convincing the soldier that he was to fight to "the last drop of blood."

In the area of political indoctrination, a number of methods were used by the communist party in Stalingrad. Each unit had a political officer equal in rank to the commander. The political officer provided party indoctrination of unit soldiers and officers, and by his presence insured that the commander acted in the best interests of the party, although not necessarily in the best interests of the unit.

In addition to the verbal propaganda expounded by political officers and other party members, visual propaganda was also used. Pravda, the party newspaper, was used to inform troops of the atrocities committed by the "Hitlerites." It printed posters and provided large banners which were hung at crossing sites along the river where troops entering the city would see them. Such posters showed atrocities committed by Germans and courageous acts of defense performed by Red Army soldiers. Pravda also printed sheets on "How to fight in a city," which were handed out by the political agitators to new troops as they

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entered the city.

There were also the psychological strains of battle in the city. Numerous snipers on both sides and the proliferation of mines and booby traps caused the soldier to constantly wonder when or where he might be shot or unfortunate a concealed mine. These worries were accentuated by constant shelling which prevented sleep.

Problems of Extended Warfare.

Extended city warfare caused both psychological and physiological problems. Most of the psychological problems were mentioned above, however it should be noted that many troops and commanders suffered serious depression as a result of the environment in which they found themselves day after day. Although these were serious problems, they were almost insignificant in comparison to the physiological problems.

In Stalingrad, troops existed in a dirty, dusty environment in which water was scarce and proper sanitation almost impossible. Since no sewage facilities existed, all bodily functions were carried out without proper disposal. Additionally, the dead were left lying in streets and buildings where they rotted in the summer heat and were feasted on by rats. The results were inevitable - millions of lice infected both combatants and fleas and rats spread disease. Tremendous losses were suffered by both sides as a result of insufficient sanitation measures.

In the winter months, the battle against cold became almost as important as the battle against the enemy. Russian soldiers were much better prepared for the winter temperatures than their German counterparts as they were issued winter uniforms, which a great part of the German 6th Army were not. As a result, tremendous numbers of Germans suffered from cold weather injuries.

Sappers

Sappers, or combat engineers, played a crucial role in the battle for Stalingrad. They emplaced thousands of mines and booby traps and were instrumental in reducing numerous enemy strongpoints. They were also responsible for constructing the floating bridges and ferry sites across the Volga. They not only performed these functions, but also fought as infantry. In this regard, sappers were integrated into the storm group, and were indispensable in the reduction of enemy strongpoints. This function is discussed in more detail in the section on task organization.

In addition to their role in the storm group, entire sapper units were kept in reserve to react to enemy attacks. These units were called upon to lay hasty minefields to prevent enemy penetrations in areas where intelligence indicated attacks were to take place. In the final months of the battle, sappers cleared both friendly and enemy minefields as Red Army units pushed the enemy back from the

Volga.

In the Red Army, the sapper was not only an integral member of the combined arms team, but a courageous and respected member as well.

Snipers

Neither we nor the Germans could act openly. Whoever stuck his head out or ran across the street was inevitably shot by a sniper...70

The above quotation by the commanding officer of the 62nd Army, General Chuikov, gives an indication of the importance of the sniper in the battle for Stalingrad and the great respect which was held for his or her ability. Sniper operations were emphasized in both the 62nd and 64th Armies. Groups of hunter-snipers were established in each regiment. Reportedly, the 62nd Army had four hundred snipers who had collectively killed over six thousand
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Germans.

Sniper operations not only had a great demoralizing effect on the enemy, but were used for propaganda purposes as well. The famous Russian sniper, Vasilij Zaytsev, was hailed as a hero of the Soviet Union and his picture and a narrative of his exploits were widely circulated to bolster morale. A number of sources recount that the German General Staff was so concerned with the effectiveness of Zaytsev that they sent the chief instructor of the German sniper school in Berlin to kill the famous Russian. Russian accounts claim that the German sniper fell prey to the very

enemy he had been sent to kill.

The need for Russian snipers was perceived to be so great that a sniper school was actually established inside the Lazur Chemical Plant to train soldiers in the art of sharpshooting. Snipers thus trained were employed singly or in pairs to observe enemy operations and take selective well aimed shots.

A potential sniper had to be a naturally good shot in order to be trained. Additionally, he or she had to be skilled in the art of camouflage, patient and self-reliant - and perhaps most importantly psychologically capable of working alone or at most with one other sniper. The sniper was equipped with a high-powered, bolt action rifle with telescopic sight and binoculars for observing enemy actions at a distance. Snipers were often able to kill several unsuspecting enemy without moving. Part of this ability was the result of the sniper's patience and part the result of the superior range and accuracy of his weapon over the standard issue rifle. In addition to shooting the unsuspecting enemy, the sniper was also expected to be a gatherer and reporter of intelligence.

Stimulant Use in Stalingrad

Although physiologically a depressant, alcohol was used extensively as a stimulant to keep the Russian soldier in Stalingrad keyed up. Vodka was the primary medium used for this purpose. One hundred grams a day was the normal

ration provided to the infantry soldier, although two hundred grams were provided before an attack. Tankers received an even larger ration. In Stalingrad, due to the conditions of the city battle, vodka rations were relaxed considerably and it was not unusual for individual soldiers to consume a quart a day. Flyers only received their ration after their missions were completed.⁷²

Other drugs were also used in Stalingrad. Generals and other high ranking officers reportedly used brandy as a non-soporific in order to stay awake for days at a time. The importance attached to alcohol is evident from the fact that vodka ranked third on the supply priority list at Stalingrad - following only arms and ammunition and ranked ahead of food and other supplies.

Tactics and Task Organization

At Stalingrad the Red Army adopted completely new tactics for city defense. The change came primarily as the result of a study of German offensive tactics by one man, General Chuikov. Chuikov noted that the German offense was based on three basic elements - air attack, tanks and infantry. The air attack was launched first, followed by tanks and infantry. Having noted that the German tanks would not launch their attack until after the Luftwaffe was over the objective, Chuikov decided that the only way to combat the effectiveness of the the three arms was to negate the effective employment of the Luftwaffe.

In order to do this, he ordered Russian units to stay within hand grenade range of the the enemy at all times. Such close combat caused the Luftwaffe to inflict as many casualties on German troops as on the enemy and eventually resulted a shifting of air attacks to Russian rear areas. The effect of shifting the air effort compelled the infantry to precede the tanks to clear out enemy resistance, a task which the German infantry was unaccustomed to.

Centers of resistance within the city were organized into strongpoints which canalized the enemy into areas where flank attacks were made with tanks, anti-tank guns and infantry. Strongpoints were organized within defensive sectors and provided all around defense and mutual support. German forces breaking through in one area often found Russians in their rear due to the placement of such points. One of the most famous strongpoints was known as "Pavlov's House." This strongpoint, manned by approximately sixty men, was held for fifty-eight days against numerous German attacks and was never captured. The defense of "Pavlov's House" utilized minefields, small arms, machineguns, mortars and anti-tank guns.

Perhaps the most critical of the tactical changes instituted by Chuikov was the prohibition of attacks by large units. Commanders were directed that no large unit attacks would be launched in the 62nd Army. In regard to this directive, he directed that counter-attacks would be conducted by small units called "storm groups." In

Chuikou's own words, the defense of Stalingrad was to be "active defense - to defend by attacking."⁷³ Storm groups were to seize enemy positions and then turn them into strongpoints from which enemy counter-attacks could be repulsed and future attacks launched.

Storm groups were composed of three sub-elements - an assault group; a consolidation group; and a reserve group. The assault group consisted of six to eight men whose job it was to actually assault the objective. They were equipped with sub-machineguns, grenades, knives and spades. The use of artillery in the attack depended on the situation. When it was used, the enemy was considered to be dazed from such an attack for a period of approximately three minutes. It was during this time that the assault group rushed the building, throwing grenades through windows or other openings and actually penetrated the building. Once the assault group entered the building, the commander of the group, who was also the overall commander of the storm group, signaled, usually with a flare, that the group was inside the building. Upon this signal,⁷⁴ the consolidation group was activated.

The consolidation or reinforcement group followed on the heels of the assault group and entered the building from different directions, immediately seizing firing positions to preclude an enemy counterattack or reinforcement. The consolidation group was equipped with both heavy and light machineguns, anti-tank rifles and guns, mortars, engineer

equipment and explosives. Integrated into this organization were snipers, sappers and specialty troops, such as: chemical and medical technicians.

The final sub-element of the storm group was the reserves. Reserves were positioned to counter enemy counterattacks from the flanks while the assault and consolidation groups cleared the building. After the building was cleared, reserves were used as replacements and reinforcements for the assault and consolidation groups.

Once an objective had been taken, hasty minefields were laid and communication trenches begun to link the new position with others in the area. Continual improvement of the new position was carried out until the storm group was again ordered to advance. Counting all of the support elements involved in the operation, the total number of personnel used was as high as eighty, although the actual assault of the building was conducted by only the six to eight members of the assault group.⁷⁵

The storm group was organized from one unit and every soldier within the unit was trained to carry out any of the sub-group missions. According to General Chuikov,

Experience showed that the storm groups and the strongpoints were the most important facets of our defense....

Active counter-attacks by our storm groups were the factor in our defense which kept the enemy in a constant state of tension....

.... on their own initiative; they had learned to work together with the artillery, mortar, armored and sapper groups attached to them, and to fire point-blank from short distances with all types of weapons;76

Chuikov makes little mention of it, but other accounts attribute great importance to the role which the artillery and especially the Katyusha rocket launchers played in the reduction of enemy strongpoints and the success of the storm group.⁷⁷

Although the German 6th Army was encircled in November and the Soviet air force was able to achieve air superiority from that time, the tactics and organizations used to fight within the city proper remained relatively constant. The tactics and task organizations described above were adopted and used by the Red Army throughout the remainder of the war.

Training Programs

To implement and inculcate the tactics described above, training programs were instituted to teach assault techniques and to coordinate the actions of sub-elements and supporting forces. This training was conducted in the city while the actual battle raged only hundreds of yards away.

As previously mentioned, sniper training was also conducted during the battle in order to provide the sniper support necessary. Once individuals were trained, an attempt was usually made to pair up experienced personnel with newly trained personnel. This type of "mentor" training was also used throughout the remainder of the war.

Use of Underground Passages

In Stalingrad the 62nd Army made effective use of the

city sewer system. Reportedly a city surveyor provided a plan of the underground passageways which enabled soldiers to move undetected behind the enemy lines. The use of sewers allowed the 62nd Army to not only penetrate the German rear area and carry out special interdiction operations, but also allowed intelligence to be gathered on German dispositions and intentions.

Most subterranean operations were conducted during the late afternoon and at night. When the Germans discovered that the Russians were using the sewer system to move behind their lines, they attempted to block the manholes. Because of the considerable rubble which lay on the streets, this task was extremely difficult. Even after the discovery of their concealed rear area passageways, the sewer system continued to serve a useful purpose. Since the sewers ended at the Volga it was used as a secure route to bring reinforcements and supplies forward. For the Russian soldier the most distasteful and perhaps dangerous part of using the sewer system came from the thousands of rats which inhabited the system.

Weapon Effectiveness and Usage

Many weapons, both improvised and existing were used in the battle of Stalingrad. Some of the most effective and frequently used were: anti-tank guns and rifles; direct and indirect artillery fire; hand grenades; flamethrowers and flamethrower tanks; katyusha rocket launchers; mines and

booby traps; Molotov Cocktails; mortars; sniper rifles; sub-machine or "tommy" guns; and tanks. Although some of these weapons and their functions have been previously discussed, a brief description concerning the use of each is provided.

Anti-tank guns and rifles were used in ambushes of German armor columns attempting to move through the city, as well as placed in strongpoints. Gunners were taught the degree of elevation and depression which German tank main guns were capable of and positioned themselves above or below these points. This allowed the gunner to fire at the tank, yet prevented the tank main gun from returning fire.

The majority of indirect artillery fire was provided from the far shore of the Volga. Although coordination was sometimes difficult, positioning on the far shore provided a relatively secure base of fire and easily ranged targets within the confines of the city. Direct fire artillery was used in the reduction and destruction of enemy strongpoints as well as tanks which happened to present themselves as targets. Both direct and indirect artillery played important roles in assisting storm groups in their missions.

Hand grenades were perhaps the single most important weapon available to the soldier on the ground. They were used to ward off enemy attacks and to shock and kill the enemy in the assault of fortified positions. Soldiers in assault groups carried six to eight and often more.

The flamethrower and flamethrower tank were not only effective psychological weapons, but were physically as

effective as they were terrifying. Flame weapons penetrated rubble in which the enemy hid and caused death by burning and/or suffocation. They were effective against both strongpoints and tanks. On one occasion, one flamethrower tank reportedly destroyed three enemy tanks.⁷⁹

The effect of the Katyusha rocket launcher has already been described, however, it should be noted that this piece of equipment provided the most firepower on the battlefield in the least time. The effects of the Katyushas were devastating when used to block enemy attacks. The area of ground which they covered and the time in which they were able to do so gave the 62nd Army a great "reserve" capability.

Mines and booby traps have also been discussed and the comment made that more of the enemy were killed as a result of these than by small arms. Mines and booby traps, like the flamethrower and Katyushas, had a great psychological effect on the enemy who never knew when or where he might fall prey to one of these weapons. As previously stated, many mines were improvised by sappers in the early stages of the battle since the quantities needed exceeded the number of manufactured mines available.

The "Molotov Cocktail," named as a result of the 1939 Russian invasion of Finland, was a glass container filled with inflammable liquid and had a rag, soaked with the same liquid, stuffed in the top, which was ignited just prior to use. When thrown against tanks and fortified positions, it

was quite effective and deadly. It was an improvised weapon which was easily fabricated by individual soldiers. It could also be thrown on or into groups of personnel with great effectiveness and proved to be a great psychological weapon in the city fight.

Mortars were used throughout the city and were especially effective at strongpoints. Because of the high-angle fire which mortars provided, they were able to hit enemy positions otherwise masked from artillery fire. Mortars were an integral part of the storm group and provided immediate fire support to repel enemy counter-attacks.

The sniper rifle was not only a great psychological weapon, but allowed for the killing of selected personnel at great distances. Due to the range advantage of his rifle, the sniper was able to make multiple kills at ranges well beyond the range of the enemy's small arms, often completely undetected.

Sub-machine or "tommy" guns were critical to the effective functioning of the assault element of the storm group. A short weapon, it was carried by a sling around the neck and did not interfere with the throwing of grenades or the carrying of other equipment. Inside of buildings, or during the assault, it provided automatic fire to "spray" the inside of rooms. For close, hand to hand type fighting, it was indispensable.

Although many tacticians discount the value of the

tank in the city battle, the Soviets used it with great effectiveness. Because they lacked large numbers of tanks, they were normally employed in pairs throughout the city and used primarily to counterattack the flanks of armored forces which had been canalized by the placement of strongpoints. As previously noted, disabled tanks were often dug into the ground and used as two-man pill boxes. The key to effective use was integration into the overall defensive plan.

Weather Effects

The effect of weather on the outcome of the battle is particularly significant. In the months of June, July, August and September, temperatures were over one hundred degrees and both sides required vast amounts of water and suffered equally from the exhausting heat.

As the battle continued into the late fall and winter months and temperatures dropped below zero, the German 6th Army suffered the effects due to lack of proper winter clothing. As a result of this, their combat efficiency decreased and soldiers became obsessed with survival in the Russian winter. Cold injuries were widespread and resupply made even more difficult.

In addition to cold injuries, disease increased in the winter due to the fact that soldiers stayed inside dug-outs and basements and were reluctant to go outside. Equipment, as well as men, suffered from the cold and the

lack of proper lubricants and fuels necessary to function properly in sub-zero temperatures.

62nd Army forces were equipped to cope with the severe cold of the Russian winter, and although sub-zero temperatures prevailed, both soldiers and equipment were prepared. The proper preparation for winter warfare provided Russian forces a significant advantage over their German counterparts, thousands of who died because of improper clothing after their capture.

III. SUMMARY

This chapter has provided a description of the city of Stalingrad, reasons for and a description of the battle, a discussion concerning its significance, and most importantly, a discussion of the significant aspects of city warfare demonstrated. The following are those aspects of urban warfare deemed significant in the battle and discussed in this chapter:

- 3
- o C - Command, Control and Communications
- o Camouflage
- o City Movement
- o Discipline
- o Fire Support
- o Fortifications
- o Intelligence
- o Leadership
- o Logistics
- o Medical Care and Evacuation
- o Mines and Booby Traps
- o Population Control and Assistance
- o Psychological Aspects of Urban Warfare
- o Problems of Extended Warfare
- o Sappers
- o Snipers
- o Stimulant Usage
- o Tactics and Task Organization
- o Use of Underground Passages
- o Weapons
- o Weather

CHAPTER III

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37. Vitukhin, p. 152.
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40. Vitukhin, p. 143.
41. Ibid.
42. Craig, p. 37.

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44. Ibid, o. 117.
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68. Ibid, p. 437.
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70. Werth, Russia, p. 472.
71. Ministry of Defense, p. 448.
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78. Seth, pp. 156-157.
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CHAPTER IV

HUE, 31 JANUARY - 25 FEBRUARY 1968

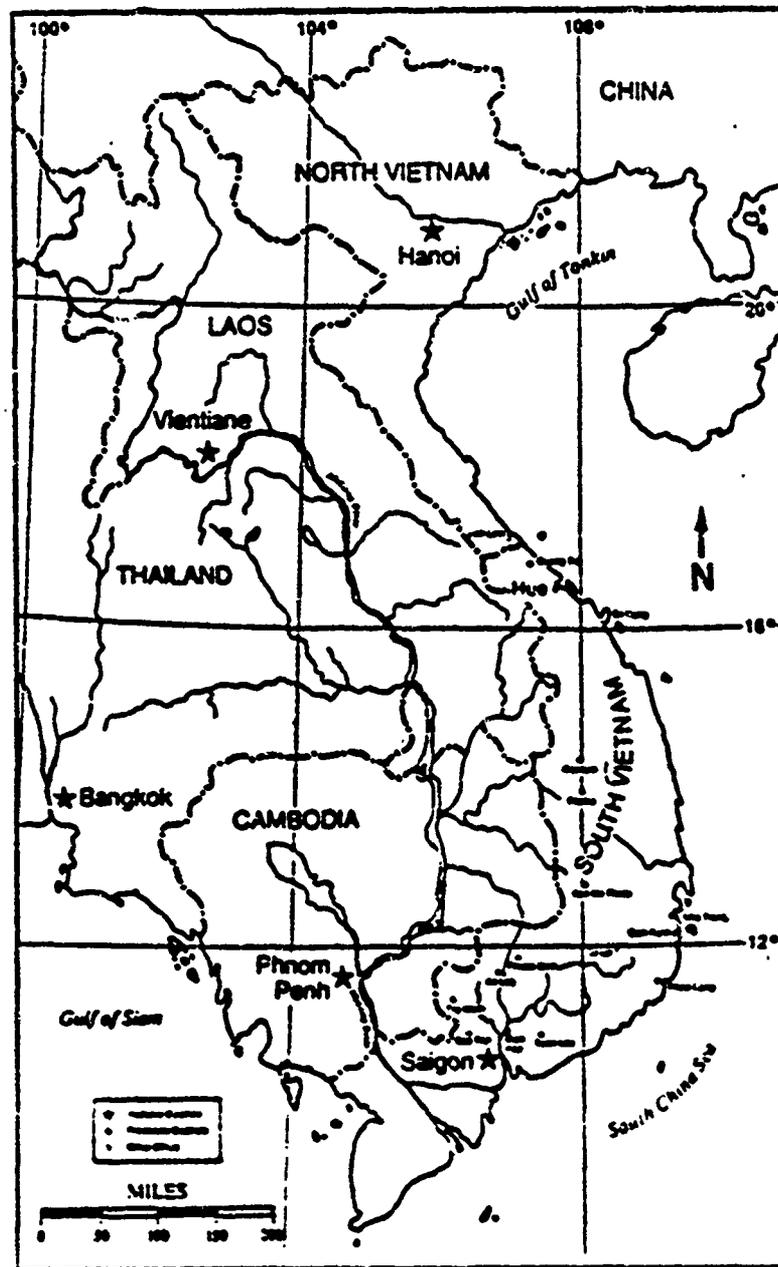
... it was the enemy, not we, who elected to turn the Vietnamese cultural center into a battleground. It was they, not we, who restored the Citadel to its former use as a fortress and who by so doing, wrote this tragic chapter in the bitter history of Vietnam.¹

1. INTRODUCTION

The longest and bloodiest battle of the Second Indochina war occurred in the city recognized as the cultural, religious and political center of Vietnam - the imperial capital of Hue. The history of Hue caused many Vietnamese, both in the North and South, to view it as a sacred city. Although located only one hundred kilometers south of the Demilitarized Zone (DMZ) in South Vietnam, Hue was regarded as a relatively secure city because of this staired outlook. (see map 3) It was in fact relatively secure and until January of 1968 it had not been attacked by ground forces since 1945.²

Though it had survived many years of war, Hue was not always peaceful and serene. In 1963, it was the site of a

MAP 3



Reprinted from Battle for Hue by Keith W. Nolan (California: Presidio Press, 1983), facing pg. 43.

Buddhist uprising protesting the assumption of the presidency of South Vietnam by a Catholic, Ngo Dinh Diem. Three years later it was again the site of Buddhist unrest in protest to the new Saigon-based military government. This time the uprising was quelled by South Vietnamese and United States forces.³

The January 1968 attack was part of a major Communist offensive, commonly referred to as Tet, so called because it occurred at the beginning of the Vietnamese Lunar New Year or Tet Nguyen Dan. Tet was the largest communist action of the war to that time. It called for nearly simultaneous attacks on over one hundred cities and military installations. (see map 4) Some, like television news commentator Chet Huntley, speculated that Tet was intended to achieve a psychological Dien Bien Phu - this time over Americans instead of French.⁴

Disagreements exist to this day among various experts concerning the true objectives of the Tet Offensive. In On Strategy: The Vietnam War in Context, Harry Summers describes it,

... as a tactical offensive, Tet 68 was a resounding failure for the North Vietnamese. But we also saw that it was a strategic success against our center of gravity - American public opinion and American political leadership.⁵

Regardless of its objectives, Tet provided clear evidence to the world and the American public that the war in Indochina was not over - in fact, it was far from over. It also marked the beginning of extended combat against

North Vietnamese Army (NVA) "regulars" and, for the most part, the end of combat against the South Vietnamese communist forces or Viet Cong (VC), as most of this organization was eliminated during this fighting.

Although US forces participated in the liberation of Seoul in 1950, combat in Beirut in 1958, and Santo Domingo in 1965, Hue marked the first time such forces had participated in a city battle of such proportions since World War II. The twenty-five day battle to drive the NVA and VC from the city did several things. First, it caused increased public awareness of the US role in Indochina by the extensive media coverage which it received. Secondly, it provided the military establishment a shocking example of how effective light and relatively unsophisticated, but dedicated forces can be in an urban environment under certain conditions. Finally, it provided tangible evidence that US forces needed to train for and formulate adequate doctrine for urban combat.

The intent of this chapter is to analyze the combat in Hue in order to ascertain significant aspects of urban combat evidenced in the battle. As in Chapter III, a short narrative is provided to give the reader an understanding of the city, the battle and the outcome. The majority of the chapter is, however, dedicated to a discussion of the significant aspects of the battle.

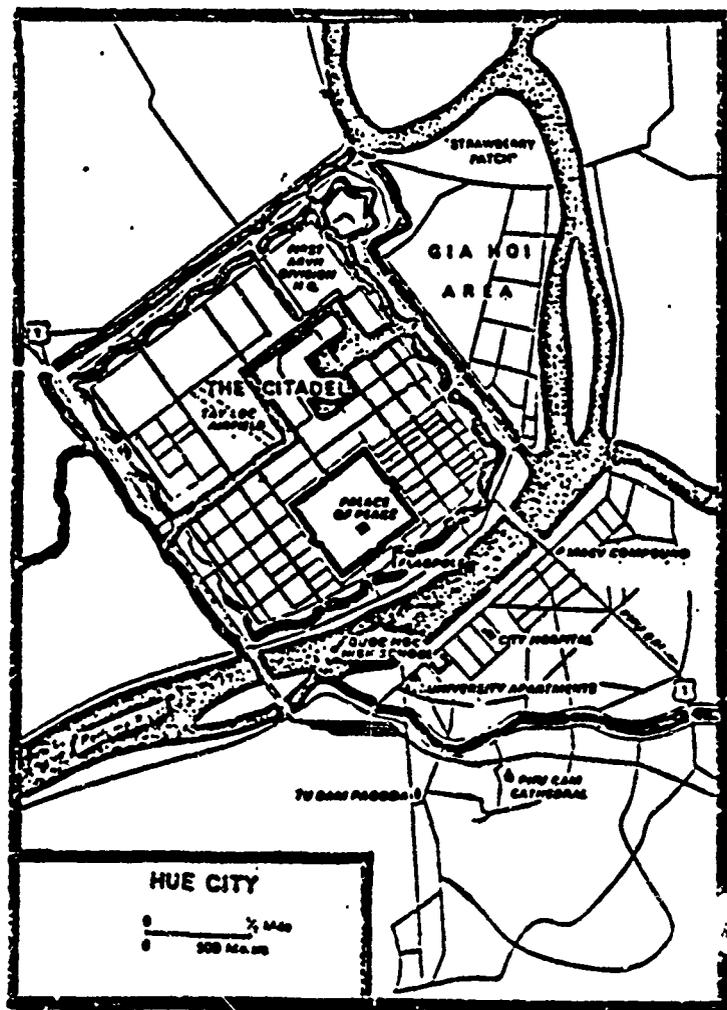
Hue - The City

... Hue was a lotus flower growing from the mud and slime. It was a paradox and an illusion: in a region of insecurity and terror, a city of peace. ...

For a Western visitor, one part of its charm was the nostalgic and familiar: the boulevards and parks beside the River of Perfumes; the Cercle-Sportif, with its comfortable riverside veranda and 1930's furnishings; the ancient French automobiles; the tiled-roofed houses inside the Citadel with their small gardens, inhabited by cultured people. ... Beyond this was the fascination of the exotic: the slanting decorated roofs of the old palaces and shrines; the monumental tombs of the Nguyen monarchs; the sampans floating lazily on the river; aged mandarins with wispy beards and porcelain teacups and a commission from the emperor on the wall; the echoing gongs of the pagodas, filled with gray-robed monks and nuns ... chanting singsong prayers before a golden Buddha.⁷

Divided into three distinct sections - the Citadel or "old city," the southside or French Quarter and the Gia Hoi area (see Map 5), the city of Hue was a curious mixture of the ancient and the modern. The Citadel was patterned after the Imperial City at Peking. Slightly less than two miles square, it was actually a city within a city. In addition to being completely surrounded by water, it was also protected by two massive walls, approximately three feet thick and fifteen feet high. The area between the inner and outer walls was filled with dirt and ranged from twenty to seventy-five yards across. The Imperial Palace, located within the Citadel, was surrounded by additional walls and moats. The headquarters of the 1st Division of the Army of the Republic of Vietnam (ARVN) was located in the northeast corner of the Citadel.

MAP 5



The southside or French Quarter of the city was separated from the Citadel by the Perfume River. It was a relatively new area and closely approximated what would be considered a "modern" city. It consisted of residential areas and businesses. As such, it had a mixture of lightly sided brick, stone and reinforced concrete structures. The tallest buildings were seven or eight stories high. While the headquarters of the 1st ARVN Division was located inside the Citadel, the compound of the American Military Advisory Command Vietnam (MACV) was located in the southside of the city. Also located in the southside was a US Navy boat ramp and a soccer stadium, both of which proved critical during the fight.

The third area of the city was the Gia Hoi area. It was a triangular area in the northeast part of the city and, like the Citadel, completely surrounded by water. The Gia Hoi was a mix of public markets, commercial, residential areas and farmland. This area of the city, unlike the southside and the Citadel, escaped the battle relatively unscathed.¹⁰

In terms of city classification, Hue was a "large" city in 1968 with a population of approximately 140,000. At the time of the attack it was the third largest city in the country.¹¹

Reasons for the Battle

The attack on Hue was one of many made by Communist

forces to accomplish the strategic objectives of the Tet offensive. Aside from the strategic reasons for the attack on Hue, there were also military reasons. One was the destruction of the command and control of the 1st ARVN Division. Another, the destruction of the US MACV facility and other administrative elements which assisted in the war effort. These other elements were on VC target lists which had been compiled in the months preceding the attack. Included were those who worked for or openly sided with the South Vietnamese government or the Americans.¹² Hue was also important because of its value as a rail and water transshipment point.

The Battle

Tet had historically been a period of mutually agreed cease-fire between the government and communist forces. It was a festive occasion for the Vietnamese and it was not unusual for large numbers of people to travel to the major cities. It was under these circumstances that large numbers of NVA and VC soldiers infiltrated Hue and began preparations for the attack.

Although intelligence sources in Saigon received information on 22 January indicating the NVA and VC would launch a large scale attack against Hue around the time of the three day Tet holiday, little preparation was made to counter such an attack.¹³ Intelligence reports available on the 29th of January indicated two NVA regiments were within

ten to twenty kilometers of Hue. Even though communist forces had already attacked some southern facilities by the 29th, South Vietnamese and US forces made no major preparations for an attack.

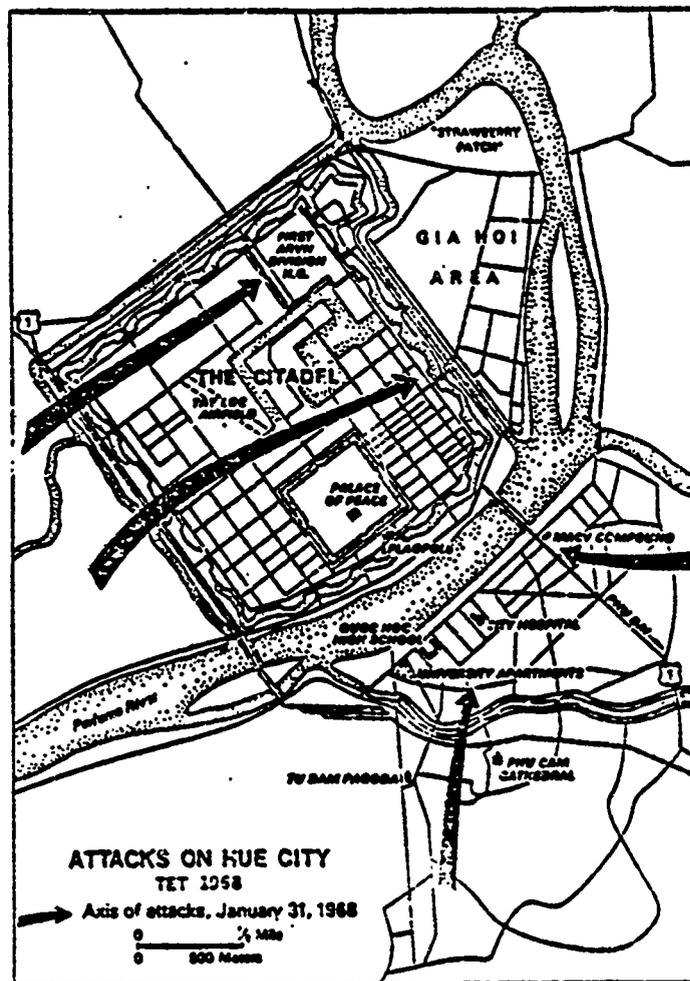
On 30 January, in response to the deteriorating country-wide situation, Brigadier General Ngo Quang Truong, the Commander of the 1st ARVN Division, ordered the division placed on alert and assembled the division staff at the division headquarters inside the Citadel. At this time, approximately half of the men of the division were still on holiday leave.¹⁴ The only ARVN unit in the city was the division reaction force called the Hac Bao or Black Panther Company. It was located at the airfield inside the Citadel.¹⁵ Most divisional units were deployed south of Hue, near the Phu Loc area. General Truong believed that the enemy would attack Phu Loc and attempt to interdict Highway 1 to Hue. He did not believe they would attack the city itself.¹⁶

On the same day General Truong ordered the division alert, US intelligence at Phu Bai (approximately eight miles from Hue) intercepted NVA radio transmissions indicating NVA units were massing for an attack on Hue. This information was sent to Da Nang for analysis. By the time it was relayed by teletype to Hue, the city was already under attack.¹⁷

By the 30th of January, several NVA and VC units had already infiltrated the city and were poised for the

attack. In the early morning hours of the 31st of January, 122mm rockets were fired on the 1st Division headquarters and the MACV compound, signaling the beginning of the attack. Map 6 indicates the axes of attacks used by the NVA and VC forces. Various sources indicate that elements of six to eleven NVA and VC battalions were eventually committed to the attack.

MAP 6



Reprinted from Tet! by Don Oberdorfer (New York: Doubleday and Company, 1971), pg. 199.

By daylight on the 31st, the Communists held virtually the entire city, except the 1st ARVN Division headquarters and the MACV compound. With this freedom of movement, they began to carry out the "Party Plan," which generally was to:

1. Destroy and disorganize the enemy's restrictive administrative machinery from the province and district levels to city wards, streets and wharves. To pursue until the end spies, reactionaries, and reactionaries who exploit Catholics in and outside the country. To prevent them from escaping and to punish scoundrels, hoodlums, and robbers, who kill people and disturb peace and honor.

2. Motivate the people to take up arms, to pursue the enemy and to seize power and establish a revolutionary government.

3. Make every effort to establish strength in the military, political and economic fields in order to conserve the government. Our immediate mission is to pay particular attention to armed and security forces.

4. Make positive efforts to develop [our forces] in the city wards, streets and wharves in order to expand the guerrilla war.

5. Encircle the reactionaries who exploit Catholics and isolate them. Pay special attention to the Phu Cam area, Thien Huu and Binh Linh schools and at the same time try to gain the support of the Buddhist sects of Tu Dam and Bao Quoc pagodas.

6. Promptly motivate the people to participate in combat, transportation and supply activities and to serve the wounded soldiers, etc.

7. Maintain order and security in the city and stabilize the people's living conditions.¹⁸

The VC forces within the city had, over a period of time, assembled intelligence reports and target lists. These reports and lists detailed the activities of government officials, Americans, and other foreigners in Hue, where they lived, what they did, and who they

associated with. After seizing the city, they began to systematically liquidate individuals whose names appeared on these lists. Reports indicate that during the communist occupation of Hue, over 3,000 civilians were killed.¹⁹

Late on the 31st of January, ARVN and US Marine forces were ordered to Hue to assist the besieged forces and to begin the retaking of the city. Due to poor intelligence and a lack of forces due to fighting in other areas, Task Force X-RAY (1st Marine Division Forward Headquarters), the Marine headquarters at Phu Bai, dispatched only one company to relieve the MACV compound.²⁰ Fortunately this unit met and linked up with four M-48 Patton tanks on Highway 1 enroute to the boat ramp at Hue. With the four tanks and the two 40mm "Duster" air defense guns in its own convoy, the company was able to reach the MACV compound, but suffered considerable losses in the process. This reinforcement was possible only because the communist forces had failed to destroy the bridges over the Phu Cam canal.

During the days which followed, the equivalent of eleven Marine line companies from four different battalions, and a variety of support forces were committed to the battle.²¹ Included in the support forces were two platoons of M-48 tanks and two sections of M-50 Ontos. It took until 9 February to clear the southside of the city. On the 10th, the Marines were directed to assist the ten ARVN and two South Vietnamese Marine battalions fighting inside the Citadel.²²

Fortunately for the Marine forces involved, the NVA and VC did not defend the southside of the city with the same effort used inside the Citadel. In the south, there were no roadblocks or other obstacles, nor were any mines or booby traps encountered.²³ Fighting inside the Citadel was quite different. Numerous prepared positions were encountered and snipers were used extensively.

The fire support for Marine forces was limited during the early stages of the battle by the rules of engagement (ROE) established by the government. Initially, only direct fire weapons were to be used in order to minimize the damage to the historic city. Due to the intensity of the battle and the strength of the NVA and Viet Cong forces, this policy was later rescinded.²⁴ Even though fire support restrictions were lifted, air support was impossible during most of the battle due to the severe weather. Because they reduced available firepower, both the political and weather restrictions greatly increased the effectiveness of the light NVA forces and made clearing the city a long and arduous process.

In order to prevent reinforcement and interdict the NVA lines of communication (LOC) into the city, US Army units from the 1st Cavalry and 101st Airborne Divisions were deployed west and southwest of the city. Additionally, Marine forces operating in the southside destroyed the bridges over the Phu Cam Canal to prevent enemy reinforcement or withdrawal. Marine engineers facilitated

resupply efforts, which until this time had been primarily by helicopter and Navy LCU's, by constructing a floating bridge over the Phu Sam Canal in place of the Highway 1 bridge, destroyed earlier by the enemy.

On the 24th of February, ARVN and US Marine forces completed the coordinated operation to regain the Citadel and the Republic of Vietnam flag was again raised over the Imperial Palace. On the following day the Gia Hoi area was cleared of enemy resistance, thus ending the longest battle of the Second Indochina war.²⁵

Significance of the Battle

The battle for Hue marked the first time that NVA and VC forces had actually been able to seize and hold a major city in the south. North Vietnamese General Vo Nguyen Giap called it "an unprecedented victory of scientific quality."²⁶ A Communist report on Hue stated the following concerning the battle:

The most significant fact was that we were masters for an extended period of time and completely reversed the economic and political balance in our favor, rendering the enemy helpless.²⁷

Although these statements hold a great deal of truth, neither represents the true significance of the battle.

The true significance of the battle, and the Tet Offensive of which it was a part of, was two-fold. It first caused a dramatic change in American public opinion - resulting in a change of United States political leadership

and the eventual withdrawal of US forces. The second point of significance is expressed by former Chief of Staff of the Army, General Fred C. Weyand's comments on the Tet Offensive. General Weyand stated:

Applying the test of cui bono it can be seen that the real losers of Tet-68 were the South Vietnamese Communists who surfaced, led the attacks, and were destroyed in the process Just as the Russians eliminated their Polish competitors the North Vietnamese eliminated their southern competitors with Tet-68. They thereby insured that the eventual outcome of the war would be a South Vietnam dominated and controlled, not by south Vietnamese Communists, but by the North Vietnamese.28

In addition to the loss of the VC infra-structure in Hue, actual Communist combat losses were significant in comparison to those of ARVN and Marine forces, as depicted by the followings:

	<u>Marines</u>	<u>ARVN</u>	<u>NVA and VC</u>
<u>Killed</u>	2	384	5,113
<u>Wounded</u>		1,800	unknown
<u>Prisoners</u>	0	0	89

II. SIGNIFICANT ASPECTS OF URBAN WARFARE DEMONSTRATED IN THE BATTLE FOR HUE

³ C - Command, Control and Communications

No information on command and control of NVA, Viet Cong or ARVN forces in Hue was found and for that reason no comments are made concerning command, control and communication (C) for these forces. The following comments relate only to the C of US Marine forces.

Command and control of Marine forces down to company

level appeared adequate. This was due to a number of factors. First, the number of Marines actually committed to the battle was small. Secondly, they were committed in a piecemeal fashion and assigned clearly defined areas of responsibility. Finally, the battalion headquarters were small and stayed in close proximity to the line companies. One Marine battalion commander in fact stated he was never further away than 100 yards from his company commanders and could communicate with them by voice.²⁹

Problems in command and control were, however, experienced below the company level. This was due, in part, to an overall lack of experience at the junior leader level and the increased demands on the small unit leader. Two company commanders at Hue indicated that small unit control during the clearing of buildings was a problem, but, as expected, leaders became more adept as they increased in experience.³⁰ Part of the command and control problem experienced at this level must be attributed to the shortage of junior leader personnel in the companies. Most of the companies had been on extended field operations prior to their commitment and were understrength in junior leadership.

Night operations were not conducted by the Marines during the battle. This contributed to the adequacy of the command and control procedures used. Had night operations been undertaken, command and control problems would undoubtedly have increased.

Command and control at echelons above the battalion was initially inadequate. This was due in part to the confusion surrounding the entire Tet Offensive. Shortly after the first battalion was committed a regimental headquarters element from Task Force X-RAY was dispatched to Hue. This facilitated the communications between the 1st ARVN Division inside the Citadel and the 1st Marine Division elements in the southside. The establishment of the headquarters facilitated the gathering and passing of information between the 1st Marine Division and the Marine battalions.

During the first days of the counteroffensive, actual communications equipment used consisted of tactical radios and some wire in the area of operations and radio relays to the headquarters at Phu Bai. Upon the dispatch of the regimental headquarters, radio, wire, radio relay and teletype were all used. Radio usage included AM single side band, AM ultra high frequency and FM, both with and without the KY-8 cipher capability, which was used primarily between the regiment and battalions.³¹

Although wire communications were used to link the regimental and battalion headquarters, they proved difficult to maintain during the early stages of the battle due to enemy fire and accidental cutting by units. As the battle progressed and enemy positions were reduced, the use and reliability of wire increased.³²

The teletype capability possessed by the regimental

headquarters was used for operations, intelligence and logistics traffic. This is invaluable in the passing of reports and requests.

Radio communication within a city is normally difficult with tactical radios, however, the PRC-25 (now the PRC-77) worked extremely well. This was believed to be as a result of the placement of headquarters elements' antennas on structures which were higher than most areas of the city.
33

One serious communication deficiency was noted. The telephone link between the 1st ARVN Division headquarters and the Thua Thien Sector Communications Center was severed on the first day of the battle. This affected the ability of the advisors in the ARVN headquarters to pass classified information to the 1st Corps Advisory Group. This situation was not rectified until 9 February.
34

The most serious tactical communication problem which plagued the Marines was the inability of platoon and squad leaders to maintain communications with groups clearing the interiors of buildings.
35 There were occasions where small units sought to clear the same building without knowing other friendly elements were inside.

Camouflage

Preparation of positions by communist units in the southside area was minimal, however, great attention was given to the preparation of positions inside the Citadel.

The NVA and VC used camouflaged "spider holes" around the base of walls and buildings north of the Perfume River. Some of these were so cleverly concealed under bushes and hedges that Marines actually walked up and stood beside them without detecting them.

Marines were deficient in the use of camouflage. Still pictures and television tapes of the battle reveal that the Marines took little precaution to make themselves "less detectable" in the city. Some, because of the way in which they draped belts of ammunition over themselves, actually increased their visibility to the enemy.

On City Movement

Movement in the southside of the city was considerably different from movement inside the Citadel. The streets were wider in the south and allowed tanks, Dusters and Ontos more room to maneuver than the narrow streets of the Citadel. Inside the Citadel, armored vehicles had to be screened by infantry to protect them from anti-armor weapons.

For the infantry units, the construction of the southside necessitated more open movement due to building separation than did the Citadel where buildings were closer together. When possible, holes were blasted through building and courtyard walls in an attempt to conceal movement when possible. As in Stalingrad, snipers took a heavy toll on Marines who violated the principle of

concealed movement.

Movement inside the Citadel was more difficult than the southside and required that Marines take greater precautions due to the prepared and camouflaged positions, snipers and the close proximity of buildings. In both the north and the south, the Marines had to take precautionary measures against arbitrarily shooting or blasting through walls due to the possibility of injuring innocent civilians, since Hue was still an inhabited city.

Discipline

City fighting requires disciplined leaders who insure that subordinates do those things which they might not do without supervision, but which are necessary for survival. Pictures of Marines carrying weapons on their shoulders, ammunition wrapped around their torsos, laying down in streets without cover or concealment, sitting around in large groups or exposing themselves for souvenir pictures do not indicate that such discipline existed in Marine units in Hue. ³⁷ There were no Marine "discipline" problems encountered where units refused to carry out orders and the above comments are not intended to question the bravery of the Marine forces employed there.

A number of sources indicate that ARVN forces were involved in widescale looting during the fighting, suggesting that both discipline and leadership were lacking, especially at the lower levels. Looting by ARVN forces

reached such levels that eventually the order was issued that looters would be executed. According to Keith Nolan, author of The Battle for Hue, some Marines looted as well; however, the number of Marines involved in looting was nowhere near the number of ARVN forces involved.³⁸

Little information is available to allow for comment concerning the discipline of NVA and Viet Cong forces. Reports of NVA soldiers left chained to machineguns in buildings in order to delay the enemy indicate that discipline within the NVA ranks became more draconian as the battle progressed.³⁹

Fire Support

Fire support for Marine forces in Hue was initially severely limited by the ROE prohibiting the use of air attacks and artillery. This prohibition was later lifted to allow for engagement of all but historical and religious shrines. Marine forces did not use artillery fire support until the tenth day of the battle.⁴⁰ Twelve 105mm, eight 155mm and two 8" howitzers eventually provided fire support to the Marine battalions and fired over 13,000 HE rounds.

Various reports on the battle debate the effectiveness of artillery support provided in Hue. One states that artillery was relatively ineffective because of the substantial construction of buildings in Hue and the inability of observers to accurately adjust the fire, while another states it was quite effective. In comparison to

other city battles where artillery was of sufficient quantity to literally destroy complete city blocks, the artillery support provided to Marines in Hue was almost negligible.

The most effective fire support provided the Marines was the indirect fire provided by 60mm, 81mm and 4.2 inch mortars. These weapons were used extensively because of their immediate availability and high angle capability which allowed them to attack targets masked to artillery. Approximately 20,000 rounds of high explosive (HE) 60 and 81mm mortar ammunition were expended during the battle. The 4.2 inch mortar was used primarily as a delivery system for CS munitions. It was discovered that 4.2 inch CS could be fired with great effectiveness into the tops of buildings to drive the enemy out. When the gas began to drive the enemy from his concealed position, HE rounds were fired to complete the attack.⁴¹

In addition to artillery fire support, naval gunfire was also available and used. A combined total of slightly over 5,000 rounds of five, six and eight inch rounds were fired in support of the operation. The use of naval gunfire was limited by the same restrictions applied to artillery fire support. It was used primarily in the latter stages of the battle to provide support for LCU's providing resupply from Da Nang, although the six inch guns of the USS Providence played a significant role in the reduction of resistance along the massive walls in the old city.⁴²

No artillery was used in the direct fire mode by Marine forces in Hue. Direct fire support against fortified positions was provided by a number of other weapons. The M-48A1 Patton tank (90mm main gun, cal. .50 and 7.62mm machineguns), the M-50 Ontos (six - 106mm Recoilless Rifles), the M-42 Duster (twin 40mm air defense guns), the M-274 (Mule) with the 106mm Recoilless Rifle, the 3.5 inch Rocket Launcher, the M-72 LAW and the M-79 Grenade Launcher were the primary direct fire weapons available to the
43
Marines.

The most effective direct fire weapons were the M-48A1 Patton tank and the M-50 Ontos. The M-48 was used extensively to reduce fortified positions. It was discovered that the 90mm main gun of the Patton was not effective without the use of concrete piercing fuzes. By using concrete piercing fuzes, most walls could be breached in two to four rounds. When these fuzes were not used, sufficient penetration was not achieved and ricochets often
44
resulted.

The M-50 Ontos was a tracked vehicle with six 106mm recoilless rifles mounted. The 1st Marine Division After-Action Report on Hue states the following concerning the Ontos:

If any single supporting arm is to be considered more effective than all others, it must be the 106 Recoilless Rifle, especially the M50 Ontos with its mobility and relative degree of security.... The Ontos was found to be significantly more effective against the concrete and steel structures in Hue, then [sic] most

supporting arms were. Firing from ranges of 300-500 meters and utilizing a combination arrived at by the trial and error method, it was found in most cases, that one HEAT and two HEP-T rounds were sufficient to open 4 square meter holes or completely knock out an exterior wall. In many cases the 106 Recoilless Rifle was used on targets in excess of 800-1000 meters with the results as effective as at shorter ranges.45

Though not specifically mentioned in the above narrative, the BEEHIVE anti-personnel round was also used. In addition to its anti-personnel role, the BEEHIVE round was also used to cover infantry movement as white phosphorus (WP) rounds were in short supply. When fired into the walls of buildings, it created large dust screens which obscured the vision of enemy troops in addition to causing them to take cover.

Part of the effectiveness of both the M-48 and M-50 must be attributed to the NVA lack of a truly effective anti-tank weapon. The NVA had a seemingly limitless supply of shoulder fired B-40 Rocket Launchers and RPGs. These weapons often forced the tank and Ontos to retreat, but seldom caused catastrophic damage.

The Duster, essentially a light tank with twin 40mm guns, was designed for use as an air defense weapon. The Dusters used in Hue were not organic to the Marines and were provided by US Army air defense units. They were extremely effective in the suppression of enemy positions due to the effectiveness of the 40mm round and the quantities in which it could be delivered. Dusters and their complimentary "Quad" caliber .50 truck mounted guns also played an

important role in the protection of convoys traveling from
Phu Bai to Hue.⁴⁶

The M-274 Mule (platform vehicle) with the 106mm Recoilless Rifle was used, like the Ontos, to reduce enemy positions and breach walls. Its most obvious drawback was the absence of protection for the driver and gunner. It was also necessary to withdraw from enemy observation in order to reload after firing only one round.

The most effective of the shoulder-fired direct fire weapons was the 3.5 inch Rocket Launcher. Used extensively to reduce enemy fortified positions, it gave Marines the capability to fire from the upper stories and rooftops of buildings. Although its breaching capability was not that of the 106mm, it could be employed from positions where the 106mm could not.

As a result of trial and error, gunners of these five systems found that if they were fired into walls beside windows or doors instead of through them, the effect of the blast was greatly enhanced. When rounds were aimed at windows or doors, they normally went through the opposite wall with no damage to the occupants.⁴⁷

The LAW was a major disappointment to the Marines in Hue. They had expected it to provide a wall breaching capability and as a result of that expectation had brought considerable quantities to the city. In reality it had little or no effect on stone and concrete walls. It was basically discarded in favor of the superior capability of

the 3.5 inch rocket launcher.

The shoulder-fired M-79 Grenade Launcher proved to be an excellent city fighting weapon. The capability to shoot 40mm grenades several hundred meters through apertures in buildings or at the base of buildings where the enemy often concealed himself gave Marine forces a decided advantage. It was also used in the suppression of enemy snipers. Although a variety of rounds were available for this weapon, no sources were found which advocated any particular mix of ordnance.

ARVN forces had basically the same type of artillery support available as the Marines. However, they lacked the heavy direct fire systems possessed by the Marines. When compared to the progress of the Marines, ARVN forces were accused of making extremely slow progress, but considering the lack of direct fire weapons, their slowness was understandable.

NVA fire support was provided primarily by 122mm rocket launchers, Chinese 120mm and 82mm and captured 60mm mortars, 57mm recoilless rifles and B-40 rockets. Although all of the systems were effective, the proliferation of B-40 rockets caused this system to be a leading casualty producer. The B-40 was usually fired in volley fire at armored vehicles. Although it usually failed to kill them, it was an effective suppressor of both the tank and the Ontos. Only one Marine tank was actually lost to this system during the entire battle.

Aerial fire support was restricted initially by the ROE and later by the weather. Consistently low ceilings prevented most close air support throughout the battle. Helicopter gunships flew only thirty missions for a total of 57.8 hours during the entire battle. Fixed wing close air support missions totalled 54, many of which were actually outside the city. Four missions flown on the 22nd of February against the southeast sector of the Citadel were, however, instrumental in reducing an enemy position the Marines had previously been unable to take. The 250 pound Snakeye and 500 pound napalm bombs used resulted in mass destruction inside the Citadel.⁴⁹

The attack on Hue was launched at the height of the monsoon season and the low ceilings and reduced visibility restricted US and ARVN use of air support for all but a few days of the battle. This situation, the fact that most of the population were held "captive" and the initially restrictive ROE negated the position of air superiority normally held by US and ARVN forces. Since the NVA and VC forces possessed no air support, this situation greatly affected their ability to hold the city and allowed their lines of communication to remain open longer than would have been possible under other circumstances.

Fortifications

The fortifications used by the NVA and VC in Hue are best described in the following extract from the 1st Marine

Division After-Action Report.

Although enemy forces were well-equipped, his defense of the southern portions of Hue was relatively inept. He neither prepared roadblocks or obstacles. Fields of fire were not cleared nor improved. Demolitions, mines and booby-traps were not employed.... He underestimated the effectiveness of supporting arms in a built-up area. ... Public and quasi-public buildings such as schools, hospitals, temples and churches were used extensively by the enemy and his defense of the city was centered in these areas. His use of these buildings was pragmatically based on the fact that these were substantial buildings, and by his belief that in counter-attacking, Marines wither [sic] could not or would not destroy these buildings. In addition, major headquarters were inevitably in pagodas and it appears possible that the Buddhist Struggle Movement elements were in complicity with the NLF.

h. In the Citadel, the enemy employed better city-fighting tactics, improved the already formidable defenses, dug trenches, built roadblocks and conducted counter-attacks to regain redoubts which were important to his defensive scheme. His forces within the Citadel mutually supported one another.⁵⁰

In addition to the comments of the 1st Marine Division After-Action Report, the following comments from Task Force X-RAY's After-Action report explain the defense of the Citadel even more.

...In the Citadel houses were close together and built of masonry and stone. Streets were narrow and stone and masonry walls or hedgerows separated the houses. The hedgerows were interlaced with barbed wire or other obstacles making them extremely difficult to breach. Additionally each residence had its own foxholes and bunkers constructed by the residents for their own protection. Thus each house became a separate defensive position and each block a formidable bastion.⁵¹

Intelligence and Deception

Dissemination of intelligence information appears to have been a major problem throughout the 1st Corps Tactical Zone and not just Hue. The failure of collection sources at Phu Bai to notify the MACV compound at Hue of the confirmed movement of NVA forces toward the city, as mentioned in the introduction to this chapter, is indicative of this problem. Even after forces were committed, the Marine headquarters at Phu Bai did not have adequate intelligence on the number and type of forces in Hue.

A minor intelligence problem concerning physical knowledge of the city was also experienced by the Marine forces committed to the battle. Although maps of the city were provided, they were not of sufficient scale and detail to facilitate planning and conduct of operations at the battalion and company level. Additionally, few of the Marines had personal knowledge of the city. Since military maps of sufficient detail were not available, tourist maps of the city were used and proved quite effective.

NVA and VC intelligence on forces in the city, officials, police, American employees, foreigners and key points in the city was excellent. This was due to the effort of VC units in the city and the months they had spent in preparing the information. Except for the major deception of the entire Tet offensive, which resulted in the battle, there were no deception efforts noted by either side.

Leadership

Aside from the deficiencies noted under the section on discipline, most Marine leadership problems were the result of inexperience and training. Marine officers and non-commissioned officers had virtually no training in urban warfare. This resulted in the evolution of tactics and techniques by trial and error. The number of officers and non-commissioned officers wounded or killed at Hue indicates there was no lack of leadership by example.

One serious leadership problem did exist - the replacement of small unit leaders. Most of the Marine companies had been on extended field operations prior to commitment at Hue. As a result, they were approximately ten percent below their normal operating strength. Due to attrition, many small unit leaders had been lost, but not replaced. This became a serious problem as the battle progressed and small unit actions increased.⁵³

Toleration of looting by ARVN leaders was indicative not only of poor discipline, but poor leadership as well. Nolan indicates in The Battle for Hue that many of the Marines felt ARVN forces were poorly led and did not do their share of the fighting in Hue.

Although no specific comments can be made concerning the adequacy of NVA leadership, the fact that NVA forces failed to isolate and defend the southside of the city and failed to understand the consequences of not doing so, is at least indicative of a lack of knowledge on the part of NVA

leaders.

Logistics

Resupply of Marine units in Hue was a serious problem. From 31 January until 4 February, resupply was by both convoy and helicopter. Due to the actions of enemy forces along Highway 1, most resupply during this period was by helicopter. On the 4th of February, NVA forces finally destroyed the bridge over the Phu Cam Canal and severed the land line of communication (LOC) linking Marine forces in Hue with Phu Bai. Until engineers completed a floating bridge over the Phu Cam Canal on the 12th of February, the majority of resupply was by LCU's and LCM-8's from Da Nang. After Highway 1 was reopened, convoy became the main resupply mode, although helicopters and LCU's continued to be used.

A logistical support area (LSA) was initially established close to the LCU ramp to facilitate cargo movement. Due to the vulnerability of the LSA and the danger to helicopters transiting in and out, it was moved to the Tu Do Soccer Stadium. This provided relatively safe unloading of aircraft and storage of supplies, but necessitated transport of supplies from the LCU ramp to the stadium.

The following comments relate to the classes of supply listed:

Class I - Meal Combat Individual (MCI or C-ration)

was used for the entire period of the battle.

- Water was provided initially by two water trailers brought in by convoy prior to the 4th of February. After the loss of the bridge over the Phu Cam Canal, river and well water was purified by the use of halizone until a water purification unit was deployed to the city and began operation on the 16th.

Class II - Units in Hue were short of protective masks and Upper Torso Body Armor. These were deficiencies which existed throughout the 1st Corps Tactical Zone, but the extensive use of CS by Marine units in the clearing of buildings made the lack of sufficient protective masks especially critical.

Class III - POL was originally delivered by convoy and helicopter in 55 gallon drums. Due to the amounts of diesel fuel consumed by tanks and other supporting vehicles, a Navy LCM-8 loaded with a 10,000 gallon fuel bladder was used to meet the heavy demand. The demand for MOGAS was considerably less, and as a result it continued to be delivered in 55 gallon drums.

Class V - Ammunition constituted the bulk of supply requirements. Small arms, mortar, tank and recoilless rifle ammunition were consumed at approximately ten times the normal supply rate.

- The one critical munitions shortage experienced by the Marines was the M-26 Fragmentation Grenade.⁵⁵ This was especially important due to its

extensive use in the clearing of buildings.

- Additional supply problems were experienced in the procurement of 90mm tank and 4.2 inch mortar CS ammunition. This was directly attributable to the increased usage of these items. By the end of the battle, Marine forces had used all of the CS rounds available in the Pacific area.

Two logistical lessons were learned early in the battle. The first was that units could not accurately predict their consumption rates or forecast their needs. Large numbers of emergency requests were the result of this inability. To correct this problem, packages of supplies on which demand had been great were prestaged at the LSA and thus available upon unit demand.

The second lesson concerned ammunition resupply by air. Many helicopters supporting the battle were forced to jettison sling loads of ammunition when they came under attack by enemy fire. If the load was for one particular weapon system, the use of that system was affected. To preclude this, all loads were subsequently mixed.

The transportation of supplies, equipment and ammunition to using units was accomplished by organic vehicles and occasionally commandeered civilian cars and trucks. After the Marines crossed the Perfume River and entered the Citadel, LCM-6's were used to ferry supply trucks as the bridge over the river had been destroyed. The M-274 Mule was the primary vehicle used to deliver supplies

from the battalions to the companies and to evacuate wounded.

NVA and VC prisoners captured by Marine forces indicated NVA forces experienced no supply problems due to the extensive preparation which preceded the attack. They further divulged that supply came from a well developed system of rear areas located in the villages south and west of the city. It was from these areas that supplies were delivered to the front and casualties and prisoners taken. From their description, the supply system apparently was a "push" system where supplies arrived on an automatic basis. Impressed civilian labor was used in some cases to transport supplies. Most supplies were ammunition, even though the NVA and VC had brought little food into the city. To preclude having to transport food, the NVA and VC forces appropriated food from the civilian population.

On 22 February, in an effort to interdict the NVA LOCs, Task Force X-RAY positioned US Army forces under its operational control in blocking positions south and west of the city, astride the routes into and out of the city. Additionally, Marine forces in the southside of the city dropped the bridges over the Phu Cam Cana' to isolate NVA and VC in the city and further complicate their resupply. Failure to seal off the NVA LOCs early in the battle and thus isolate the city was a tactical error which allowed supply and reinforcement of forces in the city and probably extended the battle considerably.

Medical Care and Evacuation

The following comments relate to medical care and evacuation of US Marine forces:

Initially the medical care and evacuation procedures used in Hue were the same as those used in normal operations. This consisted of treatment by the unit corpsman and medevac by helicopter. Due to the number of Marines committed to Hue and the increase in casualties caused by the intensity of the battle, normal operating procedures were not adequate.

In order to cope with the increased casualty rate, a battalion forward aid station was established by each of the battalions, except one, and manned by the battalion surgeon. It provided immediate emergency medical care for the seriously wounded and maintained a holding ward for the less severely wounded who could return to duty within two days. These stations moved as the battalion moved and were never more than two to three minutes from the battle by vehicle. Ground evacuation was normally accomplished with the M-274 Mule.

To compliment the battalion forward aid station, a regimental aid station was established in the MACV Dispensary. This facility was manned by the regimental surgeon, eight additional medical officers and corpsmen. In addition to serving as the forward aid station for one of the battalions, the regimental aid station provided definitive emergency care for casualties and performed

limited major surgery. It was also the processing center for those killed in action (KIA) and it controlled and coordinated casualty evacuation. The time required to transport wounded from the battalion to the regimental aid station varied from three to five minutes. ⁵⁸

Aero medical evacuation was classified into two categories, depending on the severity of the wound and the weather. Class I evacuation consisted of casualties who were stable and not in immediate danger of losing life or limb and who could, if necessary, be held for twenty four hours. Casualties in this category were evacuated if the weather permitted and helicopters were available.

Class II medical evacuation was reserved for casualties in danger of losing life, limb or suffering severe complications if not transported to a major surgical center. Casualties in this category were evacuated regardless of weather. ⁵⁹

In Hue, Marines not killed outright had an excellent chance of surviving. During the course of the operation, no wounded arriving at the regimental aid station alive died and only eight died at battalion aid stations. Of these eight, surgeons indicated that six would have died regardless, due to the severity of their wounds. Of the 980 ⁶⁰ Marines evacuated, only two died during hospitalization. The protection afforded by Upper Torso Body Armor, or "flak jackets," also contributed to the high survival rate experienced by the Marines.

The following comments concern NVA and Viet Cong medical care and evacuation:

During the initial stages of the battle when the NVA and Viet Cong had control of virtually the entire city, they relied on the use of the civilian hospitals in the city for the immediate care of wounded. As the battle increased in intensity and they lost control of these areas, the NVA and VC used a number of buildings for temporary holding stations until they could move their wounded out of the city. The only comment which can be made concerning the quality of NVA medical support is that it obviously did not approach the technical care and evacuation capabilities of ARVN and Marine forces. Although their evacuation procedures were not as sophisticated as the Marines or ARVN, it was seldom that a wounded NVA or VC was left behind.

Because of the close parallel to US procedures, medical care and evacuation of ARVN forces is not addressed.

Mines and Booby Traps

NVA and VC forces used few mines or booby traps in Hue. This was uncharacteristic of their operations in the countryside. Apparently, due to the nature of the fight in which they were involved, they believed that grenades and demolitions were most effective when used directly against the enemy. Some mines were, however, used along Highway 1 to interdict supply convoys from Phu Bai. Additionally, inside the city NVA forces used captured claymore mines in.

defense of fortified positions.

Other than the use of claymore anti-personnel mines for night defense, the Marines and ARVN forces did not use mines or booby traps.

Population Control and Assistance

Immediately following the NVA and VC takeover of the city on the 31st of January, population control measures were instituted. Police, ARVN officers and soldiers on leave, government officials, foreigners and Vietnamese associated with the Americans were taken into custody and many were subsequently executed. Most of these apprehensions and executions were the result of the VC "target lists," developed months before the battle. The intent of these actions was to destroy all political and official opposition to the communist movement. ⁶²

In addition to the above actions, the VC initiated a strong psychological operation program intended to "re-educate" the populace and expand their own ranks. As part of this program, many of the population were forced to attend political meetings and "volunteer" their time and assets. They were also forced to work on field fortifications and transport wounded and supplies. ⁶³

The large number of refugees created by the battle and the problems associated with their care caused the US Military Advisory Command to request a civil affairs platoon. This platoon worked with the government officials

to establish refugee centers, hospitals and administrative processing centers. Radio and loudspeaker planes were used to reassure and inform the population. They notified refugees where to go and what to do. As refugees passed through the Marine lines it was necessary to check identification cards to insure that the enemy did not clear the lines with the refugees.

Feeding the estimated 55,000 refugees created by the battle was supposed to be accomplished using rice from the government's two-month emergency stockpile in the city. Unfortunately, this store of rice was never located and rice and meat had to be requested through the corps headquarters.

Health problems with refugees were also encountered. Lacking sanitary facilities, refugees defecated in the same area they were housed. This, along with the growing number of unburied enemy and civilian corpses, posed a serious health problem. To combat it, teams from the Corps Public Health Office were called in to assist. To prevent disease, inoculation teams of US Navy and South Vietnamese were used to immunize the refugees.⁶⁴

The 1st Marine Division After-Action Report provides the following concerning civilian assistance during the operation:

The civilian population was essentially passive. There was little evidence of voluntary assistance to the VC/NVA. On the other hand, civilians volunteered no assistance to the Marines either. There were, however, some instances of individual

Americans and other foreign nationals being assisted by Vietnamese civilians in Hue.63

Psychological Aspects of the Battle

Constant closeness to the enemy, the uncertainty of attack by the unseen sniper and the sounds and impact of continuous shelling caused tremendous psychological strain on all of the combatants. For the attacker, the strain of constantly assaulting into unfamiliar buildings increased his apprehension even more.

The Marines were under an additional strain of battle that none of the other combatants shared. That was the strain of their rotation date. Several sources on Hue and the Vietnam War in general address the psychological strain imposed by the infamous "DEROS" (Date of Expected Rotation Overseas), the date of completion of a one-year tour of duty and rotation back to the United States. Although the exact impact of this type of situation cannot be quantified, it was certainly evident and was a definite consideration of unit leaders.

Psychological operations were conducted against the NVA and VC, but yielded no apparent results. This can only be attributed to the "die hard" attitude and political indoctrination of the communist forces involved in Hue.

Problems of Extended Warfare

Besides the psychological strains mentioned above, there were no physiological problems of extended warfare apparent in Hue - primarily because it was not really an

extended battle. The problems normally associated with several weeks of field duty were evident, such as minor sanitary problems and infections from cuts and scrapes. None of the extensive psychological and physiological problems evident in much longer city battles were observed in Hue.

Sappers

The European term "sapper" is normally associated with the combat engineer, however, the VC use of the word conveyed a different meaning. The VC sapper was a commando who carried out sabotage or terrorist attacks involving explosives; he was not an engineer.⁶⁶ Hence the Hue City Sapper Battalion was not a battalion of engineers, but of undercover saboteurs.

There is no evidence available to show that Communist forces had any combat engineer units in Hue. In all likelihood, either the Hue City Sapper Battalion or the 12th Sapper Battalion were responsible for dropping the bridges over the Phu Cam Canal and the Perfume River. Their failure to drop the bridge over the Phu Cam Canal on the first day was a costly mistake which allowed the Marines in Phu Bai to reinforce the MACV compound and thus maintain a foothold in the southside.

Marine engineers, according to after-action reports, did not participate in actual fighting or reduction of enemy positions, but provided service-oriented support. Major

engineer functions during the battle were the establishment of water points and the repair of damaged bridges, or the establishment of floating bridges, such as the one over the Phu Cam Canal which reopened the Highway 1 LOC.

Marines experienced problems in Hue because they had no engineer support with forward units. The breaching of walls in the city required demolitions, and few demolition experts existed in the units. When these were killed or wounded it seriously degraded the wall breaching capability and thus slowed movement considerably.⁶⁷

Snipers

Sniper operations played an important part in the battle on both sides. Snipers were important, not only for their psychological contribution to the battle, but because of the casualties they produced as well.

A serious shortcoming of the Communist defense was the failure to leave snipers behind to harass the Marine rear areas. This tactic, as used by defenders in other city battles, could have caused more forces to be committed to the fight and may have extended their occupation of the city considerably. Although no sources reference the exact type of sniper system used by the NVA and Viet Cong, it was apparently effective beyond ranges of 500 meters.

Marine snipers were employed in sniper teams. The Marine sniper weapon was a heavy barreled Remington Model 700 bolt-action rifle equipped with a telescopic sight.

This weapon was lethal to 1000 meters. Binoculars were used in conjunction with this system for target acquisition.

No mention of the use of the sniper to gather intelligence information on enemy actions was found for either side. Additionally, no information was found concerning the training of sniper teams.

Stimulant Use in Hue

The only reported stimulant use in Hue is found in Nolan's book. In it he recounts an incident where Marines found what looked like heroin in the packs of a group of dead NVA soldiers.⁶⁸

Tactics and Task Organization

On the battlefield, the taking of a major city by surprise is in and of itself somewhat of a tactical innovation. However, since the entire Tet Offensive was a surprise to allied forces, and has previously been addressed in other sections, the following comments relate only to actual defensive and offensive actions which occurred after 31 January.

In Hue, the NVA and VC used a pattern of defensive positions which resembled the pattern of a checkerboard. They were established on alternate blocks, and had secondary positions one block to the rear and in the gap between the forward positions. Forces were dug in and well camouflaged and when possible, firing positions were established to take maximum advantage of the many stone walls which existed

throughout the city, especially in the Citadel. Where terrain offered the best observation and fields of fire, strongpoints were established and heavy weapons, such as machineguns, 20mm cannons and mortars were emplaced.⁶⁹

Almost every house had its own foxholes and bomb shelter. The NVA and VC made maximum use of these during periods of allied indirect fire and air attacks, much like the Russians did the cellars of Stalingrad. This was the primary reason that artillery and air attacks failed to kill many of the defending troops, although they caused massive destruction. The ruins created by such attacks were, like those of Stalingrad, better positions for fighting than the original structures. Thus the attacker's already difficult task was further increased by his own efforts.⁷⁰

As the night in Stalingrad belonged to the Russians, so the night in Hue belonged to NVA and VC forces. As Marines cleared areas by day, the enemy infiltrated back by night. This was due primarily to the fact that the Marines were reluctant to stay in positions at night which they felt could not be efficiently defended. As a result, as night approached, they often withdrew to areas they felt offered better defensible terrain. No large scale night attacks were launched by communist forces other than the unsuccessful attacks of the first night against the ARVN CP and the MACU compound.⁷¹

The Marines in Hue had virtually no experience in city fighting. As a result of this inexperience, tactics

and techniques were developed as the battle progressed. The tactical use of the tank, Ontos and Mule mounted 100mm RR have previously been discussed. However, it must be stated that the efficient use of these systems required infantry screens to protect them from anti-tank rockets. The only real tactical innovation developed by the Marines concerned the use of CS gas to drive the enemy out of his fortified positions.

Marines used several methods to employ CS - grenades; the E-8 CS Dispenser; and the 4.2 inch mortar, previously discussed. The most efficient of these systems was the mortar, however, a shortage of rounds caused the other systems to be used. The shortage of CS mortar rounds is understandable considering the type of open country conflict Marine forces were normally involved in and the fact that HE rounds were normally used. Tactical use of CS proved effective even though many of the enemy were equipped with protective masks.

Although neither a tactical innovation nor a task organizational change, the Marines in Hue discovered that thinning their front lines and widening the attacking front enabled them to do two things - decrease casualties and find the weak points in the enemy's checkerboard defense. They also discovered that thinning the front line did not necessarily mean that less firepower could be directed against the enemy.

No unique task organizations, such as those noted in

Stalingrad, were evident in Hue. No information on NVA or VC small unit organization was uncovered. The Marines apparently left the organization of building-clearing up to the small unit leader. Although there were undoubtedly exceptions, it appears that most clearing teams were organized on a "hey you" or "your turn" basis, with little regard for functional assignments.

Training Programs

No sources were found indicating any training programs were used by either side during the battle.

Use of Underground Passages

If underground passageways existed in Hue, they were apparently unusable as no after-action report or other source reflects their use.

Weapon Effectiveness and Usage

The following weapons and a discussion of their relative effectiveness and uses were addressed under the section on Fire Support: the 105mm, 155mm and 8 inch Howitzers; M-48A1 tank; M-50 Ontos; M-55 Duster; 106mm RR mounted on the M-274 Mule; 3.5 inch Rocket Launcher; M-72 LAW (technically a munition and not a weapon); M-79 Grenade Launcher; 4.2 inch, 81mm and 60mm mortars; 250 pound Snakeye and 500 Napalm bombs; B-40 Rocket Launcher; 122mm Rocket Launcher; 120mm and 82mm mortars; 57mm RR; and the Remington Model 700 Sniper Rifle. Discussion of aircraft use and

non-availability due to the weather has also been previously addressed.

Heavy and light machineguns were used by both sides to provide covering and defensive fire. Heavy machineguns, like the caliber .50, were capable of penetrating ten inch thick reinforced concrete walls with as few as one hundred rounds, but because of their weight were limited to use in relatively static positions. Light machineguns, like the M-60 (7.62mm), provided attacking and defending forces with a high volume of mobile firepower.

A variety of small arms were used by the combatants in Hue. By far the NVA and VC employed more different types. They included: the AK-47, M-1, M-16 and SKS rifles; the Browning Automatic Rifle (BAR). Since it is impossible to determine what quantities of these various weapons they possessed, it would be difficult to assess their relative value.

The individual weapon for Marine forces was the M-16 rifle. Although the M-16 had previously received some bad publicity because of a tendency to jam, Marines in Hue praised it as a highly reliable and effective weapon. Its light weight, short length and high volume of fire made it an excellent assault weapon.

Shotguns were also used by the Marines in Hue. No mention is made of the shotgun's effectiveness in any of the after-action reports. However, supplied with the proper

size shot, it should have been an effective weapon in the assault.

Although not technically weapons, C-4 explosive, M-20 Fragmentation Grenades and the E-8 CS Launcher were used by attacking Marine forces to assist in breaching walls and reducing fortified positions. As previously stated, lack of experienced demolition personnel limited the use of C-4 and supply problems plagued the use of the fragmentation grenade. Due to the efficiency and availability of M-79 munitions, the shortage of grenades was not as critical as it would otherwise have been.

The E-8 CS Launcher was a small boxlike device which could shoot canisters of CS out several hundred meters. Light and easily transportable by one man, it was used in lieu of the 4.2 inch round to drive the enemy from fortified positions.

Weather Effects

As previously discussed, the major effect of the poor weather was the curtailment of air support. The average high temperature during the battle was 69 degrees and the average minimum was 60.2 degrees. The effect of these temperatures and of the almost three inches of rain which fell was to create a generally miserable environment, but certainly not one which required any special clothing or equipment.

III. SUMMARY

This chapter has provided a description of the city of Hue, the events preceding and the causes of the battle, a short narrative highlighting it and its overall significance. The twenty-one areas of urban warfare discussed in Chapter III as they related to the battle for Stalingrad, have also been addressed in this chapter as they relate to the battle for Hue.

Major shortcomings of the defender (NVA and VC forces) noted were: the failure to isolate the ARVN Division CP and the MACV compound by destroying the bridges over the Phu Cam Canal and the Perfume River at the outset of the battle; failure to leave snipers and saboteurs in areas behind attacking forces; and failure to adequately prepare the southside of the city with roadblocks, fortified positions, and mines.

Significant shortcomings or problems noted for the attacker (ARVN and US Marine forces) were: the failure to respond to early intelligence warning of an attack; inability to gain a true picture of the situation even after forces were committed; lack of detailed information on the city; inability to isolate enemy forces in the city during the early stages of the battle; lack of training in the city battle at all levels; shortfalls in junior leader replacements; shortages of specialized munitions (M-26 Fragmentation Grenade and 4.2 inch CS) and an overall inability to project the approximately tenfold increase in

some items of Class U; and refugee control and assistance.

Several additional significant aspects of the battle were also noted. The effectiveness with which armor and "armor type" supporting arms can be used in the city battle, under the proper circumstances was noted. In Hue, the proper circumstances were the lack of effective Communist anti-armor weapons and the ability of infantry to suppress enemy fire and provide effective screens for armored vehicles. An additional aspect noted was the extent to which properly prepared positions and applied tactics can delay an attacker and buy time, as evidenced in the difference between defenses in the southside and the Citadel. It was also the case in Hue, as it was in Stalingrad, that although massive amounts of indirect and direct fire support were brought to bear on a defender's position, he usually survived and the actual defendability of his position was increased. Although not necessarily considered an "aspect" of the battle, the increased use and sophistication of body armor, coupled with decreased medical evacuation times, dramatically reduced casualties for Marine forces.

CHAPTER IV

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72. Intrec, Inc., Vol. II, p. B-97.

73. 1st Marines (-) (Rein), p. 26.

74. TASK FORCE X-RAY, p. 6.

CHAPTER V

BEIRUT, 1 JULY - 22 AUGUST 1982

Israel achieved a decisive military victory over the PLO in Lebanon, The PLO's military, political and organizational infrastructure in West Beirut ... was smashed. The PLO was forced out of its only independent base, and its leadership and combat cadres were dispersed throughout the Arab world,1

I. INTRODUCTION

The battle for, or more appropriately the siege of, Beirut by the Israeli Defense Forces (IDF) in the summer of 1982 was the single most significant event of the Israeli invasion of Lebanon. The invasion, codenamed Operation Peace for Galilee, had three basic objectives: (1) the expulsion of the Palestine Liberation Organization (PLO) from Lebanon; (2) the elimination of Syrian forces from the Bekaa Valley and Beirut; and (3) the subsequent establishment of a Lebanese government which would be compatible with Israeli interests.²

A detailed discussion of the ideological issues of the Arab-Israeli conflict and the underlying causes of the

1982 war in Lebanon is beyond the scope of this study. It is, however, necessary that the general causes of the war be addressed in order that the overall significance of the siege and battle for Beirut can best be appreciated.

Almost from the time Lebanon formulated its National Covenant in 1943 and divided all public positions among the various national religious factions, it was beset by political strife and unrest. In 1975, it erupted into civil war between rival militant factions, one of which was the PLO. The PLO had been in Lebanon since 1968. It had, with the help of some of the more powerful Arab states, essentially established a state within a state from which it launched terrorist attacks and fired artillery and rockets on northern Israeli settlements. Although the Lebanese government had sought to limit PLO activities in fear of Israeli retribution, it had been forced to allow virtually unlimited³ excursions by the PLO following the 1969 Cairo Agreement.

The PLO became even stronger with the assistance of neighboring Syria, which insisted that the Lebanese government allow approximately 50,000 Palestinian refugees, who had come to Syria as a result of the 1970 civil war in Jordan, to settle in Lebanon.⁴ Syria additionally provided the PLO with both arms and forces in their struggle with the Lebanese government. In 1973, Syria forced Lebanon to sign the Melkhart Agreement, which granted the PLO even more⁵ extensive territorial rights than the Cairo Agreement.

As the PLO grew in strength, factions within the country feared that the PLO might attempt a complete takeover of the government. Lebanese Christians and other groups began to arm. The result was a bloody civil war in 1975, which eventually included Syrian military forces. The Syrians changed their allegiance as they perceived that the PLO was on the verge of taking all of Lebanon and creating an independent state - an event unacceptable in view of Syrian military and political objectives. The civil war was costly for all sides and resulted in a fragmentation of Lebanon. At the end of the civil war there were over one hundred armed political factions controlling various parts of the country. Syrian troops controlled the Bekaa Valley and a major portion of east Lebanon.

In the aftermath of the Israeli-Egyptian peace agreement, Syria renewed its relationship with the PLO. This resulted in Syria relinquishing control of eastern Lebanon south of Beirut to the PLO. At the end of 1981, the PLO was stronger than ever and continued to receive support from oil rich arab nations to continue its struggle against Israel.

PLO military camps continued to grow in Lebanon and spread along the Lebanese coastline from Tyre in the south to West Beirut in the north. There were also PLO camps established in central Lebanon, but the majority were in east Lebanon. Although United Nations (UN) forces established a zone between Israel and Lebanon, they failed

to prevent the PLO from reestablishing camps near the northern Israeli border. It was from these camps that PLO forces launched artillery and rocket attacks on Israeli settlements, and it was this situation which eventually caused a 1978 IDF incursion into Lebanon.

The IDF operation of 1978, called Operation Litani, was intended to drive the PLO back from its border positions and to create a type of "buffer zone" along the northern Israeli border. The operation was named Litani because it was designed to go to the Litani River. The Syrians, seeking to avoid a direct confrontation with the IDF, communicated to Israel that they would stay out of the conflict if IDF forces did not proceed beyond the Litani. In the face of superior Israeli forces, the PLO fell back and the Israelis subsequently destroyed PLO settlements and positions in the area. Three months after the invasion, the IDF withdrew and allowed UN forces to take control of the twenty-five kilometer zone they had cleared north of the border. For PLO forces, this was an unacceptable situation in that it denied them a contiguous border from which to launch attacks against Israel.

In order to reestablish their camps and resume operations against Israel, the PLO entered into armed conflict with the UN peacekeeping forces. The result was that the PLO literally forced their way back into the zone. With their presence reestablished, the PLO once again resumed its attacks on northern Israeli towns and villages.

In retaliation, the Israeli Air Force (IAF) conducted bombing raids. From Mar. of 1981 until June of 1982, the PLO carried out more than 1,500 artillery and rocket attacks on northern Israeli border towns. Although Israel retaliated, it was unable to quell the shelling.⁸ For Israel, an intolerable situation had been created.

On the 3rd of June, 1982, an assassination attempt was made on life of the Israeli ambassador to Great Britain. In retaliation, the IAF bombed PLO depots and headquarters in Beirut. The PLO responded with two days of artillery and rocket attacks on northern Israeli towns. The stage was thus set for the Fifth Arab-Israeli War. On the 5th of June, the Israeli cabinet elected to launch an attack into Lebanon the following day.⁹

A number of experts have speculated on the exact objectives of the invasion to which the Israeli cabinet agreed to on the 5th of June. Whether the operation was to be limited to pushing back the PLO and weakening its infrastructure or completely eliminating it from Lebanon is irrelevant to this study. What actually happened is of course relevant.

In the first phase of the war, Israeli forces were able to defeat PLO forces in the south and Syrian forces in the southern Bekaa Valley. This resulted in large numbers of PLO forces moving north into Beirut and the vicinity just south of the city. Although a brief ceasefire was agreed to during this time, fighting broke out again and the IDF

moved to cut the Beirut-Damascus road and increase the pressure in the south. These actions were intended to isolate and pressure PLO forces in and around West Beirut. The result of this second phase was that the majority of PLO forces were isolated in the area of West Beirut, and Israel was presented with an opportunity to rid itself, so some leaders thought, of the PLO once and for all. It was this situation which led to the third and final phase of the Fifth Arab-Israeli War - the siege of Beirut and the elimination of the PLO from Lebanon.

The intent of this chapter is to analyze this phase of the war, and as in previous chapters, to ascertain the significant aspects of the urban battle exhibited. As stated earlier, the battle for Beirut was unique. Its uniqueness was primarily the result of the circumstances under which it occurred and the method by which the IDF conducted it. For this reason, the significant aspects of the battle do not parallel those outlined in Chapters III and IV. The Israeli approach to the battle represented a major change in urban warfare philosophy. Since little has been written on the specifics of the battle, this chapter will concentrate on why the Israelis adopted a "different" doctrinal approach, how the PLO defended and the impact which this doctrinal shift had on the outcome of the battle.

The study of Beirut is important because of the lessons it provides concerning urban conflict with armor

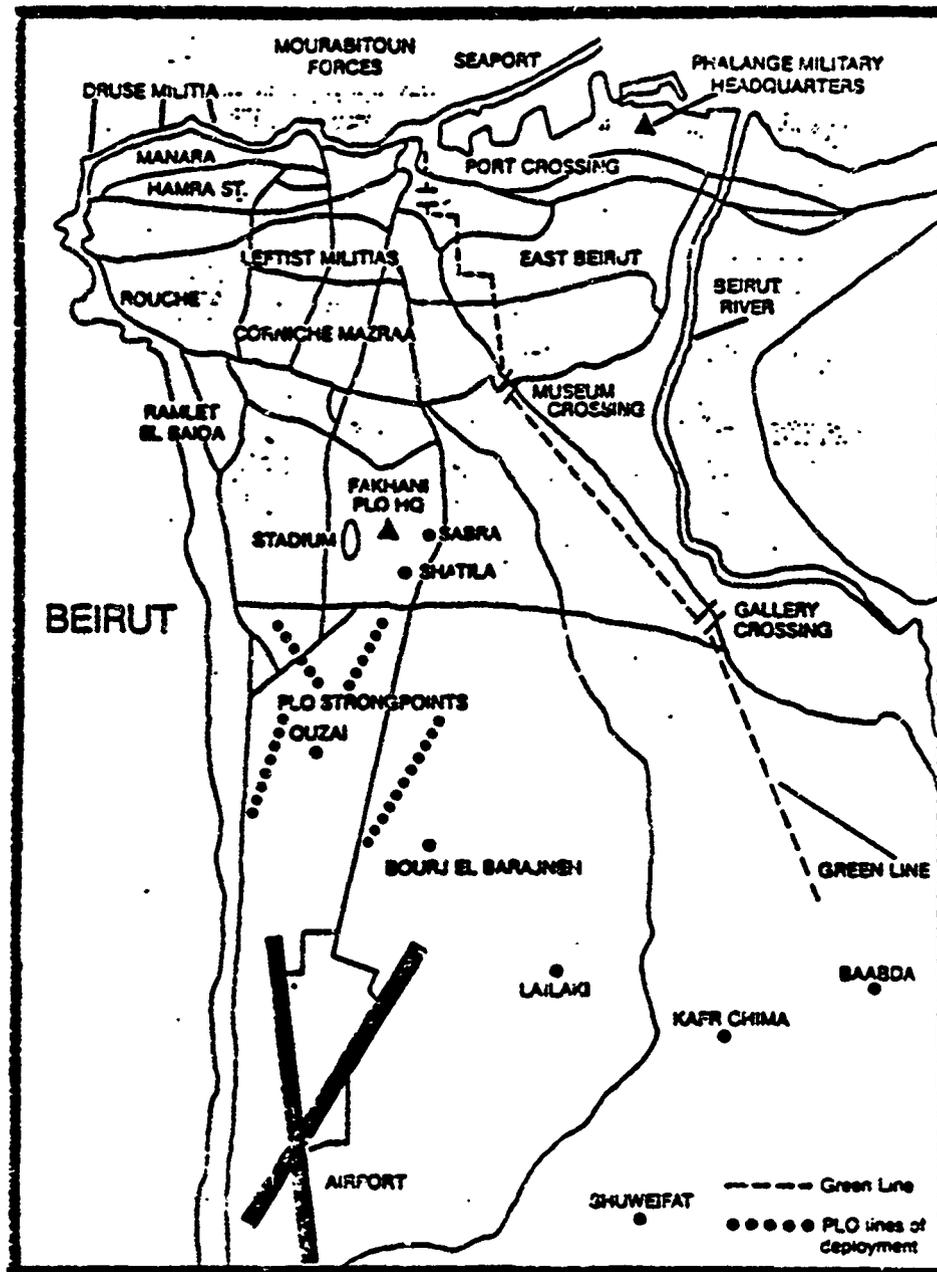
heavy forces and the implications of defending with light forces. A short narrative describing the city, the battle and the outcome is provided prior to the discussion of the significant aspects of the battle.

Beirut - The City

In 1982, in addition to being the capital city of Lebanon, Beirut was also the largest, with a population estimated to be slightly over one million. Influenced by the French mandate of 1921-1943, Beirut is characteristic of French cities of this same period. Structures in the older part of the city are normally four to five stories in height and made out of sandstone. The newer areas of Beirut reflect the heavy western influence following World War II. These structures are very "American" and are characterized by high-rise designs of reinforced concrete and glass.

Although demographically divided into three basic areas, Beirut is geographically divided into only two basic areas - East and West Beirut. (see Map 7) The eastern part of the city, at the time of the 1982 war, had both old and new structures, and was a predominately Christian area.

West Beirut, bordered by the Mediterranean Sea and although a mixture of Christian and Muslims, was predominately Muslim. It was in this area that the PLO had its headquarters and military camps. Located in the north-west section of West Beirut were the American, British and Soviet embassies as well as the majority of the thirty



Reprinted from Operation Peace for Galilee by Richard A. Gabriel (New York: Hill and Wang, 1984), pg. 140.

to forty story high hotels which were favorite playgrounds of western visitors.

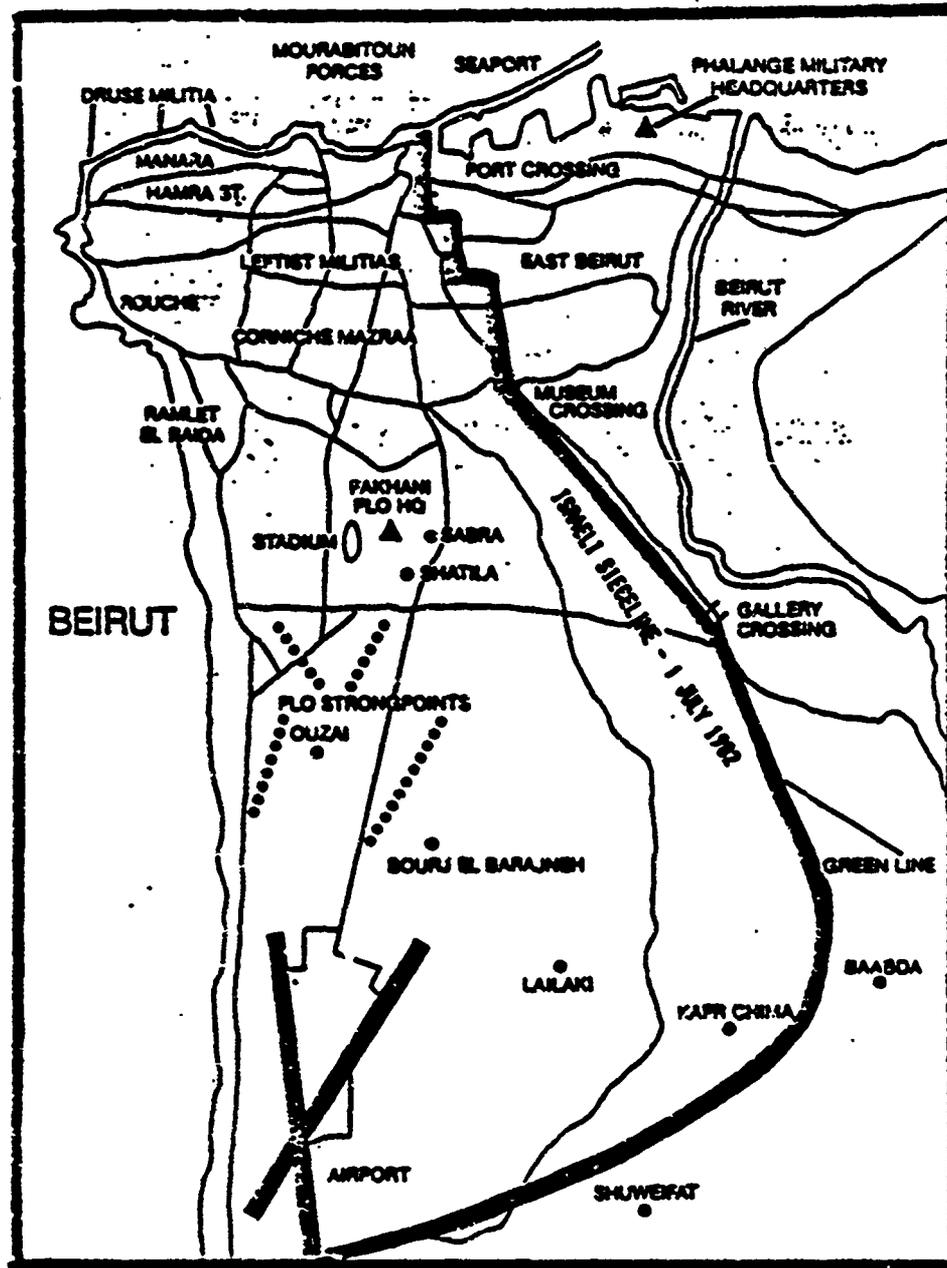
For the most part, both sections of Beirut were characterized by large boulevards and streets in the business districts. Although streets were not as wide in other areas of the city, they were not so restrictive as to prevent movement by armored vehicles.

Reasons for the Battle

Israeli success in southern Lebanon had forced the PLO forces in the south to withdraw to the northern PLO camps in and just south of West Beirut. The IDF had been able to cut the Beirut-Damascus Road and effect the isolation of West Beirut and PLO forces. (see Map 8) To the Israelis it seemed like the perfect situation. With PLO forces effectively surrounded, Israeli Defense Minister Ariel Sharon tried to convince the Christian forces leader, Bashir Gemayel, to commit his forces to the battle. Israel believed, erroneously, that under these circumstances, Christian forces would welcome the opportunity to complete the destruction of an enemy which had plagued them for so many years - especially with the assurance that Syrian forces would not be able to intervene on behalf of the PLO.

Christian forces, contrary to the Israeli view, perceived that any show of force against the PLO would only serve to unite the private militias in the country against them. This, they believed, might prevent their emergence

MAP 8



Adapted from Operation Peace for Galilee by Richard A. Gabriel (New York: Hill and Wang, 1984), pg. 140.

as the dominant power at the end of the war, a position they were not willing to sacrifice. As the Christians saw it, it was to their advantage to stay neutral and let the IDF finish the job they had started.¹¹

The Christian refusal to participate in the war caused a dilemma for the Israelis. Without completing the destruction or eviction of the encircled PLO in West Beirut, they would eventually return to the south again, as they had in 1978. If this were allowed to occur, the political ramifications would be enormous. It would appear that the government had fought a war without any clear goals and without accomplishing anything other than delaying the inevitable return of the PLO to the south. Faced with the choices of abandoning the war or eliminating the PLO, the Israelis chose the latter. It was a gamble they were forced to take.

The Battle/Siege

The IDF was totally unprepared to conduct urban warfare and knew it. It had concentrated on developing armor-heavy forces and planned on fighting the type of engagements which had characterized earlier Arab-Israeli conflicts. Accordingly, the IDF decided it could not engage the PLO in a house to house urban battle. It could not because it had neither the experience nor the force structure to do so. Two other considerations impacted on the Israeli decision. One was the relative advantage the

IDF felt would be conceded to the PLO as a result of the terrain. The other was concern over the casualties which would be incurred in such a conflict - both innocent civilians and IDF troops. For these reasons, the Israeli planners decided to conduct a modified siege.¹²

As a result of this decision, the IDF began a deliberate process intended to place ever-increasing pressure on the PLO in and to the south of West Beirut. Several steps were immediately taken. The first was the seizing of the "Green Line," separating East and West Beirut following the 1975 civil war. Forces were moved from the east to secure the line and seize the two crossing sites between the east and west sectors of the city. Once this was accomplished, water and electricity in West Beirut were turned off. The following day, Israeli forces in the south began to move on the small towns south and east of the PLO camps and seized the high ground around the city. Israeli naval vessels were positioned off the coast to prevent reinforcement or escape of PLO forces.¹³ The PLO was now surrounded.

As the above events took place, the IAF made low level bombing runs over the city dropping leaflets and flares. The leaflets informed the population of the IDF's intent, how they could leave the city and where crossing points were located. Intense bombing and shelling of the PLO camps continued and the forces in the south began to execute, what Richard Gabriel, in Operation Peace for

Galilee, calls a "salami strategy." This was a strategy designed to minimize casualties and called for reduction of heavily entrenched PLO forces by firepower, without becoming committed to a major battle. The result of such a strategy was that enormous amounts of ammunition were consumed and ground was gained literally by yards.¹⁴

During this time the PLO continued to improve their positions and retaliated against the Israeli attacks with attacks of their own artillery and Katyusha rocket launchers. The rubble created by IDF artillery and bombing only served to strengthen the well prepared PLO strongpoints. It was, however, devastating to the PLO camps, which were constructed largely of cinderblock. The PLO, through the manipulation the mass media sought to portray these IDF attacks as general and indiscriminate attacks on the estimated 500,000 civilians trapped inside West Beirut with them. The effect which this campaign had and the way in which the PLO used the media will be discussed in some detail later.

While Israeli forces were occupied in the north, PLO forces, behind Syrian lines in the east, passed through those lines and launched attacks on northern Israeli settlements and on reinforcement forces using the coastal highway. The IDF responded with intense bombardments and struck Syrian positions in retaliation for allowing PLO forces to move through their lines. On one occasion, Israeli planes flew mock bombing runs and dropped flares and

leaflets for thirty minutes over PLO camps and then suddenly attacked, apparently hoping to deceive their true intentions and draw as many of the defenders into the open as possible.

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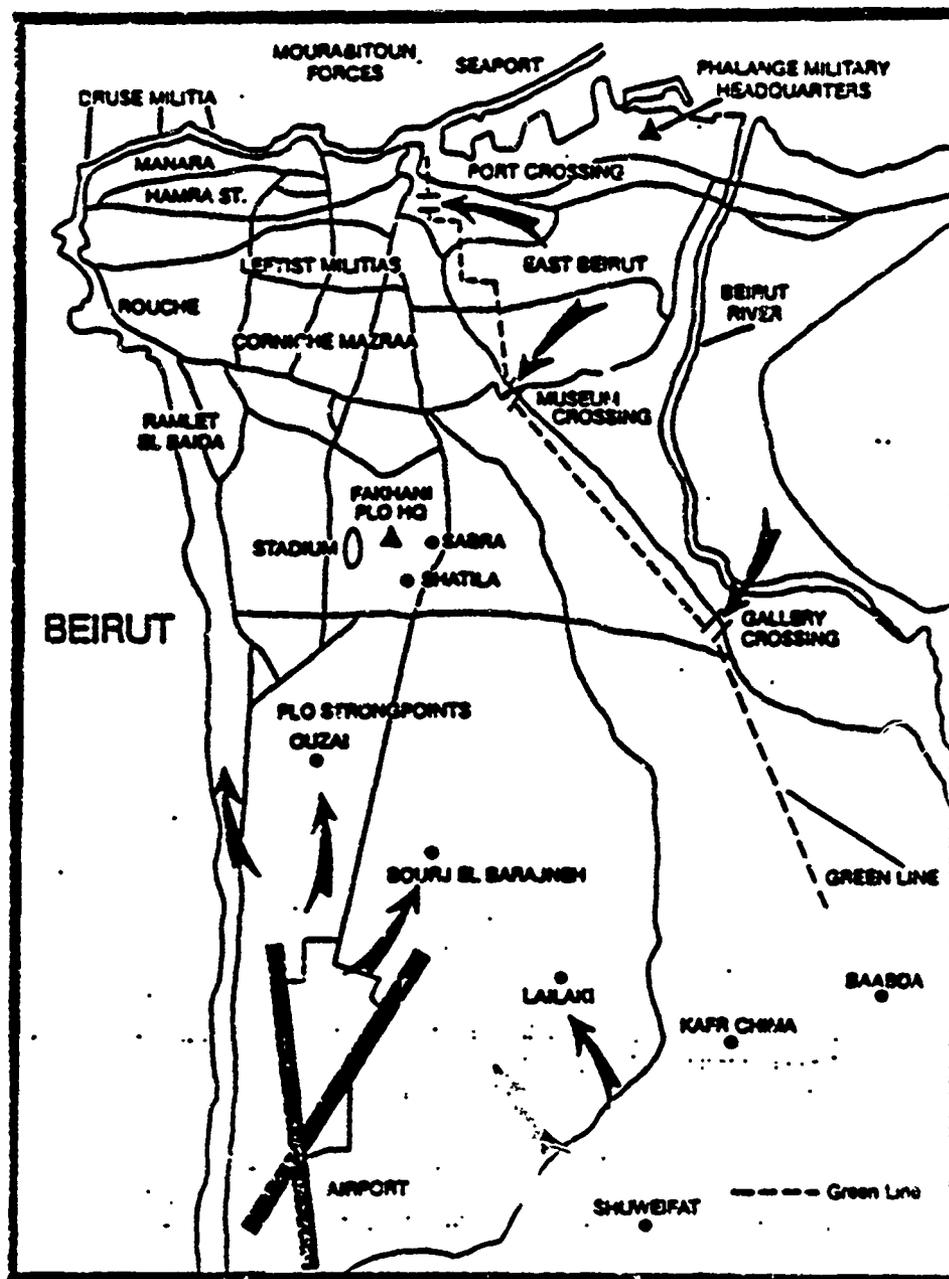
Although negotiations were ongoing during most of the battle, and the Israelis had turned the water and electricity back on to West Beirut at the request of President Reagan, both sides continued to trade bombardments and retributions. On the thirty-first day of the siege, the Israelis launched an attack to seize the Beirut airport. The rationale behind this attack appeared to be based on logistical considerations. If negotiations were concluded with the airfield in IDF hands, it would provide an important logistical link for supplies and evacuation. It would also prevent the same for the PLO.

16

On the 4th of August, thirty-five days after the beginning of the siege, the Israelis launched their largest attack since the beginning of the siege. It was a coordinated attack from the three crossing points along the Green Line and from the area just north of the Beirut Airport designed to take the PLO headquarters in the Fakhani district. (see Map 9) Marked by massive artillery, air and naval gunfire barrages, it was also the first reported use of white phosphorus munitions by the IDF. As a result there were numerous fires in the West Beirut area.

PLO forces opposite the Israeli forces attacking from the Green Line fought doggedly from the numerous

MAP 9



Reprinted from Operation Peace for Galilee by Richard A. Gabriel (New York: Hill and Wang, 1984), pg.153.

strongpoints and obstacles they had constructed in previous weeks and successfully halted the attacks. Forces defending in the south inflicted considerable casualties on the advancing Israeli forces, but were unable to stop their forward progress. As the 4th of August ended, Israeli forces were on the outskirts of the last three PLO camps. In their attempt to take the PLO headquarters and the camps in West Beirut, the IDF had suffered their most expensive day of the war.¹⁷

The days following the 4th of August were marked by negotiations and continued fighting. The IAF continued to strike some targets and to make psychological bombing runs with flares and leaflets over others, however no major initiatives were taken by either side. On the 6th of August, it appeared that the American mediator, Philip Habib, had reached an agreement with the PLO concerning the terms under which they would withdraw from the city. On the 9th of August, the plan negotiated by Habib was given to the Israeli government and it appeared that peace was not far off. Israel wanted two stipulations in the peace plan. The first was that the PLO would leave the city before an international peacekeeping force arrived. The second stipulation was that the PLO would provide a by-name listing of PLO members leaving the city.¹⁸

For the next three days, the IDF continued to pressure PLO forces in the camps. It also moved an armored brigade north of the city along the coastal highway to

prevent reinforcement of West Beirut by Syrian or PLO forces in Tripoli. On the 12th of August, when it appeared that a final agreement was about to be accepted by both sides, the IDF, at the direction of Defense Minister Sharon, began a twelve hour bombardment of the PLO camps in West Beirut. The Israeli cabinet was shocked at Sharon's actions and decreed that further attacks would be approved by the cabinet and Prime Minister. Fortunately for both sides,¹⁹ this action did not derail the Habib agreement.

The ceasefire ordered on the 12th of August by Prime Minister Begin marked, for all practical purposes, the end of hostilities. Although not withdrawn from West Beirut, Israeli forces pulled back the following day and the Syrians agreed on the 14th of August to withdraw their units as they were permitted to do so. The multi-national peacekeeping force arrived in Beirut on the 21st of August and the first PLO forces departed the following day, the 22nd of August, the final day of the siege.²⁰

Significance of the Battle

The siege of Beirut had tremendous significance for both combatants. For Israel, it was a decisive military victory - for the PLO, it was a decisive military defeat. In driving the PLO from Lebanon, Israel insured for the first time in twenty years, if only for a short period of time, that it was safe from PLO attacks launched from Lebanon. Driving the PLO from southern Lebanon and Beirut

was a costly venture for Israel in terms of manpower, money and public opinion. In terms of manpower, the IDF suffered 88 killed and 750 wounded in the siege of Beirut. Although the war in Lebanon did not cost as much as the 1973 Arab-Israeli War, it still cost the country almost one and a half months of its gross national product. Cost of the war was indeed high in both manpower and expenditures, but it is quite possible that the greatest cost to the Israelis was in the area of public opinion.²¹

In Fire in Beirut, Dan Baily, states:

... the image of Israel suffered more damage than at any time in its history. The coverage by the foreign media became a major issue in Israel's domestic debate about the rights and wrongs of the war.²²

For the PLO, the war meant the loss of massive amounts of supplies and equipment as well as loss of status in the Arab world. The PLO had expected Arab countries to support its battle against the Israelis, but instead there was a general lack of support. Baily states the following about the significance of the battle to the PLO:

In losing their state within a state, the PLO lost more than just a huge base for military operations. They lost a whole infrastructure, including a launching pad for terrorists from all over the world: Latin America, Western Europe, and the Far East. No longer did the PLO have direct, ongoing access to the communications media of the world which had enabled them to address Arab and international opinion at will. Whether in Syria or Saudi Arabia, Jordan or Tunisia, the state authorities were now free to obscure, censor, and possibly draw the sting out of PLO representations.²³

In summary, the struggle between the Israelis and the PLO in Beirut had far reaching consequences for both parties. For PLO leader Yasser Arafat, it meant a loss of political power and a fracturing of the organization he had led for so many years. Although the Israelis did not know it at the time, the events which occurred in the days following the PLO's departure from the city would not only result in an even more tarnished image, but would result in a fall from power for a number of political and military leaders.

II. SIGNIFICANT ASPECTS OF URBAN WARFARE DEMONSTRATED IN THE SIEGE OF BEIRUT

Armor Use

The Israelis made a conscious decision not to engage in house to house fighting in Beirut. The reason was simple - Israeli forces simply were not configured to conduct such a campaign due to their heavy force structure. As a result, it was decided that tanks would be used for basically two purposes. The first was to cordon off the city and the second was to reduce PLO positions with deliberate point-blank fire. Tanks were used extensively in the direct fire mode. They were rarely used to support infantry attacks against fortified positions, since every effort was made to avoid such attacks, although some did occur.

One significant use of armor, other than the uses mentioned above, was noted in Richard Gabriel's book,

Operation Peace for Galilee. This use concerned the new Israeli tank, the Merkava. The Merkava is designed with a crew compartment and an additional compartment capable of carrying extra ammunition, fuel or personnel. According to Gabriel, this capability allowed its use to carry up to 10 fully equipped personnel or ammunition through rubble or built-up areas in a manner other vehicles could not. He further states it was used for medical evacuation from these same areas and could carry four litter cases. The improved armor and fire-suppression system in the Merkava make it one of the safest in the world. Also according to Gabriel, although they were ambushed by anti-armor weapons, and employed in the urban battle, no crews of Merkava tanks were killed.²⁴

In all fairness, it must be stated that Gabriel's comments concerning the fantastic capabilities of the Merkava are not without controversy. In a letter to the editor in the April 1983 issue of Military Review, Captain Edwin L. Kennedy, Jr. disputes most of Gabriel's claims concerning the Merkava.²⁵

Because of its tendency to burn when hit, Israeli troops were reluctant to ride inside the M-113 "Zelda" Armored Personnel Carrier. Its vulnerability to most weapons, other than small arms, caused the personnel carrier to be used with considerable caution in built-up areas.

Command, Control and Communications

The PLO in 1982 was essentially a large group of guerrillas attempting to transition into a modern army. Although they possessed large amounts of sophisticated equipment, they were not a modern, well coordinated and controlled army. They fought tenaciously, but with an extremely weak chain of command. As a result of the weak command relationship which existed in the PLO, the Israelis discovered that most of the time, they faced PLO groups averaging six or fewer. These small groups chose their positions carefully. Because of the number of these groups, their semi-independent operations were quite effective. The fact that PLO forces never launched a counterattack is indicative of their lack of C .^{3 26}

For Operation Peace for Galilee, the IDF used a corps-type headquarters to control the battle. This headquarters possessed a sophisticated C³ system. It featured communications links to the forward line of combat and utilized such advancements as remotely piloted vehicles (RPV's) to provide real-time intelligence. The sophistication of this headquarters could have resulted in a reduction of subordinate commander's flexibility and initiative due to the immediate, real-time link, however,²⁷ there is no evidence to indicate this was the case.

The greatest command and control problem noted in the entire operation was a problem of command integrity during the initial stages of the operation as commanders were

frequently changed. This problem was not, however, noted during the siege. C³ during the siege appeared, in fact, to be excellent, especially when the challenge of coordinating the protracted artillery, naval gunfire and air is considered. The commanders of units charged with "tightening the noose" around the PLO in the city were apparently given mission type orders and allowed considerable latitude in the specifics of how they reduced PLO strongpoints.

Camouflage

No reference to the use of camouflage for any of the combatants was found. It is, however, likely that the PLO were able to use their knowledge of the terrain to their advantage to locate and conceal strongpoints and ambush sites. Also for the PLO, there was a "natural" camouflage of sorts - it was the fact that without a gun, he looked like any other civilian.

City Movement

Israeli planners made a conscious decision not to engage in major house to house fighting for the city. As previously mentioned, this decision was based on the IDF's organizational structure and lack of infantry forces. This, therefore, placed most of the burden for reducing PLO strongpoints in the city on the fire support assets - artillery, air and naval gunfire. Consequently, this eliminated most infantry movement in the city and thus prevented many IDF casualties. On the few instances when

soldiers were forced to clear areas, the same principles of city movement encountered in Stalingrad and Hue held true - "He who moved in the open was shot." The Chief Medical Officer of the Israeli Army, General Eran Doley, estimated that fifty-five percent of all casualties were from small arms fire.

28
PLO troops caught in the open or moving without cover became victims of the massive and deadly attacks of the Israeli artillery and air. Except under these attacks movement in the city at other times was completely unhindered due to the lack of close fighting.

Discipline

The quality of discipline in the IDF during the siege is a debatable issue. Most experts agree that the general discipline exhibited by Israeli soldiers was exceptional. Soldiers were strictly prohibited from using grenades or explosives to clear buildings and houses for fear of injuring innocent civilians. They were also directed to extend the rights of POW's under the Geneva Convention to the PLO, even though they were not recognized as having those rights by law. Soldiers received numerous lectures concerning proper treatment of civilians and the enemy. Apparently the IDF was intent on insuring that the improper behavior which characterized the 1973 invasion did not recur.

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According to Gabriel, the IDF instituted

measures to prevent looting during the operation. Soldiers caught looting or with "souvenirs" were given prison sentences and their officers were held accountable. All soldiers returning from the war zone were inspected by customs for contraband. Possibly the most significant indicator of the level of Israeli discipline was the fact that no IDF soldier was charged with a major crime during the entire operation. These measures obviously say something about the quality of Israeli leadership as well as discipline - assuming they are true.

It is difficult to comment on the discipline of PLO forces since PLO units were essentially small, armed resistance groups of ideological fighters. Their discipline must really be equated to their cause. Their morale and fighting spirit on the whole remained high throughout the battle. Since the PLO was made up of a number of factions, there were disagreements between some of these factions and the acknowledged PLO leader Yasin Arafat. These disagreements apparently had little or no effect on the PLO's ability to mount a formidable defense against a superior force.

Fine Support

Israeli fire support was provided by a variety of weapons including machine guns, mortars, and anti-aircraft guns. The IDF was especially effective in the use of fire support and went to great lengths to insure that it was used only against military targets. Although the

was their stated objective, they were not always successful.

In order to preclude damage to civilians and their property, the IDF instituted a number of procedures designed to insure that only military targets were attacked. In areas where the risk to the civilian population was great, air support was limited to small iron bombs or Maverick missiles. It was found that, because of its high degree of accuracy and relatively low level of damage, the Maverick could be used to fire at a specific floor of a building without collapsing the whole building. It could also be fired at targets between buildings with little damage to the adjacent buildings. The Maverick was an ideal weapon for attacking those positions where the PLO had sought to protect its weapon systems by placing them in or on structures such as schools, hospitals or apartment buildings.³¹ The bombing of PLO camps and positions around those camps was virtually unrestricted, since these were considered legitimate military targets. Although no sources were found which verified their use, it is generally believed that the IAF used United States-provided Cluster Bomb Units (CBU's) on these targets.

Aerial photos were used by the IAF in an effort to determine the exact location of military targets in relation to civilian areas to preclude unnecessary collateral damage in cities. IAF pilots often carried these photos with them to insure target identification.

The IDF used artillery in both indirect and direct

fire roles in the siege. A variety of artillery pieces were used by the Israelis during the invasion and siege. These included: the M-109, 175mm self-propelled gun; the M-107, 155mm self-propelled howitzer; and a number of other, either modified or Israeli produced weapons. It is significant that artillery played an important role since in the 1973 Arab-Israeli War, artillery was regarded a support arm only. Between 1973 and 1982, the Israelis tripled the number of artillery weapons in the army.³²

The M-109 provided the best support in the direct fire mode due to its mobility, crew protection and ability to reduce concrete and concrete reinforced structures. IDF artillery occupying the high ground outside of the city was also used in the direct fire mode at selective PLO targets, in what was referred to as a "sniping" role.³³

The Israelis used their new computer fire control system, the Rafael David, to effectively mass artillery fires in a counterfire role against PLO mortars and Katyusha rockets, and to assist in the reduction of strongpoints. Though most modern forces have used this technique for many years, the Israelis have only recently realized its worth. Artillery was also adjusted using both aircraft and RPUs.³⁴

In addition to artillery, the IDF employed 81, 120 and 160mm mortars in Beirut. The 160mm mortar was mounted on an M-4 Sherman tank chassis to provide a suitable firing platform. Mortars were effective in providing area coverage

in and around the PLO camps.

Fire support in the form of naval gunfire was also employed in Beirut. 76mm guns and Gabriel missiles were used, but no specific information was found concerning what type of targets were attacked with these particular systems.

The Israelis also used some captured PLO weapons in Beirut. There is one recorded instance where the PLO hit Israeli positions with several barrages of lethal Katyusha rockets. In response, the Israelis returned fire with a number of the launchers which they had captured from the PLO earlier.

The PLO did not possess the sophisticated fire control capabilities of the IDF, nor did it have air or naval support. It did, however, possess significant quantities of artillery, mortars and rockets, which it used with great effectiveness. Of these, the 122mm Katyusha Rocket Launcher was by far the most effective as provided maximum firepower in minimum time, and covered the greatest area.

The PLO developed a "hit and run" technique which they used with great effectiveness for firing on IDF units. The technique called for a truck with either a mortar or Katyusha mounted in the back to be moved from a hide position into a firing position, where it was fired and then quickly returned to the hide position or moved out of the area. This was an effective method of avoiding massed IDF counterfire and at the same time producing significant

casualties. The Chief Medical Officer of the IDF estimated that IDF casualties from artillery fire in Beirut exceeded those for the other phases of the war, to include the fight in the south against the Syrians.³⁵

Fortifications

Believing that the IDF would launch major assaults to take their camps and drive them out of the city, the PLO constructed numerous strongpoints and ambush positions in and around these areas. These points and PLO area commands were linked with a series of tunnels and trenches. These were designed not only to provide cover from artillery and air attacks, but to provide secure movement of forces and supplies forward.³⁶

In addition to constructing strongpoints and ambush positions, the PLO also created obstacles along major avenues of approach. These areas were mined and booby trapped in anticipation of the forthcoming Israeli attack.³⁷

Besides the physical fortifications mentioned above, the PLO also used "psychological" fortifications. Believed the IDF would not attack for fear of causing civilian casualties, the PLO positioned troops and weapons in schools, hospitals and civilian apartment buildings. In many instances the placement of forces in these locations did not prevent attack by Israeli forces. When this occurred, the PLO acquired an additional weapon for use against the IDF - adverse media coverage.

Intelligence

Exactly how the PLO gained intelligence on Israeli forces is not clear, but it is clear it did. The most likely manner in which the PLO gathered intelligence on Israeli force dispositions and movements was by the use of agents, either left behind or posing as Lebanese citizens, and reports from its units in combat. The PLO did not possess the sophisticated intelligence gathering assets which the Israelis did. It was therefore relegated to relying on agents or information provided by "friendly" countries. It had no remotely piloted vehicles (RPV's), recon aircraft or radio intercept equipment.

It is clear that the PLO received information on IDF forces and intentions by certain actions they took. These were in the form of artillery and rocket bombardment on IDF positions both in and outside of the city, and ambushes on Israeli personnel and logistics assets transiting the coastal highway.

Israel gathered intelligence by a number of methods. Aircraft, RPVs, radio intercept, agents and Christian units all provided the IDF with intelligence. Aircraft were used to take aerial photographs and provide aerial observation reports while RPV's were used to provide real time intelligence to planning centers. Electronic direction finding assets were used to provide counter battery fire. No information was found concerning the specific use of agents. Information was, however, provided on an informal

basis by Christian units and by certain elements of the civilian population.

Leadership

The structure of the PLO makes it extremely difficult to assess the quality of its leadership. There are at least eleven known sub-organizations under the Executive Committee of the Palestine Liberation Organization.³⁸ The members of these various organizations are responsible only to their individual organization leaders. In Beirut, most of the PLO troops encountered by the IDF fought in small groups of six or fewer. It would follow that this type of task organization allowed individual soldiers to have a greater part in making the decisions of how, when and where to fight. Based on the tenacity with which PLO forces fought as a whole and the apparently high morale which they had even under adverse circumstances, it would appear that leadership at the lower levels was more than adequate. This assessment lends some credibility to the theory of making small groups of soldiers "their own generals" in the city fight.

Israeli leadership at the "strategic level" was deficient as evidenced by the actions of Defense Minister Sharon. His apparent obsession to do more than just eject the PLO from southern Lebanon and Beirut appeared to violate the intentions of the Israeli Cabinet and Prime Minister. Many leaders and soldiers within the IDF disagreed with the

objectives of the war and the way in which Sharon directed it. These objections were voiced in various ways.

A prominent brigade commander, the son of an Israeli general and a hero of the 1973 war, asked to be relieved rather than order his unit to attack Beirut. He felt so strongly about the loss of life which would occur that he offered to resign and serve as a common soldier rather than lead such an attack.³⁹

A number of other officers also resigned in protest of the way in which the war was being directed. One of these was the head of the Israeli Command and Staff College, General Amram Mitzna. Another was paratroop Lieutenant Avraham Burg, the son of the leader of the National Religious Party.⁴⁰

Although leadership at the highest levels appeared to have been deficient, IDF leadership at the brigade and lower levels appears to have been excellent. The fact that 61% of Israeli casualties were in the ranks of sergeant through major would seem to indicate that small unit leaders led from the front and shared the hardships of the battle.⁴¹ An additional tribute to IDF leadership at the lower levels is the fact that no Israeli soldier was charged with a major crime during the siege.⁴² The above examples seem to indicate a high ethical and moral conscientiousness on the part of IDF leaders.

Concern over the prevention of civilian and military casualties exhibited by the prohibition on the use of

grenades and satchel charges to clear buildings and the decision not to engage the PLO in house to house fighting also appear to be indicative of quality leadership. Both of these decisions were made to save lives - the lives of IDF soldiers and innocent civilians.

Logistics

It is difficult, if not impossible to adequately assess the quality and effectiveness of the PLO logistics system for several reasons. First, the PLO had lived in the city for approximately ten years. During this time they had reportedly accumulated enough supply stocks to last six months. Secondly, PLO strongpoints were prepared in advance of the IDF siege. This allowed for stockpiling of ammunition and other supplies without the constraints of battle. Re-supply even after the siege began was in a relatively unhindered manner to a certain extent. This was due to the fact that IDF forces did not actually penetrate the city with ground troops until the first part of August. Even after ground forces were in the city, the PLO was able to use the tunnels and trenches they had constructed to bring supplies forward.

During the Lebanon invasion, the IDF utilized a "push" system of supply in which supplies and ammunition were pushed to fighting units in packages of supplies on an automatic basis. This was done without requests from units, which characterizes a demand driven supply system.

Israeli forces in Beirut were re-supplied primarily by C-130 transport aircraft landed along the main roads. This was possible because of the total air superiority achieved by the IAF during the battle. Supplies delivered by C-130's were transloaded to helicopters and subsequently delivered to the front line units. Little overland resupply was used due primarily to the poor roads, terrain and threat of ambush by PLO factions still in the south. Had the IAF not enjoyed air superiority, re-supply could have been a serious problem for the IDF. Though they could have been used to re-supply forward forces since they controlled the Lebanese coastline, the navy was not used for this purpose.⁴⁴

The PLO had no air assets and hence they were unable to interdict the IDF line of communication (LOC) from the south. This inability was a major factor in allowing the IDF to sustain the massive artillery barrages on PLO positions in and around Beirut. It was these attacks, and not the actual siege of the city which eventually caused the PLO to capitulate and not the interdiction of the PLO's LOC, as the supplies later captured indicated that they could have continued the battle considerably longer had they so desired.

Medical Care and Evacuation

PLO forces relied primarily on the medical care available at local hospitals, many of which they had been instrumental in starting. In the Sabra-Chatila camp, in

West Beirut, there were three hospitals and at least one medical clinic available to treat casualties.⁴⁵ Until this camp was destroyed, these facilities treated both injured soldiers and civilians. The exact method of evacuation to these facilities was not found in any of the sources used for this study.

For medical care and evacuation, the IDF uses a system of both mobile aid and surgical teams. Both of these teams are based out of armored personnel carriers (APC's) and are physically located in the forward areas of the battlefield. The mobile aid team consists of medical technicians and a doctor. The intent behind having such a team well forward is to provide casualties advanced medical care as soon after injury as possible, thus increasing the odds for survival, or so the Israelis believe. The mobile surgical team consists of a surgeon or surgeons and appropriate medical personnel. It is capable of providing lifesaving surgery in the forward areas. Helicopters are used to transfer stabilized patients to rear area medical facilities once their condition has been stabilized.⁴⁶ The Israeli system is similar to the Soviet system of treatment and evacuation.

For the invasion into Lebanon, the number of doctors in each medical platoon was increased from one to two in anticipation of high casualties. Additionally, every helicopter in the forward area, with the exception of attack helicopters, carried a doctor. This proved to be

significant as over three quarters of IDF casualties were evacuated directly from the point they were wounded to medical facilities in the rear, much like the American aero medevac system. Having doctors in the forward area of the battle also proved significant in that two doctors were killed and sixteen others were wounded.⁴⁷

In addition to casualties resulting from physical injury on the battlefield, there were considerable numbers of psychological casualties. No information concerning PLO psychological casualties was found in any of the sources used; however this was an area of great concern to the IDF.

As a result of their experiences in the 1973 Arab-Israeli War, the IDF had instituted a sophisticated program designed to identify and treat psychological casualties in hopes of reducing the high numbers they had experienced in earlier wars. Part of this program concerned surveying units to determine the state of morale and confidence and providing a report on the unit's status to the commander within one day. The IDF also assigned psychologists to brigades and divisions in hopes of treating casualties earlier and thus returning them to battle earlier. Although these measures were taken, IDF psychological casualties were actually higher than in the 1973 war. Some psychologists believe this was a result of the increased stress induced by fighting in urban areas without proper training and the moral and ethical problems it presented to soldiers.⁴⁸

In the area of casualty prevention, the IDF found

the protection provided by body armor in Lebanon was significant. The Israelis used a new version of upper body armor which was lighter than the old US model and provided more neck protection. Estimates arrived at by examination of these "flak jackets" revealed that casualties could have been as much as twenty percent higher without their use.⁴⁹

Another advancement in the area of protection was the fire extinguishing system in and the protection provided by the new Israeli tank, the Merkava. Crews in Merkava tanks suffered noticeably less casualties than those in other tanks - a significant employment consideration when fighting in built-up areas. The improvements in fire control and protection in the Merkava were not experienced in the M-113 APC, which still proved to be a death trap for soldiers when hit by an RPG.⁵⁰

Mines and Booby Traps

The PLO used both mines and booby traps in their defense. Mines were used along the major avenues of approach as previously discussed under the section on fortifications. Little detailed information is available on the method or extent to which the PLO used booby traps, however, in Beirut: Frontline Story, Selim Nassib recounts that the IDF used children to pick up weapons left behind by the PLO in case they were booby trapped.⁵¹ It is difficult to ascertain whether or not this story is true since Selim Nassib's book is dedicated to the PLO fighters in the Sabra-

Chatila camp and definitely presents a biased view.

Population Control and Assistance

The PLO received considerable aid from the population in West Beirut. The primary reason for this was that a large percentage of the population in southern Beirut were actually families of the soldiers. This was understandable since the PLO had occupied parts of the city for ten years. Just as they received aid, there were also many Lebanese who were glad to see the PLO driven out, especially Christian sympathizers. One tactic used by the PLO which infuriated the local populace was the placing of weapon systems in close proximity to or actually in or on buildings such as hospitals, schools and apartment buildings, and thus drawing Israeli fire on these civilian structures.

The IDF used a psychological warfare program in an attempt to convince PLO soldiers they would be forced to leave the city or eventually be destroyed along with their families. Leaflets were dropped explaining to the local population that two routes out of Beirut were open and could be used without fear. The IDF hoped that the local population would evacuate the city or at least leave the southern and eastern areas and thus reduce the PLO's military strength by reducing its base of support and unnecessary civilian casualties. The IDF hoped to solve the problem of dealing with the refugees' assistance.

throughout ICF medical units did not have any
reference to civilians. The problems associated
with the maintenance and control were primarily left to the
Lebanese government in East Beirut.

Propaganda and Manipulation of the Media

The ability of the PLO to manipulate the media was
one of the most significant weapons in their arsenal. The
damage done to the image of Israel throughout the world by
unfavorable television and press reports from Lebanon was a
direct result of PLO control and manipulation of these
elements. This manipulation was possibly due to the way in
which the PLO had cultivated friendly relationships with
members of the media in years past and the ways in which
they had rid themselves of members who published unfavorable
reports on the PLO.

In Fire in Beirut, Baily provides a listing of
actions taken by PLO terrorists since 1975 to eliminate
unfavorable press. Included in this list are six occasions
where press offices or printing plants of press
organizations refusing to cooperate with the PLO were either
bombed or burned. The same list also includes two occasions
where editors were murdered. Of these, one was apparently
tortured and murdered. The list also includes at least
eight Western correspondents murdered because of their
unfavorable reporting on PLO activities.

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One of the best descriptions of the

manipulated the press is provided in an article by journalist Kenneth Timmerman, entitled "How the PLO Terrified Journalists in Beirut." In the January 1983 edition of Commentary. Mr. Timmerman, who was held captive in a PLO prison for twenty-four days, states,

Much more important were the direct means employed by the PLO to control the journalist present in West Beirut, and the indirect means used to intimidate them.

First there was the press pass issued by Wafa with the bearer's photograph, a duplicate of which remained in Wafa's offices. Without this pass, no journalist could hope to circulate in West Beirut; caught photographing, or taking notes, he would be immediately arrested if not shot on sight.

No newspaper or other medium would commit the error of sending to West Beirut someone who had adversely reported in the past on the activities of the PLO or the Syrians, for fear of his simply disappearing. Thus a first "selection" of journalists was made by the PLO: there simply were no friendly journalists operating in the

... detailing how the PLO intimidated the ... provides the following comments concerning ... of information by the press:

There was a vastly exaggerated presentation of ... and devastation of the cities of ... and Damour.... In Tyre, Sidon, ... of the destruction was on the ... most of the through ... and television crews, ... in various stages ... that preceded this war. ... destroyed buildings, ... houses ...

mourning at a graveside in Beirut. Only those who read Arabic could see from the date on the tombstone that the deceased had died on August 10, 1980, which was almost two years before the invasion....

...While the cumulative damage to some parts of the city [West Beirut] was considerable, other sections, where the PLO was absent, did not suffer. Yet the picture relayed by most of the media was of an entire city living in hell.⁵⁵

The effects of such unpopular press on the image of the IDF was predictable. Even in countries friendly to Israel, outrage was expressed over the apparent wanton destruction and killing by Israeli forces as portrayed by the media. The United States, historically friendly to Israel, repeatedly called for a ceasefire and withdrawal of Israeli forces. Additionally, the U.S. stopped the shipment of cluster bombs based on reports that the IDF was using them against civilians and in violation of US law.⁵⁶

The IDF must assume some of the blame for the unpopular outlook presented due to its own treatment and censorship of both Israeli and foreign media. Anti-Israeli press undoubtedly contributed to the protests against the war in Lebanon within Israel. However, the IDF's apparent ineptness to effectively use the media to their own advantage clearly added to the effectiveness of PLO propaganda. Had the IDF done a more professional job of depicting the PLO as the aggressor, it is quite possible that both Arabic and Israeli public opinion might have been more tolerant, if not outright supportive, of the move into Lebanon.

Psychological Aspects of the Battle

As discussed previously under the section on Medical Care and Evacuation, psychological casualties were a serious problem for the IDF. It appears that even though Israeli forces did not engage in the type of close quartered, house-to-house fighting characteristic of most urban conflicts, the ever present fear of ambush and the ethical dilemma created by attacking a populated city contributed significantly to these casualties. Although difficult to prove, it is quite probable that lack of urban warfare training also contributed to increased psychological casualties.

No specific mention of PLO psychological casualties was found. It is interesting to note, however, that there was a mental hospital located in the Sabra-Chatila PLO camp. ⁵⁷ A picture in Beirut: Frontline Story, shows a group of naked and supposedly traumatized children in a room, the caption of which leads the reader to believe that they are the result of sustained Israeli bombardment. ⁵⁸ The psychological impact which urban combat has on the residents of a city is an often overlooked aspect of the urban battle.

Sappers

The PLO had no engineer branch as such, but used individuals skilled at engineering tasks to construct the barriers and fortifications in the camps in and around Beirut.

Although IDF engineers played an important role in the invasion of Lebanon as a whole, their role in the actual siege of Beirut was limited. This was due primarily to the IDF decision against a house-to-house urban battle. This decision reduced the need for both engineers and infantry. The most important function performed by the engineers in Beirut was the clearing of obstacles at the Museum Crossing into West Beirut. In this advance, engineers used D-9 bulldozers to clear away obstacles, and acted as infantry to cover their own advance from sniper fire.⁵⁹

Snipers

Sniper effectiveness was reduced in Beirut due primarily to the "reduction by firepower" approach which the IDF took in driving the PLO from the city and the fact that tanks and self-propelled artillery were primarily used and thus provided more protection. This statement should not be taken to mean that sniper fire was ineffective - its effectiveness was just reduced because there were fewer targets. As in other urban conflicts, the sniper caused considerable consternation to the soldier on the ground who never knew when or where he might be shot. Snipers in fact delayed the engineer clearing of the Museum Crossing previously mentioned. It is significant to note that fifty-five percent of IDF casualties were attributable to small arms fire.⁶⁰ What percentage can actually be attributed to snipers is unknown, but they clearly were

effective casualty producers. The primary PLO sniper rifle was the 7.62mm SSG ⁶¹ 69.

None of the sources used for this study provided any detailed information on the use of snipers by the IDF. The primary IDF sniper rifle was the 7.62mm Galil.

Tactics and Task Organization

Tactics of both the PLO and IDF have been previously discussed under other sections, however, the main points of these previous discussions are covered in the following paragraphs.

PLO forces, though well equipped, lacked the organization and structure to fight as major units. Consequently, their defense consisted of a series of positions primarily manned by small units of six or fewer men. The PLO realized it could not defeat the numerically superior Israeli army on the battlefield and thus pursued an intense psychological battle through the mass media, designed to destroy not only the enemies will to fight, but to separate Israel from any external support. PLO supporters claimed Beirut would be an Arab Stalingrad for Israel. ⁶² Although it was well trained and motivated at the small unit level, the PLO lacked training and leadership which might have allowed it to mount large unit operations. As a result of this void, no PLO counterattacks of any significant size were ever launched against the IDF. ⁶³

The organization of the army as a heavy armor and

mechanized force and lack of training in urban combat skills, caused IDF leadership to forego any attempt to take Beirut house by house. This decision undoubtedly saved many lives, both in the PLO and IDF. What the IDF did decide on was a modified siege strategy. It consisted of isolating West Beirut and the PLO camps and subsequently reducing them systematically with massive barrages of artillery, air support and naval gunfire. Simultaneous with the implementation of this strategy was a concentrated psychological warfare campaign designed to reduce the PLO will to resist and to turn the local population against the PLO.

Training Programs

As unbelievable as it might seem, the IDF discounted their earlier experiences in urban combat in Jerusalem and Suez City as atypical. IDF leadership believed it was unlikely that Israeli forces would ever again be involved in urban combat again. As a consequence of this belief, no emphasis was placed on preparing for operations on urban terrain. In an attempt to overcome this deficiency, IDF airborne forces trained in the town of Camour during periods of cease-fire in Beirut.⁶⁴

Although the PLO did not have a formal urban warfare training program, it had been engaged in the 1975 civil war and had learned its lessons on a live battlefield. Street fighting was what some on the PLO said, "they knew how to do

best."

Use of Underground Passages

The only underground passages reportedly used were the tunnels used between defensive positions by the PLO. These were quite extensive and provided protection from artillery and air attacks. No instances were found where sewers were used by either side. A report by the US Army's Human Engineering Laboratory on the Lebanese Civil War suggest that the lack of use of sewers may be linked more to Arab culture than to practicality.

Weapon Effectiveness and Usage

The following weapons and a discussion of their uses and effectiveness were addressed in previous sections: the M-109, 175mm self-propelled gun; M-107, 155mm self-propelled howitzer; 81, 120, and 160mm mortars; AGM -65 Maverick missiles; ship launched Gabriel 1, 2 and 3 SS missiles; 76mm naval guns and; 122mm Katyusha rocket launchers.

The 122mm Katyusha rocket launcher would have to be considered as the indirect fire weapon which provided the majority of PLO firepower. It was easily transportable and provided quick and deadly fire over a large area. Although the PLO possessed a limited number of howitzers and field guns, most sources mention the devastation of the katyusha. In addition to these artillery weapons, the PLO also used the M-37 82mm mortar.

The RPG-7, LAW, B-10 recoilless rifle and B-11

recoilless rifle provided PLO fighters with a considerable light anti-armor capability. The PLO also possessed a number of AT-3 Sagger missiles and MILANs. None of the sources used for this study made reference to quantities of these weapons or their individual effectiveness, however, a number of Israeli tanks were put out of action by these missiles.

The PLO used a variety of small arms. These included: the 5.56mm M-16 A1; 7.62mm AK-47 Kalashnikov AR; 7.62mm AKM AR; 7.62mm Type 56 AR and; 9mm P.P. Sh. 41 SMG. They also possessed a number of light, medium and heavy machineguns.

The IAF had and used a number of multi-role aircraft in Beirut to include the F-16 A/B, the F-4E/RF Phantom, the Kfir and the French Mirage. These aircraft were used to deliver both iron bombs and Maverick missiles. Since the PLO had no air assets and little air defense capability, the IAF was able to achieve complete air superiority over the city. The IDF also employed US made AH-1G/S Cobra attack helicopters in Lebanon, however, no references were found concerning their use in the city.

Armor was used by the IDF with what could probably be termed limited success in West Beirut. Crews of US made M-60s and British Centurions suffered the majority of tank crew casualties. The new main battle tank, the Merkava, reportedly proved a great success, both in terms of capabilities and crew survivability. As already stated.

armor was used at almost point blank ranges to reduce PLO positions as units moved forward.

One innovation was noted in the battle for Beirut. The Israelis mounted a 20mm Vulcan on an M-113 "Zelda" APC and used it in the reduction of fortified positions with great effectiveness. This was not really new since US forces have had self-propelled Vulcans for years.⁶⁵

The IDF, like the PLO, used a variety of small arms. These included the 9mm Uzi SMG, 5.56mm Galil AR, 5.56mm M-16 A1 and, the 7.62mm M-14 SAR. An assortment of light, medium and heavy machineguns were also used by the IDF.

Weather Effects

Weather had no effect on the battle.

III. SUMMARY

This chapter, like the previous chapters on Stalingrad and Hue, has provided a description of the city of Beirut, the events preceding and the causes of the battle, a short narrative highlighting it and its overall significance. The twenty-one areas of urban warfare discussed in chapters III and IV have for the most part been covered in this chapter, except in those instances where they clearly did not have a bearing on or were not significant in the outcome of the battle.

Major shortcomings of the PLO defenders noted were: the failure or inability to interdict the IDF's LOC's; lack

of sufficient command, control and coordination between the many factions within the PLO; and most importantly failure to gain the support of Arab nations, other than Syria in an attempt to place external pressure on the IDF to redirect its efforts.

IDF significant shortcomings noted were: failure to have forces organized, equipped and trained to conduct urban combat; failure of leaders to respond to the lessons learned from previous urban battles and; IDF failure to efficiently use the media to gain world and national support as the PLO was able to do.

The following significant aspects of the battle were noted:

Although the IDF sustained considerable casualties in taking Beirut and driving the PLO from the city, these casualties were insignificant in comparison to those they would have suffered had they decided to clear the city house by house and block by block. The approach of "reduction by fire" used by the IDF can only be effective if the enemy occupies a city vacant of its civilian inhabitants, chooses to segregate himself from the populace or the attacker simply doesn't care about civilian casualties.

The effectiveness of armor in the reduction of strongpoints and other fortified positions under appropriate conditions was noted in Beirut, as in Hue. In Beirut, the proper conditions were the employment of tanks beyond the effective range of handheld anti-tank weapons. When tanks

abandon this standoff advantage they must be supported by infantry to prevent ambush.

As was the case in both previous battles examined, defenders in prepared positions usually survived even the most massive of artillery and air attacks.

Body armor, as in the battle for Hue, provided considerable protection from small arms fire and artillery fragments when properly worn.

Most importantly, Beirut provides yet another example of where relatively light but dedicated forces in prepared positions were able to delay a superior enemy for a prolonged period of time.

At the time this chapter was researched and written, source material on the Arab-Israeli War of 1982 was relatively scarce. Sources which were available and used in the preparation of this chapter have tended to present relatively slanted viewpoints - either pro-Israeli or pro-PLO. The U.S. Army Human Engineering Laboratory at Aberdeen Proving Ground, Maryland, is scheduled to release a contract study conducted by Abbott Associates, Inc. of Alexandria, Virginia in late 1985. This study, when released, should provide individuals desiring to conduct further research into the Battle for Beirut with a relatively non-biased account.

CHAPTER V

ENDNOTES

1. Zeev Eytan, Mark Heller and Dov Tamari, The Middle East Military Balance 1983, (1983), p. 14.
2. Ibid, p. 11.
3. The Cario Agreement of 1969, which Lebanon was pressured by Egypt to sign, formally established areas in which the PLO could operate independently of the Lebanese government. It also established certain territorial rights for settlement.
4. Richard Gabriel, Operation Peace for Galilee, (1984), pp. 41-42.
5. Ibid, p. 42.
6. Ibid, p. 45.
7. Ibid, p. 56.
8. Ibid, p. 58.
9. Eytan, p. 11.
10. Although not available at the time this study was prepared, the US Army Human Engineering Laboratory is presently preparing a detailed study on Beirut, to be released in late 1985.
11. Gabriel, pp. 130-131.
12. Ibid, pp. 132, 192.
13. Ibid, no. 141-143.
14. Ibid, p. 143.
15. Ibid, c. 146-147.
16. Ibid, p. 151.
17. Ibid, p. 154.

18. The by name listing of PLO members leaving the city was to be compared to a list of PLO members captured by the IDF at Sidon.
19. Gabriel, p. 158.
20. Ibid, p. 159.
21. Ibid, p. 177.
22. Dan Baily, Fire in Beirut, (1984), p. 135.
23. Ibid, p. 181.
24. Gabriel, pp. 197-199.
25. Edwin L. Kennedy, Jr., Letter to the Editor, Military Review, (April 1985), pp. 77-79.
26. Baily, p. 93.
27. Gabriel, p. 195.
28. Ibid, p. 178.
29. Ibid, p. 175.
30. Ibid, pp. 175-176.
31. Ibid, p. 160.
32. Ibid, p. 204.
33. Ibid, p. 163.
34. Ibid, p. 205.
35. Ibid, p. 163.
36. Ibid, p. 132.
37. Ibid, p. 145.
38. Eytan, p. 186.
39. Gabriel, p. 184.
40. Ibid, p. 185.
41. Ibid, p. 235.
42. Ibid, p. 175.

43. Ibid, p. 132.
44. Ibid, p. 210.
45. Selim Nassib, Beirut: Frontline Story, (1983), pp. 140-141
46. Gabriel, p. 206.
47. Ibid:
48. Ibid, pp. 179-181.
49. Ibid, p. 207.
50. Ibid, pp. 177, 207.
51. Nassib, p. 82.
52. Gabriel, pp. 136-137.
53. Bavly, pp. 143-144.
54. "How the PLO Terrified Journalist in Beirut," Commentary, January 1963, quoted in Dan Bavly, Fire in Beirut, (1984), p. 145.
55. Bavly, pp. 138-139, 141.
56. Ibid, p. 141.
57. Nassib, pp. 140-141.
58. Ibid, pp. 122-123.
59. Gabriel, pp. 208-209.
60. Ibid, pp. 207, 209.
61. Eytan, p. 188.
62. Bavly, p. 99.
63. Ibid, p. 109.
64. Gabriel, p. 128.
65. Ibid, p. 163.

CHAPTER VI

CONCLUSIONS

...in looking at the problem of urban warfare in the future there is no other choice than to guide on the past.

S.L.A. Marshall

Experience is useless unless the right conclusions are drawn from it.

Fredrick.the Great

At the outset of this paper, the battles of Stalingrad, Hue and Beirut (1982) were chosen for observation because they represented combat in distinctly different geographical locations, fought by participants of different nationalities and at both chronologically and technologically different times. They were also chosen to determine if the similarities in doctrine, tactics and weapons which linked them were greater than the differences in time, geography and nationality which set them apart. As a result of analyzing these three battles, the questions put forth in Chapter I were essentially answered. It also became obvious that there were a number of other issues concerning MOUT which were equally, if not more, important than

answering the "How to" questions. To address these, as well as the conclusions reached concerning the "How to" questions is the intent of this chapter.

CONCLUSIONS

Tactical Implications of Urban Warfare

Light forces can, with the proper training, equipment, protection and leadership effectively defend against armor heavy forces, even if such armored forces have total air superiority and what may appear to be overwhelming fire support - for a significant period of time. In order to do this, such a force needs:

- o A philosophy of urban combat inculcated that allows small unit leaders and individual soldiers to use their imagination, initiative and daring. Stalingrad, Hue and Beirut all demonstrated the effectiveness and innovativeness of the soldier.

- o Leaders who understand that the defense of every city is different, but that some aspects of the defense remain constant, such as:

- The value of mutually supporting strongpoints along major axes.

- The value of the sniper. A trained and effective sniper is not only a lethal "weapons system," but contributes immeasurably to the psychology of the battlefield. Properly employed, snipers have the potential

to take out enemy leadership and slow his armor advances or surgically stripping away infantry screens. Without such screens, tanks become lucrative targets for anti-armor systems in ambush positions. The sniper is also a collector of intelligence. He must be trained for all these functions and his selection is critical. He must first be an excellent shot. He must also be the type of individual who is psychologically capable of operating independently for extended periods either by himself or with one other individual - and psychologically capable of placing the crosshairs and pulling the trigger, time after time.

The value of the local counterattack. Leaders must understand the value of the counterattack, organize their units to do it and train them along functional lines as did the 62nd Army in Stalingrad. This does several things. It first keeps the enemy continually off balance. It allows defending forces to stay in close proximity to the attacker and possibly negates his ability to use close air support and artillery. Finally, it causes the enemy to retake an area - a psychologically depressing action for the soldiers assigned to do it.

o Leaders with positive and psychologically sound attitudes. Although this is important at all times, it is paramount in the city battle. The resolve of the commander, as demonstrated at Stalingrad, is absolutely critical.

o The proper weapons and equipment, such as:

Effective anti-armor weapons - not only long and

medium range weapons, but an effective short range weapon, which is lightweight, small, can be carried and employed by every soldier and most importantly, can be fired from a building or cellar without special considerations.

An efficient and durable sniper weapon, which is accurate at a range of 500 to 900 meters.

Efficient indirect fire systems, such as mortars and multiple rocket launchers as well as artillery. The 122mm launchers, used in all three of the battles analyzed, provided highly mobile and efficient firepower.

Anti-tank mines, capable of quick emplacement by the average infantry soldier.

An effective array of grenades, to include fragmentation, concussion, smoke, CS and possibly anti-armor.

A lightweight radio, issued down to fire-team level and snipers or sniper teams.

A night vision device, issued to fire-team level. Although no night vision devices were used to any degree in the three battles analyzed, the fact that they are currently available and that the "light defender" must use night to his advantage indicates that these devices must be a real consideration.

The best and lightest body armor available must be issued and worn. Every effort possible must be made to make the soldier more survivable. This does several things. It increases the soldier's confidence in his ability to

survive, reduces casualties and thus the need for medical treatment.

A protective mask which does not degrade weapons usage or accuracy.

A tremendous amount of demolitions in order to prepare passageways between buildings and to construct obstacles.

A better first aid kit, which approaches a medic's surgical kit.

o To be trained to high level of expertise in:

Engineer skills, such as the construction of fortifications, obstacles and demolition training. Some individuals in each unit must be trained to use heavy engineer equipment. There are clearly not enough engineers in the force structure today to support the type of effort required to defend or take an urban area.

First aid. The number of casualties will be high in the city battle and the difficulty of evacuation increased. This will necessitate soldiers having more medical knowledge than they currently have.

Manufacture of improvised weapons, such as mines and Molotov cocktails.

Building analysis. Soldiers in general, but especially leaders, need to have a general understanding of structural building analysis in order to choose those buildings to defend which allow the greatest probability of survival. The development of such skills would require

considerable effort, but the repercussions of not developing such skills could be much worse. A number of technical manuals are available detailing what to look for in determining building survivability and construction techniques. Building analysis also includes such actions as ascertaining where power, water, gas and other utility shut-offs are.

How to call for and adjust fire support. This skill is critical when units are broken down into fire team or squad size units to defend.

Acquiring city intelligence, such as information on underground passages (sewers, subways, heating tunnels, etc.), electric and water facilities and distribution methods. City intelligence would also include ascertaining whether or not there are factories or other types of industry which might have an impact on the defense. These would include, but certainly not be limited to: refineries, railyards, heavy equipment suppliers, industrial complexes which might have supplies and or facilities which could assist in the manufacture of improvised weapons or the construction of obstacles. When possible, city maps should have building heights marked to assist in the formulation of a course of action.

o To develop a functionally-oriented task organization which integrates all the combined arms.

o Leaders who understand the psychological implications of fighting in a city.

o To be prepared to deal with assisting large numbers of refugees.

o To insure that, if possible, its own line of communication (LOC) is maintained and make every attempt to interdict the attacker's LOC. Supplies and ammunition must be built up in advance, if possible. Interdiction of the attacker's LOC may necessitate stationing small units outside the city, prior to the attack, in order to harrass the enemy logistic support area and supply lines.

o A medical system which provides for treatment and evacuation of casualties. Inherent in the city battle is an increase in casualties. To deal with this increase will require a significant number of doctors within the city. This is due not only to the increase in casualties which can be expected, but also to the increased difficulty in evacuation. Both medical care and evacuation are critical in maintaining the morale and confidence of the soldier.

o A logistics support system which can respond to the increase in Class V which can be expected. This system must also be geared to supporting a change in item demand which occurs in the city battle, such as major increases in requests for small arms, mines, grenades, 40mm, anti-armor weapons and others. Due to changes in consumption rates, units may not properly forecast ammunition requirements. This indicates that the city battle, because of its decentralization should have support from a "push" rather than a "pull" supply system.

o To understand that once the battle starts, a shift in tactics may be necessary due to an unforeseen enemy action or capabilities. Unit tactics must not be so rigid that they cannot be changed during the battle.

Operational and Strategic Implications of Urban Warfare

The actual conduct of an urban defense is undeniably tactical in nature. However, the intent behind an urban defense may be aimed at operational and strategic objectives. The commander charged with making operational and strategic decisions needs to understand and be aware of the far reaching implications which a tactical struggle in an urban area may have on both national strategy and theater operations. This distinction between tactical, operational and strategic goals is an important one for high level political and military officials to understand. All three examples of urban warfare examined in this study characterize this phenomena.

Stalingrad had major strategic implications. For Hitler, it became an obsession which he had to conquer. His statement rationalizing the attack by declaring it was to interdict trade on the Volga lost all credibility after the first month of the battle since trade on the Volga was interdicted at that point. Furthermore, the Germans could have easily interdicted the Volga north or south of the city without attacking it directly, except that Hitler possibly

saw the taking of Stalingrad as the comp. de. point in Russian will to resist.

For Stalin, the entanglement of German forces at Stalingrad bought time in which to mobilize and prevented a major combined effort of two army groups in the south. Stalingrad resulted operationally in the destruction of the German 6th Army, but the strategic results were even greater. Strategically, Stalingrad marked a complete and total change of strategy in the east. Hitler made major changes in his General Staff and from this point on in the war, was a man estranged from his military leadership. The implications involved in losing enough men and equipment to field one fourth of the German Army rocked the very foundations of the Third Reich. The objective for the Russians was not the destruction of the enemy's will, but his forces - as some would say the difference between Clausewitz and Sun Tzu.

The battle for Hue, although only one of over one hundred different attacks of the Tet Offensive of 1968, had an impact on the will of both the American people and the political leadership which directed the war. Hue marked a revolution in the coverage of war by modern media. It was the first time Americans could sit at home and watch an ongoing battle on the evening news, every evening for almost a month. Hue, unlike the other one hundred battles, continued for a period of time and was a television bonanza. When North Vietnamese leadership directed that Hue be held

for at least seven days. It was clearly not to defeat a superior enemy, but to strike at his strategic center of gravity - in this case, the will of the American people. Some experts say that the day the war was lost was the 31st of March 1968, the day President Johnson, who embodied the national will, announced he would not seek reelection.

The battle to drive the PLO from Beirut was aimed at, as Clausewitz might be paraphrased, "putting the enemy in such a position that he could no longer fight." The irony of Beirut is that although Israeli leadership focused its attention on the enemy force, it failed to count the cost. In Israel's case the costs in image, prestige, allies and most importantly, its own national will were enormous, not to mention the fact that it eventually resulted in a change of political leadership at the highest levels of government.

With these examples as historical guides, what can be concluded concerning the role of urban combat in the accomplishment of, or lack of support of, operational and strategic objectives?

- o A seemingly insignificant conflict may have implications which reach further than they appear to superficially.

- o Major military commanders must have a visionary outlook which enables them to see beyond the immediate tactical implications of such conflicts.

- o In the technological world in which we live, commanders at all levels must have an understanding of what

impact media representation, good or bad, will have on the accomplishment of operational and strategic objectives.

o Finally, and again paraphrasing Clausewitz, leaders, political and military, must understand the kind of conflict in which they become involved, to insure they do not mistake it for something it is not. A clear distinction must be made between forces and wills, and intents and actions.

As stated at the beginning, this study was not designed to rewrite doctrine, but to provide an eclectic point from which doctrine writers and force developers might begin to reevaluate current MOUT doctrine and requirements. Hopefully it has arrived at such a point.

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