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In Every Clime and Place:
USMC Cold Weather Doctrine

A Monograph
by

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United States Marine Corps



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ABSTRACT

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This monograph examines whether current Marine Corps cold weather doctrine and related training are adequate to prepare individuals and units for employment in that environment. Relatively new, Marine Corps cold weather doctrine is still being written with the first doctrinal manuals published in 1988. The Secretary of Defense, in 1978, directed that the Marine Corps be committed to the defense of Norway. With this mission came the implicit understanding that forces would need a solid doctrine and training base for operations in a cold weather environment. Based on its reinforcement mission to Norway, the Marine Corps began implementing an integrated plan to establish a doctrinal basis for cold weather operations, integrate a training and exercise program, and field a force that modern technology would fully clothe and equip.

The methodology of this cold weather doctrine and training review is to examine the role of theory and its link to current Marine Corps cold weather doctrine. Second, this paper reviews the historical underpinnings of 20th Century cold weather warfare in current doctrine and training. Third, it provides an analysis of existing cold weather tactical doctrine utilizing the functions and capabilities that generate combat power as delineated in FMFM 1-1, Campaigning. A second part of the analysis evaluates cold weather training doctrine using the operational priorities of cold weather as explained in FMFRP 7-24, Commanders Guide to Cold Weather Operations, as measures of effectiveness.

This monograph concludes that the adoption of the cold weather doctrine filled a void in the Marine Corps' warfighting doctrine. While there are a few points in the cold weather doctrine that could have been covered in more detail, current Marine Corps cold weather doctrine and related training are modern, in accord with operational doctrine, and will prepare individuals and units for winter warfare.

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I. Introduction

With the collapse of Soviet domination in Eastern Europe the Cold War has been declared resolved. Our national and world leaders have stated that we are now entering a new era that offers a chance for greater world peace. Although we are no longer involved in a cold war with the Soviets, the world is not a peaceful place. Unstable governments and crises are a daily reminder that the world is far from being safe from violence and turmoil.¹

American strategy for over forty years has focused on containment of expanding Soviet power, aggression and communism. With a greatly reduced threat from the Soviet Union, we now face dangers more vague than previously. With the Soviet threat we had a focus for military strategy. Today, and in the future, we will need to plan contingency operations to combat regional instabilities and local power vacuums that pose a threat to our interests and world peace.

The National Security Strategy of the United States, signed by President Bush in August 1991, outlines the defense agenda for the 1990's. Crisis response is addressed as part of the framework to meet future threats. "Despite our best efforts to deter conflict, we must be prepared for our interests to be challenged with force, often with little or no warning... The regional contingencies we could face are many and varied. We must be prepared for differences in terrain, climate and the nature of threatening forces, as well as for differing levels of support from host nations or others."²

In 1974, then Secretary of Defense James R. Schlesinger, in his annual report to Congress on the defense budget and defense program, spoke of American interests and concerns in NATO. Addressing the flanks of NATO he stated: "The flanks of NATO --- the Northern and Southern Regions -- could easily come under attack separately or simultaneously in default of adequate

deterrent forces....both flanks may require additional support both on the ground and in the air."³

With limited strategic mobility assets designated for the reinforcement or resupply of the NATO Central Front, "reinforcements designated for Norway must be small, light, self-supporting, and ready to deploy on short notice. The fate of the Central Front may be measured in terms of armored division equivalents, but the unit of choice in the defense of Norway is the combined arms brigade."⁴

In July 1978, Secretary of Defense Harold Brown "directed the Navy Department to plan for the rapid reinforcement of Norway with an airlifted, brigade-sized force based on prepositioning of selected equipment in country."⁵ With the Secretary's order, the Marine Corps was committed to the defense of Norway, and with this mission came the implicit understanding that forces would need a solid doctrine and training base for operations in a cold weather environment. Based on its reinforcement mission to Norway, the Marine Corps began implementing an integrated plan to establish a doctrinal basis for cold weather operations, integrate a training and exercise program, and field a force that modern technology would fully clothe and equip. The Marine Corps now has the doctrinal and training base sufficient to field a credible fighting force that can fight in any cold weather environment.

This paper will examine whether current Marine Corps cold weather doctrine and related training are adequate to prepare individuals and units for employment in that environment. The methodology of this cold weather doctrine and training review is to examine the role of theory and its link to current Marine Corps cold weather doctrine. Second, this paper reviews the historical underpinnings of 20th Century cold weather warfare in current doctrine and training. Third, it provides an analysis of existing cold weather tactical doctrine utilizing the functions and capabilities that generate combat power as delineated in Fleet Marine Force Manual 1-1 (FMFM 1-1), Campaigning. A second part of the analysis evaluates cold weather training doctrine using the

operational priorities of cold weather as explained in the Fleet Marine Force Reference Publication 7-24 (FMFRP 7-24), Commanders Guide to Cold Weather Operations, as measures of effectiveness.

The Marine Corps has been preparing for cold weather operations since the early 1970's. The potential threat in a cold weather environment takes on two forms. The first threat is the physical environment. The second is the enemy force. In planning for the possibility of a regional contingency occurring in a cold weather climate, commanders must realize that "cold weather warfare is not business as usual, cold can kill, cold will produce casualties; cold will significantly increase logistical problems; and even the best trained troops are subject to cold weather injury and death."⁶ In many respects, the cold weather environment is the more dangerous enemy, for the commander must first conquer the environment before his unit can fight in any other engagement.

"The human dimension is central in war.... War is shaped by human nature and is subject to the complexities, inconsistencies, and peculiarities which characterize human behavior."⁷ A cold weather environment has a more significant impact on the physical and psychological well-being of individuals than any other climatic environment. Leaders must recognize this fact and work to overcome the challenges. Some of the severest tests in combat for the U.S. Army and the U.S. Marine Corps have occurred during the winter - Valley Forge, the Hurtgen Forest, the Battle of the Bulge, and the Chosin Reservoir campaign. S.L.A. Marshall, an Army combat historian who was very familiar with the American soldier, wrote that: "Troops get high when the sun is bright and so do the leaders; their spirits sag under leaden skies, especially when there is mud underfoot. Decision comes easier when nature is kind; hesitation is the natural fruit of ugly weather."⁸

The second threat faced by a commander in cold weather is the enemy soldier. Potential cold weather contingency areas for the Marine Corps include Korea, Hokkaido Island in the Japanese

Archipelago, the Aleutian Islands, and the Northwest Pacific. In addition, Soviet military bases located at Vladivostok, Kamchatka, and Sakhalin in the Northwest Pacific, make this an area of interest to the United States. Looking at potential contingency areas in Europe, the large Soviet military complex on the Kola Peninsula makes Norway a vital area on NATO's northern flank. In these cold weather contingencies areas, North Korean or Soviet/Soviet bloc nations will be the most likely enemy if war is fought in the northern hemisphere.⁹

The Red Army gained a great deal of experience in winter warfare during the Russo-Finnish War (1939 - 1940) and in fighting the German Army throughout Northern Europe during World War II. The Soviet victory during the Karelian Front Campaign (Oct 1944) in Norway/Finland is considered to be the baseline for their combined arms operations in winter.¹⁰ Therefore, if the United States is involved with the Soviets in cold weather warfare, it is likely that Soviet operations will be predicated on their World War II campaigns.

Current Soviet military training is based on the experiences of World War II and the geographic location of the Soviet Union. Because large sections of the country are located within the Arctic regions, the Soviets have basically two training periods, summer and winter. Given their geographical location, they place special emphasis on training for cold weather operations. The Soviets contend that large-scale operations are possible at any time of the year, even under extreme climatic conditions when temperatures reach minus 22 to minus 40 degrees Fahrenheit.¹¹ The Soviet leadership has a long history of using these severe climatic conditions in wartime to their advantage.¹²

If hostilities were to breakout in Europe, American strategists believe that the danger posed by the Soviet Union would be to a flank of NATO.¹³ If Norway is the target, the Soviet Union would have to invade and control a great deal of Norwegian coastline to control airfields and naval ports on this flank. By seizing these facilities the Soviets would be in a

position to threaten NATO lines of communications between the United States and Europe over which vital reinforcements and supplies would flow during wartime.¹⁴

"Today, the threat of a U.S.-Soviet military conflict is lower than at any time since the end of World War II. . . . But Soviet military power is hardly becoming irrelevant. The Soviet Union is and will remain a military superpower."¹⁵ Therefore, there is still a credible danger from the Soviet Union as well as other nations and the United States does need to prepare to deal with this threat.

II. Winter Warfare - Theory and Doctrinal Link

...know the enemy, know yourself; your victory will never be endangered. Know the ground, know the weather; your victory will then be total.

Sun Tzu - The Art of War

Winter warfare is not a new phenomenon, and it is instructive to see how present-day theory has evolved from past winter conflicts. The German experiences during World War II in their Northern Theater of Operations "...provided the first, and still unique, example of a major military force operating in the Arctic. A region once considered almost totally inaccessible was included in strategic considerations after the German campaigns of 1940-1945. They established landmarks in the evolution of military art and science even though they failed in the long run to exert a significant impact on the outcome of the war."²

According to Carl von Clausewitz, theory is derived from "analytical investigation...; applied to experience--in our case, to military history...."³ Theory is thus derived from two areas, the personal experience of war, and the critical analysis of military history.⁴

The Marine Corps has accepted Clausewitz's idea about the fundamental nature of war, and based its theory on his ideas. Theory, in turn, according to FMFM 1, is "the foundation for the way we prepare for and wage war."⁵ "The warfighting doctrine which we derive from our theory is one based on maneuver...an expeditionary force in particular must be prepared to win quickly, with minimal casualties and limited external support, against a physically superior foe. This requirement mandates a doctrine of maneuver warfare."⁶

FMFM 1, Warfighting, establishes the link between theory and doctrine. Cold weather warfare doctrine fits into the Marine Corps' warfighting doctrine within current theory and our overarching doctrine, because they are sound. The doctrinal employment of firepower, maneuver, protection, and leadership are applicable to cold weather warfare. The factors of METT-T, on the

other hand, significantly impact the implementation of keystone doctrine and necessitate specialized, subordinate doctrinal publications. There is a need for doctrine dealing with the special considerations resulting from the impact that the environment can have on combat, combat support, and combat service support units.

The principles of war are applicable to the Marine Corps' cold weather doctrine. Additionally, the tenets of Airland Battle doctrine (agility, initiative, depth, and synchronization) as well as the Airland Battle Imperatives, remain applicable in a cold weather environment. The one thing that does change with the environment is the need for leaders to understand the challenge that they are facing with cold weather. Carl von Clausewitz made brief mention of this fact in his treatise, On War. In describing the nature of war, Clausewitz devotes several pages to what he refers to as "friction in war."

...tremendous friction, which cannot...be reduced...is everywhere in contact with chance...brings about effects that...are largely due to chance. One, for example, is the weather.⁷

One element of friction in cold weather operations is the factor of time. Time is critical in that everything takes longer in cold weather, and it also puts an added strain on people and equipment. Planning is crucial, and if the Imperatives and tenets of Airland Battle are to be applied effectively, leaders must understand that the environment they are facing requires detailed planning, coordination, and timing.

The U.S. Army and the Marine Corps share an appreciation for the rigors and special considerations needed for winter warfare. The Army's keystone warfighting manual, Field Manual (FM) 100-5, Operations, states: "In areas that experience extremely cold winters, troops will have to be specially trained and equipped if they are to fight on equal terms with a well-prepared enemy."⁸ Dealing with the subject of inclement weather, the Marine Corps' Operational Handbook (OH) 6-1, Ground Combat Operations, states:

"The ability to operate in inclement weather is a function of proper training....Operations in cold weather require special techniques, training, and equipment."⁹

It is the philosophy of the Marine Corps that "military activities that do not contribute to the conduct of a present war are justifiable only if they contribute to preparedness for a possible future one."¹⁰ With that idea in mind and after having looked at the link between theory and cold weather doctrine, it is useful to examine two case studies of cold weather warfare that have occurred in this century as well as a recent NATO cold weather exercise. An idea of the rigors involved in cold weather warfare facilitates an understanding of how current doctrine has been influenced by historical precedent.

III. Winter Warfare - The Historical Underpinning

The practical value of history is to throw the film of the past through the material projector of the present onto the screen of the future.

B.H. Liddell Hart, Thoughts on War¹

In his book, Thoughts on War, B.H.Liddell Hart stated succinctly the value of studying history. We learn from the past in order not to make mistakes in the future. This section examines two winter warfare campaigns that have occurred during this century and that have had an impact on current cold weather doctrine. A NATO cold weather exercise, conducted in 1985, is also examined to provide additional implications for cold weather doctrine. Historical precedence is but one basis for doctrine, but an important one. These historical examples clarify the impact that the environment can have on combat operations and some of the problem areas encountered due to the harsh weather.

German Northern Theater of Operations, 1940 - 1945

The German Wehrmacht conducted two major campaigns in the Northern Theater of Operations during World War II. The first was launched against Denmark and Norway on 9 April 1940. The second campaign, with Finland as a co-belligerent, was against the Soviet Union. It began on 22 June 1941 and ended during the winter of 1944-1945.

Despite the fact that the Germans set a precedent by operating major military forces in the Arctic in 1940, they were almost totally unprepared for the requirements of that theater. "Nobody had taken into account the possibility that someday German divisions would have to fight and to winter...on the Murmansk coast. The German General Staff was...of the older generation which had been brought up in the tradition of von Moltke and which considered it sufficient to study the countries immediately surrounding Germany."²

During the first winter in Scandinavia, the Germans recognized their shortcomings in winter warfare and formalized

lessons learned into training for the field. Starting with the winter of 1941 - 1942, German soldiers were given winter warfare training by the Finnish Army due to their recognized expertise in the field. The course of instruction was twenty days duration, and the students were primarily leaders, the majority coming from the Eastern Front. The courses proved to be so valuable that they were run year-round in order to get the maximum number of personnel trained.³

Based on experience gained from June 1940 until the end of the war, the Germans came to several conclusions regarding winter warfare:

- The human element is the most important factor. Material effectiveness will be reduced; the chief reliance must always be on men. Specialized training is required. There is no margin for error for the individual or the organization.

- Overall mobility is reduced. Operations must be planned precisely and executed to a very strict standard as distance can be as difficult to overcome as the enemy in a cold environment.

- The control of roads rather than space is important. Roads are few and difficult to build, so operations will normally be concerned with their retention. This can be the decisive factor.

- Winter is a suitable time for the attack. Troops trained and equipped properly can move rapidly over snow and ice. Operations can be conducted during most of the winter, but they will be carried out in near-total darkness. Late winter is the best period to conduct operations because of increased light and less severe temperatures.⁴

Many of the lessons learned by the German Wehrmacht in Scandinavia were to be relearned by the First Marine Division in the mountains of North Korea.

Chosin Reservoir Campaign, Winter 1950 - 1951

Your military objective is the destruction of the North Korean Armed Forces. In attaining this objective you are authorized to conduct military operations, including amphibious and airborne landings or ground operations north of the 38th Parallel in Korea.⁵

With the issuance of the order to pursue the North Korean armed forces, General MacArthur began the chain of events that led to the defeat of U.S. forces and subsequent retreat from the Chosin Reservoir. The defeat that was inflicted was the result of an overwhelming number of enemy soldiers compounded by incredibly harsh weather. Subzero temperatures were the norm, but very little snow was encountered due to the windy conditions prevalent in that part of Korea. The Chosin Reservoir campaign, the Marine Corps' last winter warfare experience, is a logical starting point to seek and analyze the lessons learned by the First Marine Division.

Koto-ri, division objective one, was occupied by the 7th Marine Regiment at 0830 on 10 November 1950 without opposition. "Upon reaching the Koto-ri plateau the 7th Marines was (sic) first to meet a new enemy who would take a heavier toll in casualties than the Chinese. This was General Winter, who has won many a historic campaign...Our men were not conditioned for it... Doctors reported many cases...(which) appeared to be shock...It was simply the sudden shock of the terrific cold when they were not ready for it."⁶

Colonel Litzenberg, the regimental commander, further stated, "hot weather, however uncomfortable it may be, is fighting weather as compared to subzero cold which seems to numb the spirit as well as flesh."⁷ With his statement, Colonel Litzenberg pointed out the basic problem of winter warfare - no matter how well-trained and battle-tested, troops cannot be employed in a cold weather theater without prior training and indoctrination, and be expected to function at their full potential. The 1st Marine Division suffered 7,313 nonbattle casualties due to the cold weather alone.⁸

Logistical problems and lack of cold weather training were documented by the noted military historian, S.L.A. Marshall, when he interviewed members of the 1st Marine Division in Korea. Based on his interviews, Marshall found that the fire performance of most weapons was not significantly degraded by the cold. Weapons

kept free of lubricant and fired at regular intervals had a high performance rate. The greatest degradation to firepower occurred due to ammunition failure. Some ammunition burned at an uneven rate and 3.5 inch rocket launcher ammunition tended to crack open when the temperature fell below -20 degrees Fahrenheit. In dealing with weapons problems encountered during the campaign, it was found that if weapons were washed in gasoline to remove all lubricant, there were far fewer stoppages. Ammunition failure and uneven burn rate could only be solved by keeping the ammunition warm or by developing a new generation of propellents.⁹

Difficulties were encountered in casualty management and in providing medical care in the bitter cold. "Tents sheltering the wounded were riddled by enemy small arms fire...everything was frozen...plasma froze and the bottles broke. We couldn't use plasma because it wouldn't go into solution and the tubes would clog up with particles. We couldn't change dressings because we had to work with gloves on to keep our hands from freezing."¹⁰ As such, there were no real lessons learned in the medical field other than the need for proper prior planning. The U.S. Army had conducted operations in cold climates during World War II, so the environment was not new to American armed forces. Failure to adequately plan for the extremely low temperatures was a failure shared by all the forces involved.

Lessons learned from the Chosin Reservoir were not strictly limited to the American forces. The Chinese Communist Forces (CCF), whose mission it was to destroy the 1st Marine Division, also suffered a large amount of nonbattle casualties due to the cold weather. Through prisoner of war interviews and captured CCF documents, it was learned that more than 90% of the 26th Army (CCF) suffered from frostbite and the 27th Army (CCF) had 10,000 nonbattle casualties in its four divisions. Information gleaned from Chinese documents said, "The troops...could not stand the bitter cold...When the fighters bivouaced...their feet, socks, and hands were frozen together in one ice ball...the mortar tubes shrank...70% of the shells failed to detonate."¹¹

The Chinese government did not make a timely decision to enter into North Korea against the United Nation forces, and subsequently the CCF had made no serious preparations for fighting in cold weather. The CCF soldiers were not equipped for cold weather, received no special training, and did not learn of their assignments until they were approaching the Yalu River or had already crossed it.¹²

Perhaps the most important lesson to take from the Chosin Reservoir Campaign is the fact that the enemy was also operating in the same cold environment and was fighting the same elements as did the friendly forces.

Phased cold weather training and NATO cold weather exercises are excellent methods to validate tactics, techniques, and procedures. Current cold weather doctrine has been heavily influenced by past cold weather conflicts as well as by current operations.

NATO Exercise - Cold Winter '85

Cold Winter 85 was a NATO cold weather exercise held in Norway during the last week of March 1985. The week-long exercise was held 150 miles north of the Arctic Circle and involved the United States, Norwegian, British, Canadian and Dutch forces. It was designed to improve operational readiness between the NATO forces who help protect NATO's northern flank.

The exercise scenario envisioned a U.S. Marine unit, the 1st Battalion, 2d Marines, committed under operational control of the commander, North Norway, as an element of the South Forces, trying to repel an amphibious assault that had been conducted in the Storfjord area by North Forces. At the start of the exercise, South Forces counterattacked with the 1st Battalion, 2d Marines on the left covering route E-6 and Brigade North, Norwegian Army on the right enveloping the opposing force. During the seven day exercise, 1st Battalion, 2d Marines attacked to seize objectives designated by commander, North Norway in close coordination with Brigade North.¹³

Cold Winter 85 was a high water mark for U.S. Marine participation in the annual NATO cold weather exercises. With experienced leaders and a sound training program, the Marines proved that they were a credible force in the cold weather environment of Norway. This was the first year that an entire infantry battalion was trained to ski. The ability to move by helicopter or off-the-road on skis added a new dimension to Marine tactics. Marines were able to conduct deep and wide envelopments against the opposing force's flanks and rear, something that they had not previously been able to do. The element of surprise was used to keep the operational tempo high throughout the exercise. The ability to move off-the-road caught the opposing force by surprise and they were never able to recover during the exercise.

Two tactical engagements conducted during the exercise merit special note. The first, a classic example of maneuver conducted in a cold weather environment, was conducted by 1st Battalion, 2nd Marines. The Second Marine's mission was to seize a road that was controlled by a battalion(-). The defense was set in a key chokepoint that was heavily fortified and supported with extensive obstacles and minefields. 1st Battalion, 2nd Marines was flown into a valley well behind the defense and on a flank. After a night ski march over rugged terrain, the battalion was astride the road and to the rear of the strong defensive positions. The defensive position fell without a fight because of the envelopment.¹⁴

The second engagement "...had the North Forces consolidated in strong defensive positions with the South Forces attacking to destroy them. 1st Battalion, 2nd Marines was flown into the LZ to the rear of the North Forces. Another ski march of about six kilometers over difficult terrain followed, and first light found the North Forces encircled with the two roads leading into their rear blocked by Marines. Further, in establishing one of these blocking positions, the Marine battalion overran and destroyed two artillery batteries and their battalion fire direction center. This comprised the entire artillery support of the North Forces.

The result was that the commander of the North Forces had to defend against the final attack encircled and without any artillery support."¹⁵ This is an excellent example of tactical surprise.

During the conduct of the exercise, there were only two major problem areas identified that could be improved upon in the future. The first area was small unit tactical execution. Leaders' reconnaissance was not always carried out, as a result rifle companies had problems deploying into sound tactical formations prior to reaching the enemy positions. The second and most critical problem was with logistics. Clothing and equipment designed during the Korean conflict was adequate, but heavy and hindered movement on skis. Generally, the lack of modern, light-weight clothing and equipment greatly reduced the mobility of the Infantry units.

One big logistical success during the exercise was the test conducted with the GoreTex outerwear system. It was under consideration for adoption by the Marine Corps and over half of the battalion wore the system. The system met or exceeded all expectations and was subsequently adopted by the Marine Corps and the U.S. Army.

Cold Winter 85 set a standard for other Marine units to meet in the following years. The exercise showed that the Marine Corps had made significant progress in honing survival, movement, and fighting skills in the extreme conditions of the Arctic. The impact the exercise has had on current cold weather doctrine is difficult to measure. For those that were involved in the exercise, and in doctrine development at the time, Cold Winter 85 validated current ideas and was the catalyst for many others.

IV. Doctrine - Analysis and Evaluation

In 1978, when Secretary of Defense Harold Brown directed the Navy Department to plan for the reinforcement of Norway, FMFM 8-1, Special Operations, was the single FMFM used by the Marine Corps that delineated cold weather doctrine. The Marine Corps was also using Army field manuals FM 31-70, Basic Cold Weather Manual, and FM 31-71, Northern Operations. When the arctic mission was assigned, the Marine Corps' leadership saw a need for a separate doctrine that would deal with the cold weather environment. Doctrinal development since that time has continued to the point that a series of publications dealing with doctrine and training in cold weather operations have been developed to provide guidance from the individual up to the MAGTF staff planning level.

This section examines whether current Marine Corps cold weather doctrine and related training are adequate to prepare individuals and units for employment in a cold weather environment. The scope of analysis covers the tactical portion of cold weather doctrine that has been published since 1978, and deals with the training portion of those manuals separately. The elements of combat power, as delineated in FMFM 1-1, Campaigning, are the chosen evaluation criteria for the tactical analysis. The training portion of cold weather doctrine is evaluated using the operational priorities of cold weather as discussed in FMFRP 7-24, Commander's Guide to Cold Weather Operations. These will be used to assess doctrine as set forth in the various cold weather manuals which have evolved over the past thirteen years.

The current cold weather manuals, in the 7-20 series, are structured to cover the impact of cold weather on operations to include combat, combat support, and combat service support considerations. Six manuals have been published in the series and each was written to provide guidance for a different level of command. FMFM 7-23, Small-Unit Leader's Guide to Cold Weather Operations, provides guidance for leaders at the team, squad, section, and platoon level. Next in the series is FMFRP 7-24. It

provides guidance for commanders at the company and squadron level in all MAGTF elements.

The keystone manual for cold weather operations is the Operational Handbook (OH) 7-20, Marine Air-Ground Task Force Planning and Training for Cold Weather Operations. It is intended to provide detailed information about the planning and training aspects of operations that are unique to the headquarters element of the MAGTF. This manual is structured to provide an authoritative foundation for subordinate doctrine, tactics, techniques, procedures, material acquisition, and training. When published as a Fleet Marine Force Reference Publication (FMFRP), OH 7-20, along with FMFRP 7-24, Commander's Guide to Cold Weather Operations, plus others in the 7-20 series, will supersede all cold weather related doctrine in the original FMFM 8-1.

Tactical Doctrine

At the tactical level of war, all activities are focused on the application of combat power to defeat an enemy in combat at a particular time and place.¹ The current version (May 1986) of the U.S. Army Field Manual 100-5, Operations, indicates that "the dynamics of combat power decide the outcome of...battles and engagements. Combat power is the ability to fight...created by combining maneuver, firepower, protection, and leadership in combat actions against an enemy in war."² The degree of combat power produced by combining these elements is a direct reflection of the commander. The U.S. Marine Corps views combat power as the primary means for the application of military force.³ The Fleet Marine Force Manual 1-1 (FMFM 1-1), Campaigning, presents a related but more extensive list of functions/capabilities that generate combat power: maneuver, mobility, tempo, intelligence, surprise, logistics and leadership.⁴

Maneuver

Maneuver, defined in FMFM 1-1, as "the employment of forces to secure an advantage or leverage over the enemy to accomplish the mission,"⁵ is mentioned in only one of the cold weather manuals, OH 7-20. It is not covered in detail; only a standard definition is given. Mention is made of the increased time factors needed for movement of supporting arms, long periods of daylight and darkness, and the advantage that may be provided by the conditions of limited visibility. Maneuver in a cold weather climate has the same basic elements as does maneuver in a temperate climate, but it does require an added degree of ground mobility.

The principle of war maneuver, while not covered in detail within cold weather doctrine, is an historical principle and is not changed by cold weather. The ability to fire and move over the terrain are given a great deal of in-depth attention by the current cold weather manuals. Skiborne troops in rugged terrain can secure an advantage over the enemy through effective maneuver in combination with mass, surprise, and economy of force at the necessary time and place. A classic example of maneuver in cold weather was conducted during Cold Winter 85 by 1st Battalion, 2d Marines, referred to in the historical underpinning section of this monograph. Foot, vehicular, and helicopter mobility were combined to turn a defending battalion out of their prepared defensive positions. With the addition of helicopter assets and over-the-snow logistical vehicles, a well trained infantry unit is a potent force in cold weather operations.

Current cold weather doctrine clearly recognizes the importance of maneuver and puts a great deal of emphasis on the topic throughout the doctrinal manuals.

Mobility

"Tactical mobility is the ability to move in combat; that is, within the engagement or battle. Tactical mobility is a function of speed and acceleration over short distances, of protection, agility, and the ability to move cross-country."⁶

During the winter, low temperatures, ice, snow, and the difficulties of constructing roads all hinder movement over the ground. Marine Corps cold weather doctrine goes into great detail on three types of mobility: foot, vehicular, and helicopter. Of the doctrinal manuals published since 1988, one deals entirely with foot mobility and methods to enhance it. The remaining manuals all deal in detail with the three types of mobility and how they can influence the tactical scheme of maneuver.

Of the three types of mobility, the helicopter is the best tactical mobility asset available during cold weather operations. It can transport Marines farther and faster, but faces restrictions in the form of unpredictable reliability due to weather and mechanical problems.

Wheeled and tracked vehicles are almost totally road-bound in snow-covered terrain. Only marginal terrain vehicles, such as the BV-202 and BV-206, move unrestricted over snow-covered terrain. Current doctrine has covered in detail, the proper way to integrate the BV's into the tactical and logistical scenarios.

A facet of mobility in cold weather that needs special consideration is the individual load. The fighting load, according to Joint Pub 1-02, "consists of items of individual clothing, equipment, weapons, and ammunition that are carried by, and are essential to, the effectiveness of the combat soldier and the accomplishment of the immediate mission of the unit when the soldier is on foot."⁷ The normal fighting load in a temperate climate should not exceed 40 pounds. The cold weather environment requires specialized clothing, which brings the weight of the cold weather fighting load to 42 pounds. Another 29.3 pounds must be added to this weight for a daily allowance of ammunition. The

total fighting load is now at 69.3 pounds, 29.3 pounds over the suggested weight. An additional 49 pounds needs to be added for the individual's existence load. The existence load is that equipment required for survival and is never separated from the individual. With its addition, the total weight rises to 120.3 pounds. Accessory equipment is finally added which includes such things as radios, squad automatic weapons, or M-60 machineguns. With a radio, plus his fighting, and existence load, a Marine may well have a total of 145.3 pounds to carry in a cold weather environment.⁸ An infantry unit is not going to be very mobile if its Marines are attempting to ski with a 145 pound load. Logistical support at the small unit level takes on an added importance when the individual load is considered.

Current cold weather doctrine puts a great deal of emphasis on oversnow mobility for the infantry and does a very good job of covering the topic. But, the individual load problem adversely affects mobility and has not been fully addressed either in doctrine or in training. The ability to maneuver and survive are also directly related to the individual load problem. Effective maneuver, on skis or snowshoes, is not possible if the individual is overloaded. An individual unhampered by his equipment will be able to maneuver, but then faces the problem of survival in the harsh environment if he is separated from that equipment for too long a period of time.

Tempo

"Don't you people ever stop coming?" This question was asked by a British umpire during the annual NATO cold weather exercise, Cold Winter 85. His unit had been under constant, offensive pressure by U.S. Marines for five days, both day and night.⁹ The constant pressure was made possible by the superb physical conditioning of the Marines and their ability to move cross-country on skis. This is tempo in a tactical operation.

FMFM 1-1, Campaigning, states that "tempo is a rate or rhythm of activity. Tempo is a significant weapon because it is through

a faster tempo that we seize the initiative and dictate the terms of war. Tactical tempo is the rate of work within an engagement..*10

Nowhere in current cold weather doctrine is mention made of the concept of tempo. Mobility is covered in detail as are other functions and capabilities that generate combat power. It takes more than just tempo to seize the initiative and win at the tactical level, but it is a key ingredient. In this type of climate the small-unit leader is all important. In rough terrain, at night and in adverse weather, decision making must be decentralized if the commander's intent is to be understood and the mission accomplished.

One of the key concepts in Marine Corps' doctrine is that operational concepts will not change dramatically in a cold weather climate from those practiced in temperate climates. Even with that in mind, the concept of tempo needs to be included in current doctrinal cold weather publications. Current cold weather doctrine should be written in consonance with the Marine Corps' stated philosophy of warfighting as found in FMFM 1, Warfighting. Current cold weather doctrine contains elements of the Marine Corps' warfighting philosophy but not enough to sustain or reinforce it. This is a weakness in current cold weather doctrine.

Intelligence

"Tactical intelligence provides information on the environment and enemy capabilities as they affect combat; that is, of an immediate or imminent impact.*11

A unit's combat intelligence section, in a cold weather environment, will focus on the terrain, weather, and the enemy, just as in a temperate climate. The big difference is the emphasis placed on the effect that weather will have on mobility, survivability, and the tactical ability of both friendly and enemy units. The physical and psychological effects of the cold can be very debilitating on a force and this also needs to be factored

into the intelligence preparation of the battlefield. As a result, liaison with meteorological units is extremely important in a cold weather environment.

Initially unprepared for the requirements of a cold weather environment, the German Wehrmacht soon came to realize how important roads were in Scandinavia. Through their intelligence efforts, the Germans found that Russian tactics were almost exclusively tied to the roads. This information allowed the Germans to target the road networks and adapt tactics to counter the Russians.

Intelligence collection must continue in cold weather as in temperate climates and a key element of intelligence planning is mission tasking. "Missions in cold weather operations must consider the degree of training and types of skills required to perform them; e.g., skiing and snowshoeing, and the effect of weather on equipment, such as sensors and aircraft."¹² The point made in doctrine is that intelligence collectors must be highly trained in survival and mobility skills due to the adverse effect of weather in the area of operations. A great deal of training needs to be accomplished prior to entering a cold weather theater.

As with other operational concepts, intelligence does not change dramatically with cold weather. Current doctrine addresses all the necessary differences in sufficient detail.

Surprise

FMFM 1-1, Campaigning, states that: "tactical surprise catches the enemy unprepared in such a way as to affect the outcome of combat; it is of a relatively immediate and local nature."¹³

Surprise, a principle of war, is not mentioned as a separate category anywhere in cold weather doctrine. Environmental factors such as reduced visibility and low temperatures are normally factored into operations plans to catch an enemy unaware. Cold weather, such as encountered in Norway, lends itself to using the

element of surprise in any combat situation due to the long arctic nights, snow, and low temperatures.

The NATO exercise, Cold Winter 85, was full of tactical surprises for the force that opposed 1st Battalion, 2d Marines. The most basic element of surprise was that an entire battalion of U.S. Marines were on skis. As noted in the historical underpinning section of this monograph, by using helicopters to fly deep and then skis for over-snow mobility, 1st Battalion, 2d Marines kept the opposing force off balance through tactical surprise.

As an element of combat power, surprise will not change dramatically in cold weather operations. To retain surprise as an effective element in cold weather operations, the environment must be mastered. If a unit is able to survive, move, and fight, in the cold weather environment, then they will be able to use the element of surprise in their combat operations.

Current cold weather doctrine, while not mentioning surprise as an element of combat power, does a very good job of covering all those factors that makes its use effective in a cold weather environment. The cold weather doctrine would be more effective if it addressed how to use the environment to achieve the element of surprise. Those details are now lacking in the current cold weather doctrinal manuals.

Logistics

Tactical logistics, as defined by FMFM 1-1, Warfighting, "...involves the actual performance of combat service support functions with resources immediately or imminently available - usually resident in the combat unit's trains."¹⁴

Logistical planning is more critical in a cold environment than in any other. The commander is faced with two threats: the enemy and the environment. Underestimating the effects of either one can result in failure. A shortcoming in current doctrine is the lack of written guidance on logistical support at the small unit level. From the cold weather manuals written since 1988,

there are only four short paragraphs, in one manual, written on the subject of combat unit trains.¹⁵ The topic is important and is not given adequate coverage in doctrine. Logistical planning concepts and principles do not change due to the environment. They are, however, greatly influenced by the increase in time and space factors caused by the harsh climate.

Cold weather doctrine does offer one piece of advice to the commander concerning his logistical and mobility assets: "commanders must insure that support vehicles; i.e., BV 202/SUSV, are provided. These vehicles must be used wisely to take the load off the backs of the Marines. These vehicles have other responsibilities (logistics, MEDEVAC, etc.). The small unit leader must often supervise their use."¹⁶ Current cold weather doctrine does not address how these support vehicles are to be used in a support role or in a tactical situation. The doctrine leaves a lot of unanswered questions in this vital area.

An important aspect of logistics, that has a major impact on the tactical realm, is the development of new clothing and equipment. The Marine Corps, from a standing start in 1980, has come a long way in overcoming material deficiencies that impact on its capability to successfully conduct operations in cold weather.¹⁷ The clothing and equipment development process was initiated at the same time the Marine Corps started writing its own cold weather doctrine. As doctrine has evolved, it has influenced the development branch to search for lighter, warmer and more durable equipment and at the same time doctrine has been written with the new items in mind. Development and fielding of new clothing and equipment is a continual process. Based on problems encountered during deployments to Norway in the mid-1970's with 1950's vintage cold weather clothing, a Marine officer was assigned to the Marine Corps Development Center to design new clothing and equipment for use in cold weather. His efforts, in conjunction with the U.S. Army Laboratory at Natick, Massachusetts, resulted in the adoption by the U.S. Armed Forces, of the Extended Cold Weather Clothing System (ECWCS) as the

standard cold weather clothing. This development process has made use of the latest technology and, as a result, current cold weather clothing and equipment is top-of-the-line. Lighter, warmer, and more durable equipment is now easing the burden of the Marine in cold weather.

Logistics is a key to success and more so in a cold weather environment where survival is dependent on a continuous flow of supplies. The Marine Corps devotes a great deal of effort at the operational level to insure equipment is stockpiled in Norway in case of a contingency operation in that area. On the other hand, sufficient effort has not been devoted to insure that, at the platoon and company level, logistical mobility will keep pace with the units. A unit that depends on skis for mobility, requires the dedicated effort of marginal terrain vehicles to transport its equipment and supplies. These vehicles need to be a part of the unit and not just in support. Mission accomplishment and survival of the unit can very well be in question if the logistical support is not in place.

Leadership

Marshall Mannerheim, leader of the Finnish Armed Forces during World War II, after hearing reports of heavy German losses in Russia due to the cold weather, said: "Losses among the troops because of frost weigh heavier on the commander's conscience than battle casualties. Because in this case there always remains the disturbing feeling that losses due to the cold might possibly have been avoided if greater precautions had been taken."¹⁸

FMFM 1-1 states that "leadership is the personal ability to influence the performance of human beings in pursuit of a goal."¹⁹ In a cold weather environment, leadership must be based on sound judgement, more so than in a temperate climate. As stated before, cold can kill and will cause casualties. The Germans found this out as did the Marines in the Chosin Reservoir campaign. Commanders must be aware that their decisions need to be well thought-out before they issue orders. Judgement is gained from

the knowledge of traditional leadership traits, combined with a thorough understanding of the unique problems encountered by the environment.

As stated in cold weather doctrine, "the importance of leadership in the cold weather environment can't be exaggerated. Cold weather is a constant danger which frightens the uninitiated, saps strength and burns calories....(It is) important beginning with the small unit and continuing to the very top level."²⁰

Positive leadership and the right attitude are keys to success in a cold weather environment. Cold weather doctrine puts leadership in the right perspective and does stress its importance throughout all the manuals. Effective leadership in cold weather is based on good judgement, acquired through an understanding of the unique problems presented by the environment. An important point to remember is that the principles of leadership apply equally in all climates. Commanders must lead by example and not be intimidated by the rigors of the environment when they are planning and involved in cold weather training and operations.

Training Doctrine

For they had learned that true safety was to be found in long previous training, and not in eloquent exhortations uttered when they were going into action.

Thucydides: History of the Peloponnesian Wars²¹

FMFM 1, Warfighting, states: "the purpose of all training is to develop forces that can win in combat. Training is the key to combat effectiveness, and therefore is the focus of effort of a peacetime military."²² The time to train for cold weather operations is prior to actual combat. German lessons learned from their experience in Scandinavia, point out the fact that training is vital to success and as a consequence they had the Finnish Army conduct winter warfare classes for the German troops.

General Carl E. Mundy, Jr., Commandant of the Marine Corps, has stated that: "...operating in extreme cold weather and deep

snow is unique and does demand special training...Infantry troops are most affected because they are in the most direct physical confrontation with the elements on a continuous basis."²³

"Marines trained for operations in the cold weather environment can effectively transition to temperate, desert or jungle conditions with little acclimation. The reverse is not true."²⁴

The United States Marine Corps, in 1977, began participation on a regular basis in the annual NATO cold weather exercises held in north Norway. In 1979, Jan Vinocur, a correspondent for the New York Times, wrote from Norway during the NATO cold weather exercise about the state of cold weather readiness of U.S. Marine units: "More than two years after American units (Marines) began practicing arctic warfare here, the impression lingers that the United States has not been able to devise a formula for making most effective use of its forces on NATO's northern flank... The Marine Corps should designate its arctic units, which it hasn't done, and then train them hard."²⁵ During the cold weather exercises in Norway, prior to Cold Winter 85, if a question was asked about where the U.S. Marines could be found, the answer would invariably be along the roads. They had few people with cold weather experience, limited oversnow mobility and generally had spent little time preparing for the cold weather exercise. In the NATO environment perceptions are very important, and the U.S. Marine Corps was perceived as being road-bound and not well prepared for cold weather warfare. Perceptions changed dramatically with the Cold Winter 85 exercise. "Before, when I have seen your Marines here, they have been huddled in the cold. Now they are confident and moving across the snow. Your ability to ski this year has added a new dimension to U.S. Marine operations in Norway", said Brigadier A. Lerhelm, a defense commander in Troms, a northern district of Norway. "It is quite proper that you be singled out (among the forces operating here), because after Cold Winter 85, you are no longer simply brave Marines in funny boots, you are true Arctic warriors," said

Norwegian General Richard Lawson, commander of Norway's northern forces.²⁶

The catalyst that led the Marines to enjoy such great success in Cold Winter 85, just six winters after the critical comments were published in the New York Times, can be attributed to three factors. The first factor was the support and direct involvement of the leaders. From then Brigadier General Mundy, down to the platoon commanders, the exercise was viewed as a challenge, and this attitude was passed on to the Marines. There was an open mindset among the leadership that led to interaction and exchange of ideas on training and cold weather operations. The second factor concerned the level of cold weather experience resident within the command. For example, 1st Battalion, 2d Marines had participated in three of the five preceding NATO cold weather exercises.²⁷ The final factor was a four-phase training program established at Camp Lejeune, North Carolina. The overall training goal for Cold Winter 85 was to field an entire skiborne infantry battalion.

It would be ideal if the success enjoyed in Cold Winter 85 could be attributed to a comprehensive training plan based on sound cold weather doctrine. Such was not the case. The first manual in the series of the cold weather doctrine was not published until 1988, three years after the exercise. The link between the exercise Cold Winter 85, and current cold weather doctrine, is that the individual's responsible for writing the proposed doctrine were with the unit in Norway. The unit's performance validated concepts envisioned by leaders in the Marine Corps for conducting operations in cold weather. To add further credence to current doctrine, the annual NATO cold weather exercise is held in actual contingency areas in Norway, so the concepts in doctrine have been proven to be sound in actual practice.

Contingency responsibilities in Norway and Korea require that units be prepared for commitment to those areas at any time. The

following analysis examines the adequacy of the training portion of current cold weather doctrine.

Training guidance to prepare for operating in cold weather is included in three of the six cold weather manuals. FMFRP 7-25, Marine Ski Instruction Manual, is the only doctrinal publication that deals entirely with training, but it focuses narrowly on ski instruction. OH 7-20, Marine Air-Ground Task Force Planning and Training for Cold Weather Operations and FMFRP 7-24, Commander's Guide to Cold Weather Operations, both devote chapters to the subject of training. FMFM 7-23, Small-Unit Leader's Guide to Cold Weather Operations, while not containing training guidance directly, does provide direction for leaders at the platoon level and below. The pocket-sized manual is an ideal training tool and provides a quick reference for those cold weather related problems that are common to all military occupational specialties.

Current cold weather doctrine has been written to deal with the special considerations resulting from the impact that the environment can have on personnel and equipment. Clearly stated training guidance has been developed to tie cold weather training into preparation for combat. "Training and operations are virtually inseparable in the cold....the environment must be mastered before the MAGFT can achieve success. Operational procedures and doctrinal concepts will not change dramatically."²⁸ "The basic requirements for training for cold weather operations are the same in all seasons. Toughness, resourcefulness, initiative, and ability to live and operate in the field are required of each individual."²⁹ Success in cold weather training is achieved at the small unit level. Training in cold weather is a personal challenge that each individual must overcome. Cold weather doctrine reflects this fact throughout the manuals and most of the training is aimed at individual proficiency.

The overall "training objective is to train units and individuals to accomplish their combat missions under all conditions of weather, climate, and terrain encountered in cold weather operations."³⁰ Training must be conducted as you would

expect to fight and this is especially true in a cold weather environment. A commander can't allow low temperatures and snow to stop a cold weather exercise or training. The tone of the training challenge set in cold weather doctrine can best be understood by the following quote. "Cold weather operations are too tough and inherently hazardous to allow intimidated commanders to develop training programs that are not extremely challenging."³¹

The operational priorities of cold weather are guidelines that a commander should use in preparing and training his unit for deployment in cold weather operations. It is especially critical that they be followed in training for cold weather operations, but they are also applicable in transitioning to any other climate. Marines must first be taught how to survive in the environment, then how to move over the terrain, and finally how to fight in the cold.

Survive in the Environment

The human body can function effectively only so long as its temperature is kept within fairly narrow limits. Unless a Marine understands the relationship between diet, warmth, and the need for protection, he may easily become a casualty due to the effects of the cold even though he is in otherwise excellent physical condition.

Marine Corps doctrine does contain a suggested four-phased cold weather training program of instruction that puts a great deal of emphasis on learning how to live in the cold. The training program is progressive by design and each phase is meant to be distinct in geographic location as well as in training objective. Training at home station concentrates on the basics of cold weather clothing, equipment, medicine, and leadership. Out of a 26 hour training program, 23 hours are dedicated to living/survival considerations.³² The next phase for infantry battalion training is conducted at the Marine Corps Mountain Warfare Training Center (MWTC), Bridgeport, California. The Infantry battalion winter mountain operation's course conducted at

MWTC is twenty-eight days in length. The course totals 364 hours of academic instruction. Of the 364 hours of instruction, 169 are spent on living/survival skills.³³ Phase three of the training program is conducted in the United States at a northern training location and is the final exam in which the unit conducts a force-on-force exercise to test its abilities in the cold environment. The final phase of cold weather training is participating with allied forces in a cold weather exercise outside of the United States. While no new training subjects are added during these two phases, participation in the exercise and the requirement to train in a different geographic location are tests of previously taught skills.

Marine Corps cold weather doctrine has done an excellent job of recording all aspects of living skills that need to be taught to the novice. Every manual stresses the need for specialized training and the dangers if individuals are not thoroughly indoctrinated in the dangers of cold weather. The one shortcoming in current doctrine that concerns living in the environment is the failure to mention the danger of changing weather conditions. Weather conditions, cold weather medical problems, and training requirements are all covered in great detail but they are never linked together. Failure to plan for changing weather conditions can be fatal. The British and Dutch Marines are more familiar with the problems connected with changing weather as they train annually in Scotland prior to training in Norway. Even with their excellent training, both units have had Marines die due to weather related causes. Another example of a military force fighting in cold weather, without prior cold weather training, is the Chinese communist forces that fought against the Marines at the Chosin Reservoir. They suffered an extremely large number of cold weather casualties because the Chinese leadership had not prepared their units for combat in a cold weather environment. They lacked cold weather equipment as well as special training to prepare them for the harsh environment.

The Marine Corps needs to incorporate an additional section in doctrine to address dangerous situations brought on by changes in the weather. The time to make this addition to cold weather doctrine is before the Marine Corps suffers casualties due to unexpected, severe weather conditions.

Move Over the Terrain

During the winter, low temperatures, snow and ice, and the difficulties of constructing roads and trails hinder movement over the ground. Snow is definitely an impediment to movement, while it also obscures terrain features and obstacles. Snow over 38 cm (15 inches) in depth is difficult for troops without skis or snowshoes to move through.³⁴ When such conditions are encountered, units with no over-snow capability are road-bound and will be at a decided disadvantage relative to units which can move freely through the terrain.

Mobility in cold weather, and movement over the snow in particular, are covered in great detail in cold weather doctrine. There are sections devoted to wheeled and tracked vehicle, marginal terrain vehicle, helicopter, and foot mobility. All six of the cold weather doctrinal manuals deal with mobility in one form or another and do an excellent job of covering the topic. For example, the section dealing with the use of rough terrain vehicles include charts and details on how best to load and drive the vehicles. Very pertinent and detailed information is included on helicopter use by the infantry.

At the infantry battalion level, mobility training is conducted during each of the four phases of training. During the first phase, three hours are spent to familiarize the individual with both snowshoes and skis. Phase two, at MWTC, has 100 hours out of the 364 hours of instruction, devoted to movement skills.³⁵ The last two phases are conducted on skis or snowshoes.

The cold weather doctrinal manuals have been thoroughly researched and documented concerning over-snow movement. The

doctrine contains information and guidance concerning wheeled and tracked vehicles, helicopters, snowshoes, and skis. The Marine Corps consulted experts in the field when writing the doctrine. For example, the skiing techniques portion was done in cooperation with the Professional Ski Instructors of America.³⁶ The concepts in cold weather doctrine have been tested under extremely arduous conditions and are evaluated annually in cold weather exercises held around the world. Marine Corps cold weather training doctrine, concerning movement over the snow, is sound.

Fight in the Cold

Arctic conditions influence, but do not fundamentally alter, the principles of offensive and defensive combat doctrine. When the basic principles are applied, the end result should be the same as in a temperate climate.

Cold weather doctrine covers every aspect of operations directly effected by cold weather to include those peculiar to combat, combat support, and combat service support units. Operations, in general, do not change with the addition of cold weather, but additional planning is needed to compensate for its effects. Cold weather should be considered as a combat multiplier and can be, if properly planned for.

Phase one of the Marine Corps' cold weather training program does not cover any aspect of fighting in the cold. During phase two at MWTC, the Infantry battalion spends 95 hours on individual and small unit tactical skills.³⁷ A battalion exercise is aimed at squad and platoon tactical movement skills. Phase three and four are used to further refine tactical skills and are tested in a force-on-force exercise held in Norway or another selected foreign country.

In looking at historical accounts of winter warfare, the Marines at the Chosin Reservoir suffered from a lack of cold weather training and paid for it in cold related casualties. Improvisations in tactics were now and then made necessary by unusual conditions of terrain, weather or enemy action. But on

the whole the Marines saved themselves in the Chosin Reservoir campaign by the application of sound military tactics."³⁸ Current cold weather doctrine has been written with the intent to insure that the mistakes of the past will not be repeated in any future cold weather operation.

Operational concepts will not change dramatically in the cold weather operating area from those practiced in normal climates. Current doctrine covers the peculiarities of fighting in cold weather in adequate detail. With current doctrine, and the suggested four-phase cold weather training program of instruction, a MAGTF commander does have an excellent source from which to train his force to exercise or fight in a cold weather environment.

V. Conclusion

In its 216 year history, the United States Marine Corps has been tasked to provide forces in time of war, national emergency, or for any purpose that the President has directed. The national command authority has directed that the Marine Corps be prepared to accomplish missions in a cold weather climate. Based on this direction, the Marine Corps has established a doctrinal basis for cold weather operations. This doctrine includes tactical, as well as training guidance. The adoption of the cold weather doctrine filled a void in the Marine Corps' warfighting doctrine. Marine Corps cold weather doctrine and concepts of operation, are basically sound in their application to cold weather missions and will prepare individuals and units for employment in a cold weather environment. Unfortunately, there are some problems with this newly adopted doctrine.

Two aspects of current cold weather doctrine were examined. First, the adequacy of the tactical, how to fight doctrine, was assessed followed by a similar evaluation of training doctrine. The tactical portion of current cold weather doctrine was analyzed by looking at the functions and capabilities that generate combat power as delineated in FMFM 1-1, Campaigning. Cold weather doctrine does an excellent job of covering maneuver, intelligence, and leadership. These functions and capabilities are presented in the right perspective and stressed in adequate detail.

Mobility is imperative for success in a cold weather environment. It is covered in detail throughout the doctrinal manuals and its importance is given a great deal of emphasis, but the individual load problem, previously identified in this paper, will impede mobility and therefore effect maneuver. Current cold weather doctrine with respect to ski mobility and the individual load is not realistic. Marines involved in future cold weather training and exercises should attempt to carry the suggested individual load as outlined in current doctrine. Cold weather

doctrine could then either be validated or rewritten with respect to ski mobility and the individual load.

The functions of tempo and surprise are not mentioned in any of the cold weather doctrinal publications. This points to a definite weakness found throughout the current cold weather manuals. The weakness is that the manuals don't cover the elements of combat power as prescribed by the Marine Corps in FMFM 1-1, Campaigning. OH 7-20, Marine Air-Ground Task Force Planning and Training for Cold Weather Operations, the keystone manual for cold weather doctrine, states that it is the authoritative foundation for subordinate doctrine, tactics, techniques, procedures, and training. As the keystone manual for cold weather operations, OH 7-20 should be the source of information concerning the effects that the environment has on the functions and capabilities that generate combat power. The cold weather environment is unique enough that its effects on combat power should be covered in detail.

Specific tactical adaptations made necessary by the cold weather environment are covered in adequate detail by the various doctrinal manuals, as is guidance for training. Cold weather doctrinal publications would be more effective if they were written in consonance with FMFM 1-1, and covered all the functions and capabilities that generate combat power. This would give further help and guidance in planning to those commanders that initially did not have a strong background in cold weather operations.

Logistics, as a function of combat power, is covered in great depth throughout the cold weather doctrinal publications. The Marine Corps has spent a lot of time, money, and effort to ensure that logistics will support Marines in a cold weather environment. On the whole, their efforts have been more than adequate. The one big problem that comes out of the analysis in this paper, is the lack of doctrine or guidance concerning logistical support at the platoon and company level. Marginal terrain vehicles are covered in the doctrine but only in broad terms. More detailed guidance

needs to be included in cold weather doctrine on suggested employment of these logistical assets. If a platoon or company is moving on skis, they will not have the mobility needed to maneuver effectively while burdened with packs and heavy equipment.

The second aspect of current cold weather doctrine to be examined, is training. The operational priorities of cold weather, as covered in doctrine, are guidelines that should be used to prepare units for cold weather operations. The training portion of current cold weather doctrine, with minor exceptions, does provide excellent guidance for preparing individuals and units for employment in a cold weather environment. The first operational priority, survive in the environment, is given a great deal of attention throughout the training cycle. Where the doctrine falls short is in not addressing the dangerous situations brought on by changing weather conditions. As shown in the historical analysis of the Chosin Reservoir campaign, the environment can be a deadly enemy. To date the Marine Corps has not suffered any weather related fatalities in the annual NATO cold weather exercises in Norway. Current cold weather doctrine needs to have additional guidance included in it to preclude the possibility of fatalities occurring in future cold weather operations or training.

The second operational priority, move over the terrain, is covered in adequate detail. The exception to this is the problem previously identified about the individual load.

The final operational priority, fight in the cold, is given enough emphasis in doctrine and in the suggested cold weather training programs. Operational concepts don't change dramatically in the cold weather and the doctrine does reflect those aspects of warfighting that need to be modified in the cold environment. The ability to live, move, and fight in the cold weather environment were proven in the exercise Cold Winter 85 and have been proven every year since in Alaska, Korea, Norway, and other cold weather environments.

The Marines today have a tremendous advantage over those who fought in Korea at the Chosin Reservoir. Prior to the outbreak of hostilities, planners had no idea that the Marine Corps would be fighting in a cold weather environment. They were not afforded the opportunity to prepare for it through training and a logistics buildup. Current plans do require that the Marine Corps be called upon to reinforce north Norway and Korea. The Marine Corps has been forewarned and the lessons of past winter conflicts should provide enough impetus to allow the Marine Corps to be prepared for the future.

The most pressing problem the Marine Corps faces and will continue to face is its effort to develop and maintain a satisfactory state of training readiness for cold weather operations within the Fleet Marine Force. To fully meet a cold weather commitment at a time and place chosen by an adversary, the committed force should be fully trained, conditioned, and acclimatized to function effectively under the harsh conditions expected to be faced in winter warfare. The Marine Corps tradition of being committed "any time, any place, any mission," will not suffice. At the time a contingency arises, whatever unit available at the time will get the order to execute the mission. As has been shown through historical examples in this research, imagination, improvisation and a tradition of firm discipline will not be enough to successfully counter an enemy's better preparation for cold weather warfare or his greater experience. Prior training is a necessity if a unit wants to successfully live, move, and fight in a cold weather environment.

As shown by the research, the Marine Corps' cold weather doctrine and related training are modern, in accord with operational doctrine, and will prepare individuals and units for winter warfare. With shrinking defense budgets and a smaller and restructured force, cold weather training and exercises should not be looked upon as superfluous in the coming years. Cold weather training does have a very positive effect on a unit's leadership and combat readiness that carries over to other climatic

environments. Hard decisions will have to be made concerning the Marine Corps' training focus. Today's planning decisions will determine whether the Marine Corps is prepared or ill-prepared for the contingencies that will face it in the future.

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