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Forging the 10th Mountain Division for War, 1940–45

How Innovation Created a Highly Adaptive Formation

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Cover image: Ski Troops from the 10th Mountain Infantry Division Drill at Paradise in 1943.

Source: Mount Rainier National Park.

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Program Description

The Command and General Staff College (CGSC) Art of War Scholar's program offers a small number of competitively select officers a chance to participate in intensive, graduate level seminars and in-depth personal research that focuses primarily on understanding strategy and operational art through modern military history. The purpose of the program is to produce officers with critical thinking skills and an advanced understanding of the art of warfighting. These abilities are honed by reading, researching, thinking, debating, and writing about complex issues across the full spectrum of modern warfare, from the lessons of the Russo-Japanese war through continuing operations in Afghanistan and Iraq, while looking ahead to the twenty-first century evolution of the art of war.

Abstract

As the US Army faces new and uncertain challenges across the globe, the need to create new capabilities in organizations, doctrine, and equipment is critical. As new threats in the sea, air, land, and cyber domains appear, it is vital for the Army to produce capable and well-equipped formations that are prepared to adapt and meet any challenges. This thesis examines the relationship between how peacetime innovation influences combat adaptation. It uses the history of the 10th Mountain Division as a historical example of how the Army faced threats in multiple areas of the world. In response, the 10th Mountain Division innovated to create a new capability to fight in the mountains. Using new techniques, it recruited highly experienced volunteers then developed new training and equipment to build a new capability for the US Army. As a result of this innovation, the 10th Mountain exemplified a highly adaptive and successful formation in combat. The War Department's ability to leverage innovation to create an adaptive organization is relevant to the contemporary Army and how it looks at the challenges of multi-domain battle and Army warfighting challenges.

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Climb to Glory!

Contents

Figures

Acronyms

AGCT	Army General Classification Test
AGF	Army Ground Forces
ARCIC	Army Capabilities Integration Center
DOTMLPF	Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel, and Facilities
FM	Field Manual
MTC	Mountain Training Center
MTG	Mountain Training Group
MWWB	Mountain and Winter Warfare Board
NSP	National Ski Patrol
OCS	Officer Candidate School
TOE	Table of Organization and Equipment
US	United States

Chapter 1
Introduction

The War Department with the help of civilian expertise leveraged innovative techniques to recruit, train, and equip the 10th Mountain Division. These innovations created a formation that was highly adaptive and successful in combat. The 10th Mountain Division's first combat operations in Italy clearly highlighted their skill and increased capability to defeat the enemy in mountainous terrain. Following three failed attempts in late 1944 to push the German's off the high ground, the 10th Mountain Division was deployed to turn the tide for the Fifth Army. In its first large-scale operation, the division quickly overcame difficult terrain and achieved the element of surprise to dislodge a formidable German enemy.

The challenges of mountain warfare span the chapters of military history. Mountainous terrain—coupled with dynamic weather—tests any military's ability to move, maneuver, employ direct and indirect fires, conduct logistical operations, and evacuate medical casualties.[1] During World War II, the Mediterranean Theater of Operations was no exception. Dislodging and defeating German defensive positions that dominated the high ground in northern Italy presented unique problems for the commanders of the Fifth and Eighth armies in mid-1944. The US Army and the War Department addressed this challenge by employing the capabilities of the 10th Mountain Division.

The establishment of the division was almost a four-year process. Starting as early as 1940, the foundations for training, equipping, and recruiting mountain soldiers were evident. The division was eventually activated and trained for combat at Camp Hale, Colorado. From its initial formation until its eventual deployment to Italy in 1944, the Army used a unique process to address the challenges of creating this new capability. It leveraged America's civilian alpine expertise alongside Army leaders to train, man, and equip the division. This new capability gave the Army an advantage in the mountains of northern Italy in late 1944 and early 1945. The division's initial missions were the trigger for the Allied spring offensive in 1945. It continued to lead the Fifth Army north through Italy until the war's end. Throughout this time, the division employed new techniques developed during their training at Camp Hale to enable them to adapt quickly to their operating environment and successfully conduct operations in northern Italy.

The division's capabilities were unique and represented the innovative qualities of its early leaders. It displayed the qualities of the American society it represented. Americans still remembered the sacrifices of the First World War and saw the need to assist the nation in whatever way they could. They felt compelled to protect their country and their way of life. One final product of this patriotic support was a mountain division that provided the US Army with physically fit, educated, innovative, and highly experienced mountain soldiers. The division was initially organized to conduct high-altitude mountain operations. Once the Army decided to employ its capabilities in Italy, it was augmented with additional enablers such as wheeled transport and additional artillery and tracked vehicles. However, it still retained the specialized equipment and skilled personnel as well as most of its original organizational structure.[2] The division's unique capabilities proved useful and were critical to the success of Operation Encore, which broke the stalemate in Italy between the Allied and German lines in early 1945. The Army used the highly trained mountain infantry to overwhelm the Germans by presenting them with multiple dilemmas. These men relied on their mountain training to take the high ground from the Germans. Their actions were critical to the Fifth Army commander's plan to break through the Po River Valley.[3] The division continued to improvise and create opportunities as Allied forces pursued the Germans north through Italy. By the end of the war, the 10th Mountain Division soldiers had displayed their capability to "Climb to Glory."

This study focuses on how innovation influenced the recruitment, training, and equipping of the US Army for mountain and winter warfare training from 1940 to the official establishment of the 10th Mountain Division in 1943. For these purposes, innovation is defined as the process that occurs during a military organization's peacetime training. This study also looks briefly at innovation and the division's training in 1944. Finally, it examines the division's first involvement in the Mediterranean Theater of Operations in support of Operation Encore from January to March 1945. This period illustrates how peacetime permutations to existing Army processes drove the division's ability to adapt quickly during its first combat operations. The following questions are addressed: Did peacetime innovation drive wartime adaptation for the 10th Mountain Division? Why was the 10th Mountain Division formed and did it provide the capability the Army wanted? How did the use of civilian expertise to recruit volunteers and assist in training and equipment development from 1940 to 1944 influence the organization? Did the division adapt to address tactical and operational challenges during Operation Encore?

The answers to these questions provide insight into how the US military has used innovative ways to create capabilities to address challenges and the correlation of how this process impacts an organization's ability to adapt in the face of war. Researching the creation of the 10th Mountain Division and its exploits in northern Italy highlights this unique process. It also underscores the characteristics of a unit forged through innovation and how it can employ these unique qualities in combat. These links present potential implications for how the US Army creates future capabilities. To provide highly agile and adaptive formations in combat, units with specific capabilities must be trained and developed using innovative techniques.

Research Methodology

Many histories written about the 10th Mountain Division during World War II focus primarily on the timeframe from 1943 to the conclusion of their operations in the Mediterranean in 1945. Although some sources briefly address the years before the division's activation in 1943, this is one of the least discussed periods in the history of the US Army's training for mountain and winter warfare. The timeframe from 1940 to 1943 does not directly involve the 10th Mountain Division, but the period provides context for its necessity. This study will primarily focus on this timeframe to highlight the impacts that innovation had on the division. Additionally, the reports and studies created during this period tend to highlight the shortcomings and pitfalls that hampered progress. These observations can present a bleak perspective on how the Army worked through the problems of training for mountain and winter warfare. However, these assessments take a myopic view. In isolation, these events presented challenges to the Mountain Training Center and the 10th Mountain Division. When one examines the success of the division in combat, however, it becomes apparent that these challenges only increased the capability of the formation and its leaders. This study takes a holistic look at how the early events that involved training for mountain and winter warfare influenced the division's capabilities. Throughout, the study uses primary sources to accurately develop the history and understanding of factors that affected the key decision-makers involved in the formation of the 10th Mountain Division.

Chapter 1 gives a broad overview of the political and military context of the time as it pertained to the national sentiment for war. It highlights how that sentiment drove the Army's mobilization and training efforts. Additionally, this chapter discusses the Doctrine, Organization, Training, Material, Leadership, Policy, and Facilities construct currently used by

the US Army. Parts of this framework are used to examine specific areas of this history that demonstrate innovation and adaptation. The primary sources used to inform this section include two sources titled *Neutrality for the United States* and *A Foreign Policy for the United States*. Each provides background to the US political situation in the early 1940s. The US Army Center of Military History's *Training in the Ground Army* publication is used to inform how the Army was organized to mobilize and train for war. Finally, Dr. Williamson Murray's book, *Military Adaptation in War*, is used to define the terms "innovation" and "adaptation" for the analysis contained in this study.

Chapter 2 discusses the involvement of Charles Minot Dole and John E. P. Morgan from the National Ski Patrol (NSP) and how they influenced the War Department's decision to start training for mountain and winter warfare. It also looks at the innovative nature of how the NSP assisted in the recruitment of volunteers for mountain and winter warfare training and how it facilitated the initial development of winter warfare equipment for the Army. The primary sources that were used to inform this chapter were the Charles Minot Dole Papers located at the Denver Public Library Archives. These primary sources include official correspondence between Dole and various members of the War Department to include General George C. Marshall. It is also a paper written by Dole after the conclusion of the war titled "The Birth Pains of the 10th Mountain Division" that distills the efforts of Dole, Morgan, and the NSP to assist in the recruitment, training, and equipping of soldiers for mountain and winter warfare.

Chapter 3 looks at the creation of the 87th Mountain Infantry Regiment as the first US mountain test unit; the formation of the Mountain Training Center (MTC) and its eventual establishment at Camp Hale, Colorado; and the creation of the Mountain Winter Warfare Board. Each organization is examined to highlight the innovative techniques used for training, the early development of doctrine, and the testing and evaluation of new winter and mountain warfare equipment. The primary sources for this chapter include two studies conducted by the Army Ground Forces. The first is titled "Study Number No 23: Training for Mountain and Winter Warfare." This report was generated using official War Department correspondence and data compiled within the official histories of the MTC and the 10th Mountain Division. It provides an overview of the major events that occurred in the Army from 1940 to 1945 involving mountain and winter warfare. The second is titled "Study No. 24: History of the Mountain

Training Center." This report was primarily written using official interviews and War Department memoranda, Army Ground Forces observer reports, and official written correspondence. It reviews the earliest days of mountain and winter warfare training, providing a detailed account of War Department decisions to create a mountain and winter warfare unit in the Army and addressing the unique challenges and innovative techniques associated with developing training, equipment, and doctrine for a capability that the US Army did not previously possess.

Chapter 4 briefly addresses the division's early training before its deployment to Italy. The chapter transitions to a comprehensive look at how the division adapted during its first operations at Riva Ridge and Mount Belvedere. This section identifies links between early innovation and how it impacted the adaptability of the division. The sources in this chapter are principally primary documents including an operational report titled "The Riva Ridge Operation" by a battalion commander from the 86th Infantry Regiment. Additionally, the original operations orders are referenced to understand the division's tactical situation. This section also includes a Fort Benning paper written after the war on the attack on Riva Ridge and Mount Belvedere. The paper's author was in the division during the attack and highlights successful adaptations by various units during the operation. Each chapter is designed to inform historically while also highlighting the successful innovation and adaptation that occurred throughout the period examined.

National Sentiment and Training for War

Understanding the political and societal environment during the interwar period is critical to understanding what drove political and military decisions up to and leading into World War II. During the period following World War I, the United States was faced with unique problems. Given the amount of national treasure (money, natural resources, and American lives) expended during the First World War, the United States would enter a period of regression, eventually known as the Great Depression. Anti-war sentiment and a general appeal to keep the United States out of international affairs were prevalent at the time. In 1937, President Franklin D. Roosevelt suggested a "quarantine" policy that the country isolate belligerents, presumably from Japan, Italy, and Germany.[4] The public and the Democratic Party presented stiff opposition to this policy. The US people had no desire to get tangled up in world affairs again. This challenged the president's ability to shift toward a more interventionist policy.[5] The US Congress also

passed a series of neutrality acts between 1935 and 1939; these acts initially limited US involvement in all international affairs and did not distinguish between aggressors and victims.[6] This stance slowly shifted and by 1939 gave the administration more flexibility to enact embargoes on its aggressors.[7] At this point, the United States began to shift from a complete isolationist policy to one that involved itself in foreign affairs again.

One year later in 1940, President Roosevelt ran and won reelection on a platform to keep America out of the war. His platform touted a strong foreign policy that avoided US intervention. Many Americans supported this policy. Additionally, this stance was reiterated in the Democratic Party's promise:

> We will not participate in foreign wars, and we will not send our Army, Naval, or Air Forces to fight in foreign lands outside of the Americas, except in the case of attack. . . . The direction and aim of our foreign policy has been, and will continue to be, the security and defense of our own land and the maintenance of its peace.[8]

This policy direction for the defense of the continental United States fueled the need for America's first alpine troops.

Understanding how the Army was organized to train divisions during this period is crucial to comprehending how information flowed from the highest echelons to the individual and collective executors on the ground. From July 1940 to the end of World War II, the Army consolidated all training requirements and guidance under the Army General Headquarters (GHQ), which would transform into the Army Ground Forces (AGF) Headquarters on 9 March 1942.[9] The AGF would communicate its guidance and intent under AGF Chief of Staff Lt. Gen. Lesley J. McNair to four training Field Army Headquarters. Each of the four Regional Army Headquarters was responsible for all training functions for tactical troops in the region.[10] Under the Regional Headquarters was the Corps Headquarters. These headquarters operated directly under the guidance of the G-4 of the War Department and were responsible for "the system of supply and for the construction, maintenance, and repairs of all posts, camps, and stations."[11] This delineation of authority and responsibility is important for understanding the challenges the 10th Mountain Division faced during its time preparing for combat.

As the chief of staff of the GHQ, General Marshall delegated the authority for the training of the Army to Lieutenant General McNair.[12] Once the AGF replaced the GHQ, McNair had the complete authority for training as the commanding general and reported to Marshall on his recom-

mendations for the way forward. Interestingly, McNair opposed specialized training for the Army. As early as January of 1941, he communicated this concern in writing to Marshall in a communication titled "Specialized Training in the Training Phase of the Military Program."[13] McNair's concluding remarks were:

> I do not question the need of special training, but believe that in general its priority is below both expansion and sound general training, and that such special training should be minimized until the fall of 1941, perhaps later.[14]

This memorandum is indicative of McNair's views. He felt that it should always take a secondary role to standard training practices. McNair's opinion was one of the contributing key challenges facing the division as it trained for war.

In October 1942, ten months after the United States entered World War II, AGF headquarters outlined a directive program for the training of divisions.[15] The following month, communications between McNair and the commander of the Second Army, Lt. Gen. Benjamin Lear, delineated the requirements for the formal conduct of winter and mountain training. The directives summarized in this memorandum were published nine days after the official opening of Camp Hale, Colorado, and slowly began to shape the intent for how winter and mountain training would be conducted. This guidance from McNair gave the Second Army commander the initial metrics for training any mountain troops in his region.[16] A second memorandum was sent on 8 January 1943 directly to the commanding general of the Mountain Training Center at Camp Hale. This memorandum further outlined and enabled subordinate leaders to begin training, experimenting, and innovating to meet the demanding requirements of mountain and winter warfare training.

DOTMLPF Framework

The US Army currently uses the Doctrine, Training, Materiel, Leadership and Education, Personnel, and Facilities (DOTMLPF) structure to "resolve or mitigate capability gaps" that cannot be resolved using current capabilities.[17] The DOTMLPF formal concept was not present in Army doctrine from 1940 to 1945. However, the Army did take a similar approach in addressing its capability gaps. From 1940 to 1941, the Army developed specialty means that were different from the standard arms of infantry, cavalry, artillery, engineers, etc. These specialties ranged from tank destroyer units to airborne, amphibious, and mountain units. During

this timeframe, each specialty unit trained under provisional structures. These provisional entities were not always nested with the Army's overall training strategy.[18] This eventually changed with the establishment of the AGF Headquarters in 1942. "Commands" or "centers" were established to formalize the responsibility for the "development of equipment, doctrine, and the training of enlisted and officer personnel."[19] For the 10th Mountain Division, this was the Mountain Training Center (MTC) at Camp Hale, Colorado. The MTC and eventually the 10th Mountain Division addressed the challenges of doctrine, organization, training, and materiel. Therefore, this study will focus on these areas when assessing where innovation occurred and how it impacted the division's ability to adapt.

One key component of how the Army trains and prepares for war is the creation and use of doctrine. Doctrine provides the framework and baseline for how the Army executes its missions. By contemporary definitions, doctrine provides a guide for the execution of military tasks, based on the organization's current capabilities and lessons learned through training and exercises.[20] When examining the 10th Mountain Division and the organizations that helped it prepare for war, it is critical to understand the impact of not having doctrine. The absence of doctrine gave leaders and organizations the flexibility to experiment and develop practices that eventually became doctrine. However, it also made the initial creation of training plans and assessments extremely difficult since there was no starting point. In January 1943, a memorandum was sent to the MTC from the AGF Headquarters. This memorandum indicates that field manuals were the only available doctrine at the time that addressed cold weather training.[21] It was not until December 1944 that the Army finally published Field Manual (FM) 70-10, *Mountain Operations*. Additionally, the Army published an updated FM 70-10 in 1947. This version was presumably created using lessons learned throughout the war. The lack of early doctrine potentially aided the innovation that occurred at the MTC and during the early days of experimentation. However, it came at a cost. Precious time and man-hours had to be consumed in the beginning since everything had to be created for the first time. One thing is very clear. The work of the MTC and the division's staff played a large role in developing US Army mountain and winter doctrine.

Another key component in an army's success is its training. Training is the keystone to achieving success in mission execution. In preparation for World War II, the US Army faced significant challenges in maintaining quality control over how divisions and non-divisional units were formed

and trained for combat. The challenges had an impact on the Mountain Training Center and the 87th Mountain Infantry Regiment from 1941 to 1943. Since these two units formed the division's initial nucleus, the issues and challenges they faced permeated through the division in 1943. Training was plagued by a lack of resources and personnel. Both issues were further exacerbated by the fact that mobilization requirements initially outpaced the capabilities of the selective service and the industrial base.[22] Between War Department strategic plan changes and the overall expansion of the Army, personnel replacements were constantly redirected to other units. This left units like the MTC and 10th Mountain Division with a constant but slow trickle of new personnel. The effect was that units had a steady new pool of untrained soldiers. It was also standard practice for many divisions to only be manned at 75-percent strength.[23] A shortage of well-trained officers and junior leaders also presented problems. For example, non-divisional unit commanders were directly commissioned from civilian life with no military experience. Generally, they brought a robust technical background but had no Army expertise. Additionally, staff officers were routinely put into key assignments without completing appropriate military education such as the US Army Command and General Staff College.[24] These issues were consistent across the Army prior to 1943. The recruiting done by the National Ski Patrol meant that the majority of 10th Mountain Division soldiers were highly intelligent, physically fit, and technically skilled.

In addition to personnel issues, the Army was challenged to meet the logistical requirements for training. Due to the shortage of equipment and ammunition, non-divisional units were issued only 20 percent of their authorized equipment. This alone had a tremendous negative impact on a unit's ability to train. These resource limitations drove the necessity behind many of the unique techniques developed during this period. The Army Ground Forces made these observations:

> The answer lies to a large extent in the capacity of unit and higher commanders for perseverance, and their ingenuity in borrowing, pooling, and improvising. Blocks of wood were used for mines, sandbags for ammunition boxes, galvanized iron pipes mounted on ration carts for artillery, sticks for guns, and "jeeps" for tanks, not to mention a long list of mock structures, ranging from landing craft to "Nazi Villages."[25]

Although Lieutenant General McNair made recommendations to address the issue, non-divisional units did not see more equipment to train

with until the summer of 1943. This occurred when the industrial sector finally began to catch up with wartime demands.[26]

The final area of concern that the MTC and the 10th Mountain Division wrestled with was the most complicated: the challenge of creating summer and winter mountain warfare equipment. At the time, the Army had minimal cold weather equipment. The equipment that did exist was old and obsolete. By 1940, little work had been done to update anything that remained in the Army inventory from the First World War.[27] The Army eventually created a provisional entity known as the Mountain and Winter Warfare Board (MWWB), which was devoted to the development and experimentation of equipment and the development of doctrine. It also received outside assistance from the Equipment Committee of the National Ski Patrol Association.[28] The 10th Mountain Division leveraged this capability along with the MTC's expertise to build proficiency in training and the use of specialized equipment. Using uncommon and new techniques to build capabilities defined these organizations and further assisted in helping the division improve until its deployment to war.

This study specifically examines the doctrine, organization, training, and materiel categories of the DOTMLPF construct. By highlighting where innovation occurred, it is easier to understand how it translated at an organizational level to create an adaptive organization. Each area is analyzed from the early stages of training in 1940 to the formation of the MWWB and MTC then up through the training of the 10th Mountain Division before its final departure to Italy in 1945. The 10th Mountain Division's ability to quickly adapt in these areas highlights how innovation created an organization that was able to adapt and overwhelm the enemy in mountainous terrain. The division's first operation in Italy highlights this capacity to adapt rapidly and emphasizes the impacts that this had on the organization.

Innovation and Adaptation

The goal of the US Armed Forces is to fight and win the Nation's wars. The Army must seek new ideas and evolve institutionally to win against a determined enemy or a new threat. Two scholars on leadership in the contemporary environment have argued that "the best way to win in this world is through innovation."[29] However, an argument can be made that in the military profession, innovation alone will not prevail. Success for an army requires both innovation and adaptation. How innovation and adaptation are defined is important to this argument. Each definition must be applied in the context of military organizations and military operations.

Military historian Dr. Williamson Murray published a book on this topic titled *Military Adaptation in War: With Fear of Change*. In his book, Dr. Murray differentiates between innovation and adaptation as it applies to military organizations. He argues that adaptation and innovation are similar in many ways. However, the environments in which each occurs are significantly different.[30]

Innovation is the process that occurs during a military organization's peacetime training. In peacetime, there is time available to think through the issues that confront an organization then deliberate and refine changes. Time also allows for a thorough and methodical process to create change. Although this method can lead to achievements in developing new tactics, techniques, organizational structure, or equipment, it lacks the continuous friction of a wartime environment. It attempts to—but cannot ever fully account for—the friction that is caused by an adaptive belligerent. It is in war and conflict that adaptation occurs. In a wartime environment, time is constrained. However, there is the invaluable evidence of combat results. This immediate feedback helps aid in the process of adaptation.[31] Carl von Clausewitz describes war as a contest of wills, a duel between two opponents where each side is attempting to adapt and change to defeat the other.[32] Therefore, adaptation is paramount to success in combat. The military or unit that adapts the fastest will constantly hold an advantage over its opponent.

Given the nature of this problem, it would seem that the concepts of innovation and adaptation would thrive in most military organizations, yet they do not. The explanation is simple. The rigid discipline that is required in combat—the following of orders and execution of tasks in the face of great danger—is contrary to the process of adaptation.[33] Murray states, "It is the inherent tension between the creation of disciplined, obedient military organizations, responsive to direction from above, and the creation of organizations adaptive to a world of constant change that makes military innovation in peacetime and adaptation in war so difficult."[34] This challenge makes the 10th Mountain Division's formation and its immediate successes in war so interesting. It suggests that innovation and adaptation are not mutually exclusive. The 10th Mountain Division demonstrates a clear link between innovation during training and effective adaptation in combat. Furthermore, its quick adaptation occurred in a theater where previous veteran units struggled to achieve similar successes.

This study examines peacetime innovations involving the recruitment and training of personnel and the development of new equipment. It looks

at how the organization used the unique skills and qualities of recruited personnel. This analysis highlights how the US War Department leveraged the experience of the National Ski Patrol to help recruit, train, and equip soldiers for the 10th Mountain Division. It examines how this innovation played a critical part in the formation of the division and defines the links that made it so adaptive in combat.

Conclusion

This study uses Murray's criteria as outlined above to create a lens to assess how innovation directly impacted the 10th Mountain Division's ability to adapt in war. It focuses on the unique events leading up to the division's formation. It examines the four-year period prior to the 10th Mountain Division's deployment to Italy to highlight the innovative techniques used to recruit, train, and equip the formation. The methodology in this study is not meant to be an absolute model for determining the links between innovation and adaptation. It offers, instead, an argument that links exist and that in this case, the impact had a direct effect on the unit's success on the battlefield. The amount of innovation that occurred during peacetime correlated with the division's significant ability to adapt quickly in war.

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Chapter 2
The National Ski Patrol

In the interwar period leading up to the 1940s, the US Army had a unique problem. Most major armies had a fairly coherent picture of where they would likely fight next, which allowed them to organize, train, and equip armies to fight in those regions. For the US military, the choices and options varied significantly. The US Army options included the hills and grasslands of central Europe, the Alps, the deserts of North Africa, and the islands of the Pacific. In retrospect, each possibility became a reality. In 1940, however, the problem's nebulous nature accompanied by fiscal and manpower constraints created a challenging situation. Due to this unpredictable future, the US Army decided that specialized training was not initially a priority.[1] In 1939, a conflict broke out between the Soviet Union and Finland aptly named the "Winter War." Many doubted that the Finnish Army had the capability to challenge the Soviet Red Army. In contrast, the actions and tactical successes of the highly trained Finnish ski troops piqued the interest of many American civilians.[2] This event and the key players identified in this chapter were the catalysts that drove the War Department to begin experimenting with building a mountain and winter warfare capability for the Army.

By 1940, the War Department began to receive increased funding and resources for mobilization and training. This gave the War Department the flexibility to begin experimenting with specialty programs such as airborne and amphibious training. These specialty programs were resourced second in priority to training the ground army.[3] Around this time, the first instances of involvement by the National Ski Patrol (NSP) began to surface. From 1940 until 1945, the NSP and its leaders were heavily involved in recruiting quality personnel; they assisted in training assessments and aided in the development of new equipment. Most of this occurred between 1940 and 1943 and was driven by two of the most renowned ski philanthropists in the United States: Charles Minot Dole and John E. P. Morgan.

Charles Minot Dole was born in Massachusetts in 1899 and learned to ski at a young age. Dole enlisted in the Army at the age of eighteen during the First World War, but the war concluded before he finished basic training. During basic training, Dole received the beloved nickname "Minnie" because of his youthful appearance; that name would stick with him for the rest of his life. In 1936, Dole experienced a minor ski accident while out

with family and friends. The failures of responding personnel to render care and evacuate him spurred his interest in developing an organization with the training and structure to aid skiers in the event of an accident. Two years later, Dole began his long and passionate journey toward creating and running the National Ski Patrol System.[4] In addition to his love for skiing, "Minnie" Dole had a passion for his country and for helping the men of the 10th Mountain Division.[5] He did not allow a challenge or problem to dissuade his desire to succeed. Dole's persistence, personality, leadership qualities, and outdoor expertise were all crucial to his success. His relentless passion to never give up also played a key role in his ability to earn an audience with General George C. Marshall and key members of the War Department. These conversations were critical to highlighting the importance of mountain and winter warfare training to key personalities.

John E. P. Morgan was born in Massachusetts in 1895 and served in the US Navy in World War I. Upon his return from the war, Morgan began skiing recreationally. In the 1930s, his interests in ski safety were sparked while serving on a commission reviewing ski injuries. The commission's findings indicated that organized and properly trained personnel were essential in treating and evacuating injured skiers.[6] This report and Morgan's interest fully supported Dole's desires to create the National Ski Patrol System. Morgan served as the financial advisor for the NSP. Additionally, his personal relationship with Dole played a critical part in assisting with their endeavors to support the war effort through the NSP.

Another key figure in supporting Dole's aspirations to form the National Ski Patrol System was Roger Langley. Also born in Massachusetts, Langley had no prior military service like Dole and Morgan; he spent the majority of his life as an educator. Langley was the president of the National Ski Association and was vital to the early development of competitive skiing in the United States. Support from Langley and the National Ski Association gave Dole the ability to formally create the NSP.[7] Additionally, Langley's support helped bolster Dole's credibility in Washington because of the National Ski Association leader's numerous social connections. Roger Langley was critical to Dole's initial success in asserting the need for mountain and winter warfare capability in the Army.

The Catalyst for Change

In Dole's papers, a clear narrative highlights a series of unique events that led to his involvement with the War Department. Dole notes a 1939 discussion with close friends and Roger Langley that centered around the success of the Finnish ski troops against the Soviets. This conversation

spurred further debate about US preparedness to defend against a surprise invasion. The group concluded that much of US borders were under snow for a good portion of the year.[8] Although an invasion seemed unlikely, it posed a unique concern. US Army history indicated that US soldiers had never prepared to fight large-scale operations in extreme cold and mountainous terrain. Dole explained that this realization was where "my obsession began."[9] After more discussions, Roger Langley eventually sent a letter to the Secretary of War in May 1940 offering the services of the National Ski Association in support of the country's defense.[10] In its response, the War Department indicated no interest in his services. At that point, Dole's persistence clearly emerged.

One month later, Dole traveled to Governors Island, New York, to vent his frustrations to someone in uniform. In his initial engagement with a junior officer, Dole explained his position with the NSP and what he thought the organization could provide. One week later, he was granted an audience with General Virgil Peterson, the inspector general of the US Army. After explaining his position a second time, Dole received support and positive feedback regarding his concerns. General Peterson, although sympathetic to and supportive of Dole's concern, explained that to gain any traction on the subject he would need to engage someone with greater influence in the War Department; Peterson predicted that Dole's efforts would prove fruitless.[11] Dole faced a bigger challenge than he had initially anticipated but would exhaust every means available before he considered his ambitions defeated.

Following the meeting at Governors Island, Dole contacted Morgan and formulated a plan of action to engage the bureaucracy in Washington. First, he addressed a letter to President Franklin D. Roosevelt explaining that he wished an audience in Washington. He outlined his argument concerning the need for a winter defense force and offered the services of the NSP.[12] Dole did not expect the letter to receive any traction. He figured it was at least worth a shot. Dole stated, "I knew the wastebasket would catch that one and almost fell out of my seat when he [Roosevelt] replied."[13] The President's office thanked Dole for the letter and indicated that it would be forwarded to the appropriate entity for review. While this response did not grant Dole and Morgan their much-desired audience, it provided a glimmer of hope that their ideas had a chance. In the following days, Dole received a wire from the Secretary of War's office offering a meeting in Washington.[14] Dole and Morgan eventually had the opportunity to engage the Secretary of War's aide and plead their case again. After pre-

senting their case at the War Department, they were immediately ushered out of the building without any feedback. On their way out, they met a young officer by the name of Capt. Ridge Gaither. During a cordial discussion with Captain Gaither, Dole and Morgan explained why they were there. Upon parting ways, Gaither exclaimed: "Damn interesting thought. If we were ever going to do anything like that, could you help us on equipment?" Dole replied, "Yes, we surely could. Thanks, we will be back in a month."[15] Although promised nothing, Dole and Morgan were reinvigorated in their pursuit to provide their services to the War Department.

Over the next month, Dole and Morgan cobbled together as much material as they could find on mountain troops in other countries. They were prepared to present this information in the form of a rudimentary scrapbook. They took the book back to Governors Island to get feedback on what they had done.[16] This engagement was more positive. However, it seemed that their ideas would only get traction with a direct engagement with General Marshall.[17] The process to this point had proved challenging. Dole and Morgan had to somehow arrange a meeting with one of the busiest and most respected military leaders in the War Department. Not allowing himself to be discouraged, Dole contacted the Secretary of War's Office on 6 September 1940, requesting a meeting with Marshall.[18] Three days later, Dole received a letter granting him an audience with Marshall that Thursday at 1000.[19] In the face of insurmountable odds and continued challenges, somehow two civilian skiers had secured a meeting with the chief of staff of the Army. From Dole's accounts, the meeting was short and direct, and Marshall indicated that one way or another he would make a decision on their proposal.

Within a short time, Dole and Morgan would indirectly have their answer, at least temporarily, from the War Department. Two Army advisors, both members of the General Staff, were sent to liaise between the US Army and the NSP leadership. Minnie Dole later stated that the "10th Mountain Division owes an everlasting debt to these two men. They believed from the start and nursed this project along."[20] These two soldiers worked alongside Dole to dig into what equipment, if any, in the Army inventory would support the training of Alpine soldiers. This discussion led to the discovery of an Alaskan Equipment catalog dated 1914. After reviewing its contents, Dole recommended to the General Staff liaison officers that the catalog and its contents be thrown out. He recommended a total overhaul of all of the equipment. Anyone who is familiar with how an army equips its soldiers understands the process is never as easy as just

starting over. The process of testing, bidding, and procurement takes time, money, and effort. Therefore, Dole's efforts to influence the lack of adequate winter and alpine equipment would take time and resources. Given the limited scope of the NSP's initial involvement, this endeavor took a backseat to other priorities given to the NSP.

By November 1940, the NSP received its first actual mission from the War Department. In a letter to Dole, General Marshall provided guidance on how the NSP would initially support the war effort:

> The personnel of the National Ski Patrol, acting as a volunteer civilian agency, to become fully familiar with local terrain; to locate existing shelter, and to experiment with the means of shelter, such as light tents, which may be found suitable for the sustained field operations of military ski patrol units; to perfect an organization prepared to furnish guides to the Army in event of training or actual operations in the local areas; and to cooperate with and extend into inaccessible areas the anti-aircraft and anti-parachute warning services.[21]

The War Department wanted local ski patrols to begin detailed reconnaissance of their assigned patrol areas. These patrols would serve two purposes. They were instructed to identify likely areas that would support either an enemy airborne insertion or the landing of enemy aircraft. Additionally, ski patrols were ordered to become masters of their local terrain. They were to know the locations of river and stream crossing sites, locations of rural structures, and locations of terrain that would impede or facilitate troop movements. This information was to be cataloged and mapped by these local ski patrols. The War Department surmised that due to the unforgiving terrain where the ski patrols operated, they would be the best suited to act as local guides for the US Army. If the need arose to conduct operations in defense of the country, the ski patrols would be the indigenous scouts to assist the Army.

Nearly one year later, Dole received information from a General Staff liaison officer that the concept of developing training for mountain warfare had dropped in priority. Fearing that fifteen months of hard work and determination had been lost by the Washington bureaucracy, Dole and Morgan drafted a letter to General Marshall and President Roosevelt outlining their concerns. They emphasized five main points:

1. Northern boundaries were under snow at least four months of the year.

2. Many countries were fighting either offensively or defensively in snow.

3. Germany had fourteen trained mountain divisions.

4. No one was clairvoyant enough to foresee where or at what time of year we might be called upon to fight in offense or defense.

5. The US Army was maneuvering extensively in the deep south at the hottest season of the year.[22]

Dole argued to create a small experimental unit that at a minimum could test and train conceptual tactics and equipment. This pilot program would provide the Army with a baseline capability and knowledge so that if a need arose for mountain troops, the Army would not be caught off guard.

Less than one month after sending his letter, Dole received a response from General Marshall. Marshall indicated that the Army was moving to establish a test unit for mountain and winter warfare training.[23] The Army officially activated the 87th Mountain Infantry Regiment on 15 November 1941. Although well-intentioned, Dole's letter was not the sole reason for this event. By this time, the War Department had been entertaining and experimenting with Dole's initial ideas for well over a year.[24] Divisions across the United States had conducted experimental training using skis and civilian-purchased winter equipment. These tests concluded that further testing and evaluation were needed if the Army planned to fight in the snow.

Additional factors played a role in the War Department's decision to form the 87th Mountain Infantry Regiment. In June 1941, Hitler initiated Operation Barbarossa, which launched Axis forces deep into Soviet territory. By 15 November 1941, the German Army was feeling the effects of operating in winter weather with forces that were ill-equipped and poorly prepared to operate in these conditions.[25] Although neither event was the specific driving force for continuing the venture of training alpine troops, Dole's letter and the recent German struggle on the Eastern Front added to the War Department's calculus. Dole's letter provided another example of his passion and continued perseverance. It illustrated a high level of strategic thinking from someone outside of the military who adeptly analyzed how the Army was preparing for war versus its opponents. This episode highlighted Dole's desire to understand how he could integrate his knowledge and experience into the military's decisions and assessments of needed capabilities in preparation for the war. His perspective continued

to provide a valuable and reasonable argument that was welcomed by most in the military and in Washington.

Recruiting

The ability of Charles Minot Dole and the National Ski Patrol to evaluate and recruit qualified personnel for the War Department is one of the more revealing episodes during the formation of the 10th Mountain Division. The creation of the 87th Mountain Infantry Regiment was a monumental win for Dole and John Morgan. It provided a structure within the Army that required training to fight in the terrain and weather that so concerned them. However, as with any new capability or organization, initial progress was slow and full of challenges.

Recruiting and assessing volunteers for training as mountain soldiers was an arduous process for Dole and the other members of the NSP. The efforts were also one of the most fruitful and unique contributions made by the NSP. The process began once the War Department authorized the training and establishment of mountain units. However, the Army lacked trained and qualified personnel at the time to fill and organize these formations. Due to Dole's frequent interactions with important figures in Washington, Dole and the NSP were a natural choice to assist in recruiting highly qualified skiers, climbers, and outdoorsman to fill the ranks of what would eventually become the 10th Mountain Division. Dole had access to the right networks through the patrol chapters on the East and West coasts, ski resorts, and the general winter outdoor sportsman network. The NSP operated under a contractual agreement with the War Department that involved assistance in recruiting qualified individuals for service. This agreement was one of the first times the Army looked to a civilian agency to assist with recruiting.[26] Dole and his organization led the effort to outfit the 10th Mountain Division with some of the most highly trained and educated volunteer soldiers in the Army. He was initially asked to produce 2,500 candidates in the first two months. The NSP exceeded this initial goal by almost a thousand.[27] The NSP later conducted a second round of recruiting to bring in another 2,000 candidates; although it would fall short in this effort to man the entire 10th Mountain Division, the number and quality of recruits undoubtedly had an impact on the organization.

To meet these numbers, Dole and key figures within the NSP used an innovative recruitment strategy. First, they searched their ranks and net-

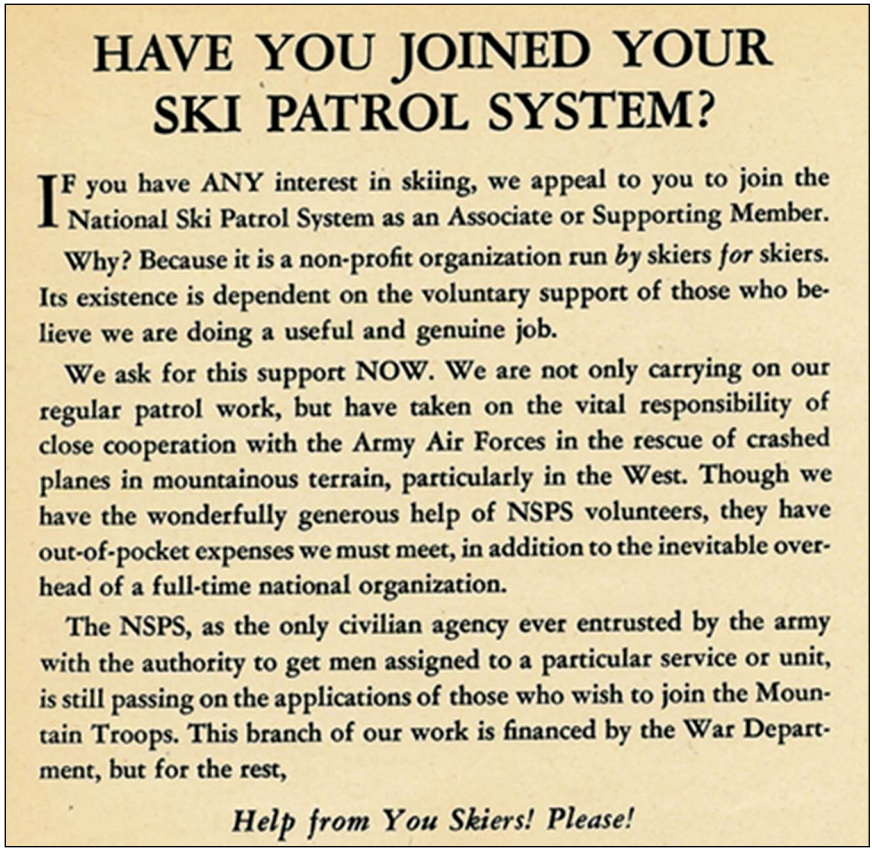
works to identify the types of people who would meet the requirements for soldiers expected to operate in mountainous environments. Dole formally wrote to all the NSP chapters outlining the requirements for volunteers per the request of the War Department as well as the process that chapters would follow for accepting applications to join the 10th Mountain Division.[28] Second, the NSP had to make people aware of and interested in the mountain troops and their mission. Numerous newspaper and radio advertisements were used to cast the net wide to get their message out. Such ads were effective in bringing people in, as long as they ran in the right areas. Using a targeted recruiting approach, the majority of newspaper and radio advertisements ran on the East and West coasts where dense populations of skiers and winter outdoorsman resided. Dole also worked extremely hard to have ski troop equipment signed over to his chapters for mobile recruiting displays. Physically procuring the equipment from the Army was a task that paid dividends. Numerous leaders within the NSP agreed that the display of equipment was an effective means to attract people with the right qualifications. At one point, Dole contacted an Army officer in the Utah Quartermaster Department who had access to the equipment the NSP needed.[29] In less than a week, Dole received a response that the requested equipment was being shipped to the recruitment teams.[30] These efforts to showcase mountain soldiers and recruit highly qualified personnel were extremely innovative. Although the NSP did have some experience advertising its standard services to the ski industry, recruiting men for Army service was considerably foreign. However, the NSP's initial efforts proved exceedingly successful.

The application process initially outlined by the War Department consisted of a simple two-page application form. The form's intent was to help the NSP screen individuals in a quick and expedited manner. The information contained on the application assessed whether the individual met the educational and technical qualifications required for assignment to the mountain troops (see Appendix A for example application form).[31] Oddly, letters of recommendation were suggested but not required. Over time, the application was revised to collect more information and address the initial volunteer and enlistment intentions of the applicant.

The application evolved to meet the requirements of recruiting for the 10th Mountain Division and not just the soldiers of the 87th Infantry Regiment and the Mountain Training Center (MTC). For example, three letters of recommendation became a requirement for applicants. Dole indicated that these letters slowly became a constant source of frustration. This process to collect, review, and validate the quality of applicants for service

was a massive undertaking for the NSP. The NSP accomplished something that would have been nearly impossible for the War Department. The War Department did not have the time to tackle such an endeavor effectively. Mountaineering and skiing expertise was not something that resided inside the War Department. The NSP representatives reviewing the applications were subject matter experts. In many cases, applicant qualifications and potential were verified through their letters of recommendation. In some instances, the position of the person writing the recommendation would speak for itself. Dole recounts one of his favorite letters of recommendation:

> My nominee will not become lost if there is no sun to go by; he will not starve if he has no rifle with which to shoot game; he will not freeze if he has no cover and snow is on the ground. I know, for I taught him myself. Signed, his older brother Hiram.[32]



HAVE YOU JOINED YOUR SKI PATROL SYSTEM?

IF you have ANY interest in skiing, we appeal to you to join the National Ski Patrol System as an Associate or Supporting Member.

Why? Because it is a non-profit organization run *by* skiers *for* skiers. Its existence is dependent on the voluntary support of those who believe we are doing a useful and genuine job.

We ask for this support NOW. We are not only carrying on our regular patrol work, but have taken on the vital responsibility of close cooperation with the Army Air Forces in the rescue of crashed planes in mountainous terrain, particularly in the West. Though we have the wonderfully generous help of NSPS volunteers, they have out-of-pocket expenses we must meet, in addition to the inevitable overhead of a full-time national organization.

The NSPS, as the only civilian agency ever entrusted by the army with the authority to get men assigned to a particular service or unit, is still passing on the applications of those who wish to join the Mountain Troops. This branch of our work is financed by the War Department, but for the rest,

Help from You Skiers! Please!

Figure 1. National Ski Patrol Recruitment Advertisement.

Source: Charles Minot Dole Papers, Denver Public Library.

In other instances, the quality of individuals was verified by a personal relationship with someone inside the NSP. In this regard, much of the vetting was done accurately and fairly efficiently (see Appendix A for a sample application and recommendation letters). In total, the NSP processed 12,055 applications; 7,914 were eventually selected for service within the MTC and 10th Mountain Division between 1941 and 1945 (see Appendix B for a breakdown of applications reviewed).[33]

The NSP recruited from a high-quality personnel pool. First, having the time and the money to pursue outdoor hobbies in the early 1940s was not a standard affair. This select cross-section of American society had in part already achieved more than most Americans. This success allowed them to pursue ambitions for outdoor sports and recreation. Many individuals were college graduates. Many more had the resources necessary to become avid outdoorsmen and amateurs and, in some cases, experts in the skills of outdoor winter recreation. This unique situation allowed the NSP to acquire highly educated and intelligent individuals for eventual service in the mountain troops.

For the most part, Army education levels significantly increased between World War I and World War II. However, basic literacy was still a problem. In the six months leading up the war, more than 60,000 men who could not read or write were recruited into service.[34] The Army began to develop a system to categorize an individual's general intelligence and aptitude for learning using the Army General Classification Test (AGCT). The AGCT classified a soldier into one of five grades based on his score. For inductees entering the Army in 1943, 6.4 percent fell into category I, the highest intelligence and aptitude level. The majority of inductees, 78.2 percent, were fairly evenly distributed between categories II, III, and IV. Only 5.4 percent comprised the category V.

Most of the individuals recruited by Dole and the NSP statistically outperformed the rest of the Army. The Army Ground Forces compared the AGCT scores of the 86th Mountain Infantry Regiment to the average distribution for the Army and the average scores of eleven divisions that were in service as of 19 October 1942.[35] At the time, a soldier was required to have an AGCT score of at least 110 to qualify for Officer Candidate School. As illustrated in the table, two of every three soldiers in the 86th Mountain Infantry Regiment were qualified to serve as an officer and the remaining third were qualified to serve as noncommissioned officers based on their AGCT scores. A letter from an officer in the 86th Infantry Reg-

iment to Dole further confirms the argument that the NSP recruited the highest quality of soldiers for the Army:

> You will undoubtedly be pleased to know that some of our oldest and most hard-bitten Regular Army Personnel are now frankly admitting that the best men we are receiving are the men that have been endorsed through the offices of the National Ski Patrol System. . . . At first they were a bit apprehensive mainly on the ski angle, fearing that they would end up with a fancy collection of Lodge Skiers. But my own belief has surely been borne out, that out of the young sportsman skier group we are getting a better caliber, more intelligent, well-educated group of men that have a strong desire to be here, and are sufficiently versatile to take practically everything that the Army has to offer in their stride.[36]

Army General Classification Test (AGCT) Scores
86th Mountain Infantry

Class	AGCT Grade	Intended Normal Distribution (Percentage)	86th Infantry Regiment (Percentage)	Average of 11 Divisions (Percentage)
I	130 and up	7	13.0	5.3
II	110–129	24	51.0	24.3
III	90–109	38	28.0	33.1
IV	70–89	24	5.0	24.8
V	69 and below	7	0.5	12.5

Figure 2. Army General Classification Test (AGCT) Scores for 86th Mountain Infantry.

Source: John Jay, "Study No. 24: History of the Mountain Training Center" (Historical Section–Army Ground Forces, Washington, DC, 1948).

NSP recruiting impacted the overall capabilities of what would eventually become the 10th Mountain Division. The division might have struggled to effectively train recruits on mountain and winter warfare tactics, inform equipment modifications and procurement, and shape the writing of Army mountain doctrine without the expertise recruited by the NSP. If the Army had manned the Mountain Training Center and the subsequent regiments within the 10th Mountain Division with regular Army

recruits, the mountain training program would likely have struggled or even failed. Furthermore, the formation of a mountain division may have never come to fruition. Many Army recruits did not meet the demanding physical requirements to operate under heavy loads in high altitudes for prolonged periods. Similarly, the athletic and physical ability to snowshoe, cross-country, and downhill ski would have taxed if not exhausted recruits. Even seasoned skiers and outdoorsman struggled to meet the physical demands that were placed on them at Camp Hale. Additionally, the overall intellectual capability of the NSP recruit played a large role in the division's combat role in Italy. The ability for small units formed from fit soldiers able to think rapidly on their feet and solve complex problems played a large role in the division's success on the battlefield in Italy in 1945.

Equipment and Doctrine

For the US military, doctrine and equipment are symbiotic. In general, if a new technology is developed and implemented on the battlefield that results in a significant capability advantage to the force, then doctrine at some point will be updated to account for this new capability. An example would be the US Army's 1939 Field Manual (FM) 100-5, *Operations*. Although approved only in draft form in 1939, FM 100-5 tried to account for the changes that technology had brought to the battlefield. Immature in detail, the FM 100-5 acknowledged the combined arms nature of warfare. It also outlined the integration of certain capabilities. For example, it looked at how the Army Air Corps was integrated on the battlefield.[37] This approach is a recurring theme throughout US Army history. Concepts help drive how existing or future capabilities will be integrated on the battlefield. These capabilities must be employed in concert with the doctrine that provides the framework for military leaders to operate within.

For Dole and his NSP team, the challenges of equipment and doctrine or the lack thereof were unique. Outfitting mountain soldiers with the proper equipment required extensive research. As indicated earlier, Dole's first interaction with then-Captain Gaither in Washington showed that the Army had not put time or resources into addressing the issues of how to outfit winter mountain soldiers. Acknowledging this shortfall, the Army looked to the NSP for assistance. Under the direction of General Marshall, two officers from the War Department were identified to liaise with the NSP.[38] Dole inquired what equipment the Army planned to use for the training of mountain and ski soldiers. The initial response was that Alaskan equipment would address equipment issues. The "Alaskan Equipment" was a quartermaster depot supply catalog entitled *Alaskan Equipment, Revised Edition,*

August 1914. After reviewing the contents, it was readily apparent that the Army's supply inventory was dated and incompatible with conducting successful cold weather and mountainous operations.

Figure 3. Alaskan Equipment Parka.

Source: Illustrations of Alaskan Equipment, Office of the Quartermaster, 1914.

The two officers also attended a series of conferences between the National Ski Association and the National Ski Patrol where participants debated how to identify proper winter and mountain equipment for the Army.[39] Out of these meetings, a temporary equipment committee known as the Volunteer Winter Defense Committee was born.[40] This committee provided civilian expertise to streamline the process of investigating available equipment and determining whether it met the Army's intended purposes.

The War Department and General Marshall acknowledged these topics and discussions provided by the committee as a tremendous help.[41] The meetings provided excellent data to the War Department on the equipment and techniques required to conduct extended operations in the cold and snow. These initial interactions further proved the utility of leveraging civilian expertise to assist the War Department in tackling the challenge of how to train and equip a force: a lesson that extended beyond mountain and winter warfare.

The Volunteer Winter Defense Committee quickly became engaged in researching available civilian and military equipment and whether it could support the requirements of military alpine operations. The committee consisted of many ski and winter experts to include Dole and Morgan. The committee reported directly to the War Department to present its findings and information. At this point, it was clear to the NSP members and some personnel inside the War Department that the equipment available in the Army supply system was substandard. The gear outlined in the *Alaskan Equipment* publication was the only equipment available for distribution by the Quartermaster Department at the time. Putting mountain infantry soldiers in heavy, fur-lined leather coats and obsolete ski equipment could be disastrous. Soldiers could not successfully fight with this equipment against a well-trained and equipped enemy.[42]

Issues that came to the committee's attention included commercial winter survival equipment such as lightweight stoves not produced in the United States. The small amount of equipment produced in the United States was made for civilian use and not of the rugged design required by the Army.[43] The committee also investigated available foreign manuals on winter warfare. They concluded that although some foreign techniques for fighting during winter and in mountainous terrain were helpful, the continental US terrain presented unique problems that did not allow for a simple adoption of a foreign military's doctrine.[44] An excerpt from the Army Ground Forces Study on the Mountain Training Center observed:

> In the matter of shelter, for example, the European technique depended largely upon the existence of nearby huts, barns, and farmhouses for overnight stays . . . but they are not found on the American continent, especially in Alaska. . . . The Finns transported their equipment on horse-drawn sleds. . . . The Swiss even dug huge caves in their glaciers and cornices. No such procedures would work in the soft powdery snow and the road-less mountains of the Western Hemisphere.[45]

The committee's work did not stop there. The Army held little technical data with analytical value. This made determining which items to procure extremely difficult without additional testing and evaluation.[46] Therefore, civilian physicists, chemists, and engineers with a passion for the outdoors and winter sports spent countless hours and conducted repeated tests to provide the data that the Army needed to begin fielding the appropriate types of equipment.[47] Upon completing its work, the committee provided enough information that by the summer of 1941, the Army Quartermaster approved the specifications for a standard equipment list for mountain units. This list of approved items included many basic items from sleep gear to uniforms, boots, and ski and snowshoe equipment.[48] This work along with the previously mentioned division training represented the defining moment where momentum to create a mountain warfare capability shifted in favor of advocates such as Minnie Dole and John Morgan.

Conclusion

The work of Charles Minot Dole and John E. P. Morgan to influence the thinking of War Department leaders informed the decision to train for winter and mountain warfare. Additionally, NSP's innovative techniques to recruit highly talented personnel proved invaluable. Having accomplished skiers, mountaineers, and outdoorsman volunteer for service helped build a capability that would have otherwise taken years to create. An added benefit was that the majority of these volunteers were physically fit and intelligent, qualities that proved necessary for subsequent challenges. The NSP also brought these men into service quickly and efficiently. Using the NSP social network, potential recruits could be located, contacted, and verified through the application process at a pace that would have been unachievable by the War Department or the Army alone. This efficient and groundbreaking change to recruit the requisite talent into the Army was key. This recruiting effort provided the Army with the core group of men who built the capacity to train and develop equipment for mountain and winter warfare.

Additionally, the early equipment and doctrine research by the NSP and the Volunteer Winter Defense Committee was innovative and crucial to understanding what soldiers needed. The work done by these groups assisted in solving challenges for the War Department in an efficient and timely manner. It was only made possible by the assistance of experts who analyzed the available doctrine on foreign techniques for fighting in the snow and mountains to develop a concept for US defense. This research, coupled with assistance to gather data and technical specifications

for commercially available equipment, provided the Quartermaster with the information needed to start the procurement process. Although neither of these tasks was beyond the capabilities of the Army or the War Department, the NSP and the Volunteer Winter Defense Committee achieved excellent results in a shorter time. To achieve the same results, the War Department would have needed to divert significant resources and people that were not available. Innovation drove the US Army to look at the concept of developing a mountain and winter warfare capability. The processes for recruitment and equipment development did not follow normal Army or War Department procedural guidelines. This created an unspoken acceptance to treat the development of this capability in a unique manner. Throughout this period, the normal bureaucracy was minimized to achieve fast and quality results. This period established an innovative mindset for those involved with the creation of the Army's mountain and winter warfare training. This innovative problem solving would continue to characterize the division's development through its deployment to Italy in early 1945.

Notes

1. Thomas Govan, "Study No. 23: Training in Mountain and Winter Warfare" (Historical Section–Army Ground Forces, Washington, DC, 1946), 1.

2. Govan, 1.

3. Govan, 2.

4. "New England Ski Industry Biographies: Minnie Dole Biography," 5 April 2011, http://newenglandskihistory.com/biographies/doleminnie.php.

5. Charles Minot Dole, "Birth Pains of the 10th Mountain Division" (speech, n.d., Denver Public Library, Charles Minot Dole Papers Box No. 8), 1.

6. "John E. P. Morgan," US Ski and Snowboard Hall of Fame and Museum, 1 January 2011, http://www.skihall.com/index.php?_a=document&doc_id=11&id=233.

7. "Roger Langley," Canadian Ski Hall of Fame and Museum, 1 January 2011, http://www.skimuseum.ca/biodata.php?lang=en&id=67.

8. Dole, "Birth Pains of the 10th Mountain Division," 1.

9. Dole, 1.

10. Dole, 1.

11. Dole, 1.

12. Charles Minot Dole, "Charles Minot Dole to President Franklin D. Roosevelt" (letter, 18 July 1940, Denver Public Library, Charles Minot Dole Papers Box No. 7).

13. Dole, "Birth Pains of the 10th Mountain Division," 2.

14. Charles Minot Dole, "Charles Minot Dole to Special Assistant to the Secretary of War Mr. Arthur E. Palmer" (letter, 10 September 1940, Denver Public Library, Charles Minot Dole Papers Box No. 5).

15. Dole, "Birth Pains of the 10th Mountain Division," 2.

16. Dole, 2.

17. Dole, 2.

18. Charles Minot Dole, "Charles Minot Dole to Special Assistant to the Secretary of War" (letter, 6 September 1942, Denver Public Library, Charles Minot Dole Papers Box No. 7).

19. Arthur T. Palmer, "Mr. Arthur T. Palmer Special Assistant to the Secretary of War to Charles Minot Dole" (letter, 9 September 1942, Denver Public Library, Charles Minot Dole Papers Box No. 7).

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34. Gladyce Bradley, "A Review of Educational Problems Based on Military Selection and Classification Data in World War II," *The Journal of Educational Research* 43, no. 3 (1949): 161–74, www.jstor.org/stable/27529124.

35. Charles Minot Dole Papers Box No. 7. The information contained in this table is populated with data from an original copy of the "History of the Mountain Training Center" found at the Denver Public Library in the Charles Minot Dole Papers and appears to be an unedited version of the official version that was eventually published by the Army Ground Forces in 1948. Although there are only minor differences between the two versions of the tables, the data represented here was recorded at an earlier date.

36. John Jay, "Study No. 24: History of the Mountain Training Center" (Historical Section–Army Ground Forces, Washington, DC, 1948).

37. Walter E. Kretchik, *US Army Doctrine: From The American Revolution to the War on Terror* (Lawrence, KS: University Press of Kansas), 145–46.

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39. Jay, 6.

40. Jay, 6.

41. George C. Marshall, "General George C. Marshall to Charles Minot Dole" (letter, 12 May 1941, Denver Public Library, Charles Minot Dole Papers Box No. 7).

42. Quartermaster Corps, *Illustrations of Alaska Clothing* (Washington, DC: Government Printing Office, 1914), 3–33. The equipment that is contained in the

Alaskan Equipment pamphlet does not include any technical data for the items. The fur-lined parka in Figure 3 highlights the extent to which the Army prioritized the research and development of winter equipment. Almost all equipment in the catalog apparently was intended to allow a soldier to survive in extreme cold but was substandard for fighting or maneuvering.

43. Jay, "History of the Mountain Training Center," 7.
44. Jay, 7.
45. Jay, 7.
46. Jay, 8.
47. Jay, 7.
48. Jay, 7.

Chapter 3
The Training Problem

Early Divisional Winter Training

The history of how men trained to become mountain soldiers is full of challenges, but it is also a period filled with groundbreaking stories of individuals who tackled difficult and dynamic problems for the Army. The leaders and soldiers of the Mountain Training Center (MTC) and the Mountain Winter Warfare Board (MWWB) were pioneers for the Army. In fewer than five years, the MTC and MWWB provided a core group of well-trained and equipped mountaineers who formed the nucleus of the 10th Mountain Division. This episode of history highlights another aspect of the peacetime innovations that occurred to create a new capability for the US Army.

Appreciating the importance of the Mountain Training Center requires understanding the techniques and unique events that drove the US Army to create such an organization in the first place. After Minnie Dole's initial engagements in Washington in early 1940, the War Department made the decision to leave multiple units in the northern US Snowbelt to train on winter warfare. Although the US Army was not completely unfamiliar with winter warfare, it was unprepared and unequipped to train large organizations capable of conducting mountain operations. At this point, the Army had only experimented with small-scale exercises that took place in Alaska and Washington State.[1] The intent, informed by Charles Minot Dole, instructed the War Department on what was required to fight in this terrain in the event of a homeland invasion. As one analyst of these early efforts to build the capacity for winter operations observed, "The purpose of the winter testing and training program in 1940–41 was not to build up a combat force of ski troops, but rather to lay a foundation for future winter training."[2] The War Department, with the assistance of the National Ski Patrol (NSP), concluded that the US Army was not prepared to fight in US northern mountainous regions. The official order sent by the Secretary of War on 5 December 1940 notified six divisions of their requirement to stay in the snow belt and train. These divisions were 1st Division at Fort Devens, Massachusetts; the 44th Division at Fort Dix, New Jersey; the 5th Division at Fort Custer, Michigan; the 6th Division at Fort Leonard Wood, Missouri; and the 3rd and 41st divisions at Fort Lewis, Washington.[3] Each battalion within the division that was

selected to train on winter operations was given $1,200 to purchase appropriate equipment, such as skis, snowshoes, and tents. All equipment was to be procured locally and used to facilitate training on living and conducting movement in winter conditions.[4] The War Department also notified each unit that representatives from the NSP would liaise with them to understand equipment and training issues.[5] Under this plan, each division would work within generic and loose guidelines. The directive did not focus commanders on achieving quantitative or qualitative training results. Also, there was no directed end state. The training allowed the units to conduct varying degrees of training and experimentation. This diversity in training led to a wide range of feedback from the units, which addressed the problem in varying ways.

The 1st Division sent groups of 100 men from the 26th Infantry on a weekly basis to train at Lake Placid, New York. These soldiers received intense ski instruction from former three-time captain of the US Olympic Ski Team, Rolfe Monsen.[6] The unit trained close to 1,000 men before the weather eventually warmed up. The training observations by the 26th Infantry commander, Col. James T. Muir, indicated that merely training soldiers to ski and snowshoe was a relatively simple process. However, he stated, "The major problems are those of supporting weapons, ammunition, evacuation, and supply."[7] He described early successes and failures with training for winter and mountain warfare. While all of the soldiers learned to ski and snowshoe, only roughly 900 men were taught to train on more advanced tactical movement and maneuver techniques. This population pool consisted of hand-picked infantry personnel and did not account for soldiers who were not as physically well-conditioned. Additionally, the training did not stress long movements at altitude or attempt to execute any combined arms maneuver. The feedback also suggested that to have a fully functional winter warfare unit, adjustments needed to be made to the Table of Organization and Equipment (TOE).

In the 6th Division, one infantry company from the 1st Infantry combined with a composite company from the 20th Infantry trained at Fort Warren, Wyoming. One additional company trained at Fort Snelling, Minnesota, and unit integrity was maintained. A special ski patrol was formed from the units and specially trained by a volunteer from the National Ski Patrol.[8] Maj. Gen. C. S. Ridley, division commander, shared different feedback with the War Department. In his suggestions, he indicated that there was no need for a TOE change. Major General Ridley recommended a ski platoon for each battalion with the same general functions as a caval-

ry patrol. He also suggested that all rifle infantry companies should be ski-equipped and concluded that training location was of utmost importance to train soldiers properly.[9] His observations highlighted the differences in professional opinions regarding how to train and employ winter warfare units. However, they were similar in regard to the time and effort required to train a soldier to ski or snowshoe.

Terrain and weather drove the focus of training for the 5th Division, which trained at Camp McCoy, Wisconsin, and focused on cross-country skiing. The training was similar to what was done for downhill skiing and snowshoeing. The division surmised that soldiers could be trained fairly easily on cross-country, flat land movement.[10] However, the 5th Division report emphasized the importance of winter survival training. This focus on winter survival may have been because of the intense cold at Camp McCoy during the training; it highlighted the importance of specialized training to avoid exposure to the elements in extremely cold conditions. The 44th Division also had similar observations. They trained near Old Forge, New York, and received instruction from a former Olympic skier from Norway, Pvt. Harold Sorensen.[11] The 44th experienced extreme cold weather and used this opportunity to test the capabilities of a multitude of equipment. The testing and reports that were compiled also highlighted the importance of winter survival training and the importance of winter equipment selection.

Throughout this process, keen observations and new techniques were constantly being tried and tested to help the Army understand the problems of training for winter warfare. However, the most robust undertaking was by the 41st and 3rd divisions at Fort Lewis, Washington. With the Cascade Range and Mount Rainier as their immediate backdrop only a few hours away, these two units dealt with some of the most overwhelming weather and terrain. The 41st Division specially selected a group of twenty-five men and five officers to train as a ski patrol.[12] The instruction was given by a sergeant who had previous experience as a ski instructor. After approximately one month of intensive ski training, the patrol conducted a validation movement exercise across the Olympic Mountain Range. This forty-mile trip through varying degrees of terrain highlighted the patrol's ability to move through harsh topography over a short period of time. Next, the group conducted a two-week movement through the northern Olympic Mountains.[13] This was one of the most demanding exercises conducted at the time and provided feedback to the War Department

on the impacts of extended operations in mountainous and winter terrain. The patrol highlighted equipment failures and a 30-percent casualty rate due to injuries and exhaustion. In a similar fashion, an eighteen-man unit from the 3rd Division conducted exercises around the base of Mount Rainier with similar results.[14]

In the spring of 1941, the ski patrols were officially disbanded. The exercises and training from these units provided the initial data required to validate the concept of training mountain warfare units. The observations from this training indicated that the fairly rapid training of military skiers and snowshoers was possible. The reports indicated to the War Department that two months were needed to properly train. Also, an experienced instructor was essential to ensure the proper use of equipment and techniques. Additionally, location was a key factor in the unit's ability to properly train. This need was highlighted by the observations that reinforced the importance of winter survival training. It emphasized the negative impacts of a formation that was unable to mitigate the risks associated with the cold weather. Without unforgiving mountainous terrain and extreme cold in which to train, soldiers could not adequately test equipment for the rigors of mountain combat. The training and observations also indicated that although civilian equipment was adequate for basic winter training, it began to fail as the duration and intensity of training increased. These observations highlighted the necessity for the War Department to create the Mountain Training Center and the Mountain Winter Warfare Board.

Ultimately, the training observations and reports in late 1940 and early 1941 informed the War Department on a variety of areas. It was now apparent that the geographic location was extremely important for effective training. This information began to shape the resources and equipment that were needed to facilitate training. Finally, it gave the War Department an initial estimate of how long it would take to train mountain soldiers on the basics of skiing and snowshoeing. Although the initial division winter training did not address many concerns such as mountaineering or ice climbing, logistics, medevac, indirect and direct fire employment, or the integration of air support, it did provide a solid starting point for the War Department to build a mountain and winter warfare training capability. The strategy for training was also innovative. It effectively trained hundreds of inexperienced soldiers on the basics of flatland and downhill skiing and snowshoeing. Additionally, it underscored the unique nature of how ski patrols should be organized and provided the initial test bed for equipment requirements. This training was accomplished in less than a

seven-month period and at a small monetary cost. Additionally, it shortened standard procurement timelines by leveraging the ability to quickly purchase locally furnished equipment.

The achievements of the early divisional training cannot be underestimated. From the fall of 1940 to the summer of 1941, the Army achieved arguably one of the most productive and innovative accomplishments in developing mountain soldiers. Commander observations and the feedback gave the War Department the initial footing it needed to move forward with a concept for developing a US-based mountain warfare capability. Although this focus would eventually shift to a deployable capability for use overseas, much of the data and observations was still valid. This information coupled with the simultaneous work of civilian experts and the NSP was crucial for the War Department. It led to the realization that US soldiers did not have the skills to fight in cold and mountainous terrain. This period showcases the innovations introduced by the War Department, the Army, and NSP civilian experts, all of which provided the basis for the formation of the Mountain Training Center and eventually the formation of the 10th Mountain Division.

Construction of Camp Hale

During the summer of 1941, the Army made further progress toward forming a mountain unit and the Mountain Training Center, but the pace was deliberately slow. The Army saw the need for the capability, but it was becoming more apparent that the employment of such troops was more likely overseas than in defense of the United States. As early as December 1941, "it became apparent to all concerned that if mountain troops were to become an integral part of the Army, they would have to be trained quickly and in large numbers."[15] Many factors played into how General George C. Marshall addressed the challenge of creating a unit capable of operating in extreme cold and mountainous terrain. First, there were multiple ideas discussed regarding the proper way to train mountain soldiers. Second, a debate ensued on whether the Army actually needed mountain units versus training a standard triangular division to fight in the cold and mountains. Finally, resources were constrained. Issues with manpower to build a cadre of instructors, the availability of equipment to outfit the unit, and resources to select and construct a site to train all played a sizeable role in how fast the Army could develop a mountain warfare training capability.[16]

In April 1941, there were two conflicting ideas in the War Department. The first was that of Col. Orlando Ward, secretary, of the War Department

General Staff, who argued that soldiers could be temporarily moved to a location to train. This would allow multiple units near mountainous terrain to train for winter and mountain warfare and avoid the cost of purchasing land and then constructing and sustaining a large training site. Although this option would reduce the resourcing requirements and give multiple units some type of mountain and winter warfare capability, it did not address many of the observations that were captured during the training the winter prior. Col. Harry Twaddle, Assistant Chief of Staff, G-3, made a counter proposal. His written response contained the following:

> The training of units in mountain warfare by having such units move to suitable high mountain terrain and camp for short periods is a makeshift method and entirely inadequate. . . . Troops operating in mountains will normally encounter high altitudes, snow, and low temperatures. They must be accustomed to life under such conditions. The camping problems alone are tremendous. Troops must actually live and train the year round under high-altitude conditions if we are to obtain any worthwhile results. There is no case where realism in training is more appropriate.[17]

Although Colonel Twaddle's argument would eventually take hold, immediate approval of a mountain training camp was denied until the Army could conduct further analysis on whether a feasible location was even available. A report from the 5th Division Winter Training Board also supported Twaddle's argument:

> The lesson is plain that preparation for winter warfare is not simply a phase of training that can be included at any northern station in divisional training but presupposes a form of warfare which requires the most careful planning, equipment, and training at locations having suitable winter climate and terrain.[18]

This argument won the day. It appeared that if the Army wanted to train for mountain and winter warfare, it needed the right location and the right resources to sustain quality training.

Around the same time that Colonel Twaddle was arguing for the establishment of a training site, the War Department ordered a site survey conducted by the US Army with help from the US Forestry Service.[19] The site survey considered many factors, most of which were identified during the 1940 winter divisional training exercises. The Army and its leadership recognized that altitude of at least 9,000 feet above sea level and proximity to mountainous terrain were vital. Additionally, the site

needed to support winter maneuvers, artillery employment, and living space for 20,000 soldiers. With this large a footprint, logistics would also be a key concern, and the site would require access to rail and fresh water.[20] These requirements narrowed the list to three locations. Eventually, a site in Pando, Colorado, was recommended. The Pando Valley floor sat at 9,200 feet and could support the footprint of a triangular division. The annual snowfall started in October and lasted until June; the site offered access to highways, rail, and electricity; and the nearby Eagle River could supply clean water.[21] The Corps of Engineers voiced the only negative comments regarding this location: the cantonment area was too small to house a full division, and they questioned its ability to divert enough clean water and properly dispose of sewage.[22] Although their concerns were considered, Pando still offered the best location for training. In April 1942, construction of Camp Hale began and progressed over the course of seven months before achieving initial operating capability on 16 November 1942. America finally had its first mountain warfare training center facility.

This episode highlighted the challenges faced by the Army and how it addressed the site selection for specialized training. Although this period was not extremely innovative in nature, it addressed a major materiel and organizational challenge for the Army. The Army took an incremental approach to address a training problem and leveraged multiple different sources of information to eventually make the best decision for how and where to establish a mountain training center. The Army could have simply ignored altitude acclimatization, snowfall, and climate considerations. Not taking these variables into account would have greatly reduced the capability to train properly. Some arguments were made that the initial living conditions at Camp Hale were meager. Basic services such as laundry and recreational facilities were unavailable during its initial occupation.[23] However, over time the living conditions improved and the site offered the capacity needed to sustain soldiers during their training. Despite some shortcomings, Camp Hale's location offered the most realistic and challenging terrain to build mountain and winter warfare capability. Its location and the criteria considered would not have been possible without the 1941 divisional training exercises. The feedback from these exercises and the NSP's work helped define these requirements for the Army. Without these observations and the NSP's civilian expertise, the selection of a proper training site would have been unlikely.

The Mountain Training Center and the 87th Mountain Infantry Regiment

While the Army was tackling the early problems of training and equipping mountain soldiers, it was also slowly building the organizational structure of the first experimental mountain unit. The 87th Mountain Infantry Regiment was activated on 15 November 1941, and formed the initial test unit for the Army. It assisted in establishing training plans and creating the institutional knowledge on mountain and winter warfare training that would inform the establishment of the Mountain Training Center (MTC) in 1942.

Concurrently, the Mountain Winter Warfare Board (MWWB) was established as a small functional team, part of the 87th Regiment, to test mountain and winter equipment for the Army. Following nine months of training at Fort Lewis and Mount Rainier, Lieutenant Colonel Rolfe was promoted to colonel. He then took command of the Mountain Training Center at Camp Carson, Colorado, in September 1942. Simultaneously, a detachment of the most experienced skiers and mountaineers were handpicked from the 87th Regiment at Fort Lewis to help augment the cadre at Camp Hale starting in November.[24] The remainder of the 87th then deployed to Hunter Liggett to conduct exercises in preparation to augment an amphibious task force that would eventually take part in the 1943 assault on Kiska Island.[25] Then in December 1942, the 86th Mountain Infantry Regiment assumed the role as the primary training unit at Camp Hale, Colorado.[26]

The 87th and the MTC tackled large issues for the Army. They developed the first mountain and winter warfare training, tested experimental equipment, and provided mountain and ski experts to fill the ranks of the 10th Mountain Division. Over the course of two years, the MTC, MWWB, and 87th were innovative in almost everything they did. The guidance provided by the Army was vague but facilitated the exploration of new ideas and concepts. The two years examined here highlight innovation in training, recruitment of personnel, testing of equipment, and development of new doctrine.

The 87th Mountain Infantry was commanded by Lt. Col. Onslow S. Rolfe at Fort Lewis, Washington, from November 1941 to September 1942. Lieutenant Colonel Rolfe had no previous experience of any sort in winter or mountain warfare, and the four officers initially assigned to his command had some training with winter operations but none were experts.[27] The unit's first soldiers were men with previous mountaineering or ski experience who were already in the Army. All other members who

came to the 87th were volunteers assessed and recruited by the NSP.[28] This recruiting process created a unique dynamic whereby the 87th's officer cadre was at a significant disadvantage regarding knowledge and experience on winter and mountain operations in comparison to the enlisted men, who were experts in their field.[29]

Figure 4. Soldiers Teach Officers to Ski.

Source: History of the Mountain Training Center, Denver Public Library, Charles Minot Dole Papers Box No. 7.

During his first few weeks at Fort Lewis, Rolfe realized the broad scope of the mission. The Army Ground Forces outlined the training for all divisions. However, the 87th Regiment encountered a unique prob-

lem.[30] The mission of the 87th Mountain Infantry as directed by the War Department was:

> [To] develop the technique of mountain and winter warfare and to test the organization and equipment and transportation of units operating in mountainous terrain at all seasons and in cold climates in all types of terrain . . . to function under conditions imposed by cold weather and mountainous terrain in accordance with training doctrine and technique described in Sections VI and VII, Chapter 12, FM 100-5 (*FSR Operations* 1941) and FM 31-5 (*Operations in Snow and Extreme Cold*).[31]

Their mission was intentionally vague and presented a concern for Rolfe. He was unsure whether he was to build a mountain unit for combat or if he was creating a cadre that would eventually train other units on mountain warfare techniques.[32] Additionally, training mountain troops in the low rainy flat lands of Fort Lewis was unsatisfactory. After hastily organizing the unit, Rolfe rented Paradise and Tatoosh ski lodges at the base of Mount Rainier to begin the mountain training. The lease was organized to support training until June.[33] Sustainment was brought daily from Fort Lewis, and the beginnings of mountain training were underway. Rolfe and his mountain soldiers now had an appropriate location to train. The next step was figuring out how to train and how to assess the training.

The first large task was to establish guidelines for the standard of military skiing and how to train it. An instructor school was hastily organized and a standard was established. Military skiing would address movement carrying a heavy load with an emphasis on safety and endurance.[34] The only hindrance was that no blank ammunition was permitted for training near Mount Rainier and special permission was required for the men of the 87th to carry their empty rifles during training.[35] For the next eight weeks, the men trained on military skiing. At the conclusion, each soldier was required to run through a military ski qualification course. The course was two miles in length over varying terrain, with graders positioned throughout. At the conclusion, each skier was graded and presented a skier identification class based on the results.[36] This initial training period for the 87th Regiment marked a significant achievement not only for them but also for the Army. In a letter dated 28 April 1942, Lieutenant Colonel Rolfe wrote Maj. Gen. Mark W. Clark stating that "I do not believe I have ever seen a better group of physically trained men in my life."[37] During a later interview, Rolfe described a very strong observation from this initial training: though many soldiers in the unit had significant civilian ski experience, few

of their civilian ski methods translated to military skiing. Soldiers needed to move not only downhill but also cross-country with a weapon and pack, which changed how military ski techniques were developed and used.

Figure 5. Working with Artillery in Deep Snow.

Source: "History of the Mountain Training Center," n.d., Denver Public Library, Charles Minot Dole Papers Box No. 7.

The next major milestone for Rolfe occurred after the initial training phase at Mount Rainier. Working through a contact in the Army Ground Forces staff, Rolfe arranged for his soldiers who had applied and been accepted to Officer Candidate School (OCS) to be returned to the 87th Regiment at the conclusion of their training.[38] This was and still is unique. The Army had a long-standing tradition that new OCS graduates did not return to their previous unit of assignment. By arranging this exception, Rolfe was able to retain the invaluable expertise of his mountain leaders. His efforts were reinforced by the massive recruitment drive being run by the NSP. In managing personnel, he recognized that not just any soldier could be assigned to his command. In a 28 April 1943 letter to Major General Clark, Rolfe stated: "Men must have the aptitude for the work and the physical coordination. . . . We have found that you cannot take just any trained infantryman and make him a skier or a mountaineer."[39]

This requirement plagued the training capability of the MTC and 87th Regiment throughout 1942 and 1943. Numerous individuals recruited by the NSP arrived at Rolfe's command with an excellent mountain or skiing background but with no basic training.[40] This training deficiency forced the 87th Regiment and the MTC to have a special replacement training center to establish a baseline aptitude for infantry skills.[41] These soldiers had to be trained on those skills before they could begin an intensive high-altitude mountain training program. The situation was further complicated because Army Ground Forces (AGF) training directives were predicated on a unit getting all of its personnel at once.[42] Rolfe and his cadre received a constant stream of replacements, making it even more difficult to increase training readiness across the force.

Balancing the manning requirements for cadre and resources was a huge challenge for Lieutenant Colonel Rolfe. Eventually, his team changed or modified training AGF policies to meet the requirements of training mountain soldiers. He made this observation in February of 1943: "Many enlisted men have been received who are physically unqualified for this type of service. . . . [P]ersonnel with certain physical qualifications should be recognized and plans originated to secure this type."[43] While special physical qualifications were established, they were not approved until June 1943.[44] In the interim, replacements routinely either lacked training or the physical capacity to complete training. The higher headquarters failed to understand the impacts of sending unqualified men to the MTC. This lack of understanding impacted the ability of the MTC and the 10th Mountain Division to gain and maintain training momentum. Soldiers constantly arrived and quickly departed due to their inability to meet the physical training demands.

Outside of the personnel issues, the 87th Regiment at Fort Lewis and the Mountain Training Center at Camp Hale both devised innovative ways to train. Much like the need to develop a military ski qualification test, the Army had no doctrine to drive training requirements and no standardization to develop and assess training. Additionally, Rolfe's supervisors were uninformed on the subject of mountain training and, therefore, struggled to provide effective guidance on or recommendations regarding his plan. Eventually Rolfe's supervisors told him to "proceed as he saw fit, saying that they knew nothing about the development of the mountain troops and would not try to understand his mission."[45] Therefore, it was on the shoulders of Rolfe's cadre at both Fort Lewis and Camp Hale to develop the requirements and assessments.

At Fort Lewis, a summer climbing school was built to practice climbing techniques. Three thirty-foot climbing log walls were erected in an old sand and gravel pit. The logs had notches cut into them for hand and foot holds; the soldiers were taught general mountaineering techniques to include the use of ropes and pitons as well as rappelling. Sgt. Walter Prager and Cpl. Hal Burton, renowned climbing experts, provided detailed instruction on these topics.[46] Additionally, the soldiers needed ice climbing instruction; however, funds and resources were unavailable. To mitigate this training shortfall, a team of soldiers traveled to Mount Rainier to film and capture photographs on ice climbing techniques. This media was then used back at Fort Lewis as a formal block of classroom instruction and proved beneficial in creating baseline knowledge for the soldiers.[47]

Once the MTC was established at Camp Hale, training progressed well. However, the unit's mission was still vague. Even by 1943, there was still no specificity on where the Army planned to employ its mountain-trained soldiers. Lieutenant Colonel Rolfe identified that each theater of operation presented a unique set of geographical challenges for mountain operations.[48] Therefore, the mountain training was always kept general versus specialized. The MTC established a cadre of more than 300 men to train new recruits arriving from across the Army and through NSP recruitment efforts. The lessons learned from the Mount Rainier training the year prior began to pay off, and multiple military ski qualification courses were established for training new arrivals. Also, a military mountaineering school was established to train soldiers on rock climbing fundamentals. The next progression required soldiers to train on ice climbing. The innovative idea of constructing an artificial glacier further enhanced the unit's training.[49] The glacier was constructed by continually pouring water over a packed snow base and allowing it to freeze. These two types of instruction culminated in what was known as the Mountain Obstacle Course, which was used to assess soldier performance at the end of both training phases.[50] Training was also conducted on various techniques to support sustainment operations. All the training was new and highly experimental, including the use of pack animals, sled dogs, and T-15 and M-29 tracked "over snow" vehicles.

Evenings contained hours of classroom instruction ranging from medical evacuation procedures over snow to basic rock and ice mountaineering. Instructors designed and built every program from scratch to provide soldiers with the basic skills needed to operate and survive in winter and mountainous terrain. The cadre executed training for seasoned personnel while balancing requirements to train basic infantry tasks for new recruits.[51] The eventual outcome was that the MTC ran two innovative and compre-

hensive training programs with minimal resources and personnel. However, the MTC was still unable to achieve levels of acceptable unit readiness. It was nearly impossible to have consistent collective training progression with the cadre requirements to run the MTC and the constant influx of new personnel. MTC leaders focused much training at the individual level to build basic infantry as well as specialized mountain skills for each soldier.

Despite the MTC's innovative and creative training strategies, inadequate numbers of properly trained personnel to support the MTC staff and cadre inhibited achieving their maximum potential. Personnel shortages coupled with the requirements to train on both mountain and basic training tasks impeded the MTC's ability to produce highly trained cohesive units. Instead of being capable of executing large-scale training maneuvers, units were filled with a rotating pool of men trained at varying levels. This failure was recognized by AGF and NSP observers during the first collective training exercise in February 1943. The test unit for this AGF-directed exercise was the 2nd Battalion, 87th Mountain Infantry with appropriate enablers and attachments.[52] The first day of the training, the soldiers moved out of Camp Hale and were immediately presented with blizzard conditions and temperatures averaging ten degrees below zero. For this battalion, the majority of soldiers were new and inexperienced and suffered 25-percent casualties due to frostbite, exhaustion, and altitude sickness.[53] Organizers eventually canceled the exercise and spent the remainder of the time with AGF and NSP observers perfecting winter survival and resupply techniques as well as testing equipment.[54]

While many factors contributed to the ultimate failure of this first exercise, there were two that were the most apparent and relevant. First, even the most experienced men were unprepared to conduct extended maneuvers in the field. This outcome was likely a symptom of focusing on training individual tasks to the new arrivals and using experienced men as cadre. Given the shortages in experienced officers and leaders it was unlikely that the cadre could have been managed in any other way. In a later memo, then-Brigadier General Rolfe recalled the situation:

> [The observers were] aware that the program of training was not far enough advanced to prepare the men for a field exercise in midwinter. They were also aware that errors and hardships would occur because many of the enlisted men had not completed their basic training. It was impractical to make up a special task force composed only of the experienced troops. Yet it was necessary to conduct the exercise.[55]

The failed exercise was a low point for the MTC and the soldiers of the 87th Mountain Infantry. However, it highlighted the challenges that the leadership faced at Camp Hale. This event spurred additional resources to be allocated to the MTC. It also caused Lieutenant Colonel Rolfe to reorganize key personnel on his staff. The exercise also provided necessary feedback on the need to change some aspects of the training program. Subsequently, the MTC placed more emphasis on understanding the impacts of soldier load and added instruction and training for extended operations in extreme weather. These changes improved the quality of the training conducted at Camp Hale. Ultimately, soldiers trained at the MTC became the most experienced and highly trained soldiers within the 10th Mountain Division.

The MTC continued its mission until the 15th of July 1943, upon the activation of the 10th Mountain Division at Camp Hale. All personnel, with the exception of roughly 100 soldiers, were assigned to the 10th Mountain Division. These 100 soldiers became part of the Mountain Training Group (MTG), composed of experienced instructors who provided resident expertise to continue training 10th Mountain members and provided an exportable training capability. Throughout 1943, MTG members trained mountaineering, skiing, and winter warfare techniques to various units all over the United States. Though their final task was likely the hardest, in the end they provided world-class training to the 10th Mountain Division as well as multiple other divisions and separate units across the Army.[56]

Mountain Winter Warfare Board

The testing of mountain and winter warfare equipment occurred as early as April 1941.[57] These early tests provided invaluable data for the Army but were executed as single isolated events with different groups of experienced personnel. The Mountain Winter Warfare Board (MWWB) was established to create a more streamlined and structured process for testing and evaluation. The board was created in conjunction with the 87th Mountain Infantry at Fort Lewis. The board eventually moved to Camp Hale alongside the MTC on 2 October 1942.[58] The initial board consisted of four officers and a recorder.[59] The mission of the Mountain Winter Warfare Board was "to test and develop mountain and winter equipment and formulate, develop, and recommend changes in mountain and winter warfare doctrine."[60] Without the MWWB, proper winter warfare equipment and doctrine would have likely taken much longer to develop. However, scarce resources and a lack of specific guidance forced board personnel to innovate relentlessly.

To support the task of developing and testing new equipment, the MWWB was involved in numerous special training missions. One of the first events was in the spring of 1942. The Quartermaster General's Office had requested that various pieces of equipment be tested for severe winter and mountain conditions. The MWWB formed a team of eight specially selected personnel. The team planned to summit the 14,408-foot peak of Mount Rainier, a challenge that had never been successfully done during this time of year due to dangerous ice conditions.[61] For this first mission, the team was given dehydrated rations, stoves, clothing, sleeping bags, and tents to test. There was so much equipment that fifty men from the 87th Mountain Infantry Regiment were used as porters. All gear was moved up to the team's base camp at roughly 10,000 feet before the porters were released back to their units. At this point, the expedition began testing and made numerous key observations. They determined that men needed to consume nearly three-quarters of a pound of sugar daily to keep their energy levels up. The standard Army-approved ski tent failed miserably. Its zippers broke in extreme cold, and the interior would condensate and freeze. Additionally, the team learned that food cooking times doubled because of the need to melt snow to mix with the dehydrated rations.[62] Although cooking times were longer, the expedition found the food to be excellent. These rations eventually became the standard mountain ration for the Army.[63] The team also developed a technique for trail marking. Each member assisted in placing painted willow wands at an interval of 120 feet. The team commented that at high altitudes and in extreme weather conditions, these markers meant the difference between life and death. They were critical for follow-on forces to know where a proofed and safe trail existed. Additionally, they provided a marked route for evacuation of injured personnel. The observations and data recorded during this experimental expedition provided invaluable data and feedback to the Army.

Due to the success of and excellent feedback from this first expedition, the Army immediately tasked the MWWB to execute a second. This time, a team was sent to Alaska to summit Mount McKinley and the surrounding area and conduct experiments. In contrast, this was a joint expedition that involved Army personnel and a group of experienced mountaineers from the American Alpine Club. The team had representation from the US Army Medical, Signal, and Quartermaster branches. The purpose of this second test was two-fold. The Air Force needed data on conducting air delivery operations in snow and extreme cold. They also wanted to evaluate emergency equipment designed for downed aircraft pilots. Additionally,

the Army Quartermaster wanted to make final adjustments to its Arctic clothing, which the Army planned to issue for use in the winter of 1943.[64]

The testing for this expedition occurred at three different areas that ranged in altitude from 10,000 to 17,800 feet, with varying terrain, weather, and temperatures. These areas offered the most extreme temperature, weather, and terrain in the United States. The expedition, much like the first assessment, tested the limits of the men and their equipment. The testing was such a priority that as men made observations in the field, data was immediately relayed back to Washington to effect immediate changes to equipment.[65] One example pertained to the Army's new design for a mountain boot. Over the first four days and less than five miles of movement, the issued boots caused severe blistering and deterioration to men's feet. Back in Washington, the design was immediately changed and undoubtedly "saved many men . . . from equally painful feet."[66] At the conclusion of the testing, each member completed a report. This data was immediately flown back to Washington so changes and adjustments could be made before issuing equipment for the upcoming winter training. This unique mission, like many for the MWWB, was marked by innovative approaches. The board leveraged Army and civilian expertise to conduct training at a remote location under severe conditions in order to improve the quality of equipment.

Back at Fort Lewis, extensive training and testing were occurring on over-snow vehicles.[67] One of the biggest concerns for the AGF leadership was adequate transportation to support mountain troops. The vehicle had three requirements. First, it needed to be light enough to travel in deep snow. Second, it had to have enough engine power to pull heavy payloads and transport personnel. Finally, it needed to be air transportable.[68] The Studebaker Corporation volunteered to build a prototype known as the T15 for the Army. A team of fifty men and three officers from the 87th Mountain Infantry Regiment made up the test team. Their mission was to test this new vehicle in the inaccessible ice fields of the Saskatchewan Glacier.[69] Over several months, the team conducted numerous tests and made modifications to the vehicle. This design led to an evolution of vehicles that was ultimately accepted and produced for the Army as the M28 and M29 "Weasel." A total of 4,476 M29s were produced in 1943. The 10th Mountain Division received 500 vehicles to augment the division's wheeled transport capability.[70] This experiment conducted by the MWWB had a profound impact on the 10th Mountain Division's ability to operate in combat.

The MWWB was also involved with developing equipment and training for the use of aerial tramways in the mountains. For this special mission, a group of approximately thirty men was put together to work with the Army Corps of Engineers at Aspen, Colorado.[71] Again, testing was conducted at altitudes above 10,000 feet and in harsh, mountainous terrain. After weeks of experimentation, the team determined that engineers could train standard infantry units on how to properly build and maintain simple cable aerial tramways in the mountains.[72] Understanding how to properly employ tramways created an invaluable asset for the mountain soldiers. Having the ability to ferry casualties and supplies across expansive rugged terrain could give a unit a distinct advantage once the high ground was secured. Tramways allowed units to reduce resupply times and soldier loads, as well as improve the chances of survival for soldiers who were wounded in action.

The MWWB did not solely focus on equipment; it also played a key role in developing mountain and winter warfare doctrine. In the absence of Army standards, the MTC, with the heavy lifting of the MWWB, created the enduring foundation for Field Manual (FM) 70-10, *Mountain Operations*, published in 1944. Previously there was no winter warfare doctrine that prepared soldiers on how to train or execute their basic tactical missions in cold weather or mountainous terrain other than Field Manual (FM) 31-15, *Operations in Snow and Extreme Cold*. This manual provided little guidance on how a mountain formation was to fight. It was the challenge of the MTC and the MWWB to take the standard infantry doctrine available at the time and apply it to mountain operations.[73]

The MTC established numerous non-standard additions to support mountain training. These included but were not limited to the construction of an artificial glacier to train ice climbing, the erection of climbing walls to train on belaying techniques, and the creation of mountain obstacle and military ski qualification courses.[74] Moreover, the testing, evaluation, and development of all mountain and winter warfare equipment were conducted under the supervision of the MWWB and also under the command of now-Brigadier General Rolfe. The achievements made by the MTC and the MWWB were innovative in every way. Nothing the MWWB did was standard Army practice. In many instances, key War Department leaders had to "cut the red tape" to streamline processes. Additionally, the reliance on civilian expertise had a tremendous impact on the quality of assessments by the various MWWB special missions. One unique and compelling aspect was that MWWB efforts to fix issues were generally suggestions made by the soldiers in training. There was a posi-

tive organizational impact in terms of trust and confidence when soldiers knew their equipment, clothing, and rations were developed by the men they would fight and train beside.

Conclusion

The history of the Mountain Training Center and the 87th Mountain Infantry is a unique and compelling story. It shows how the Army leveraged innovative ideas to create new training techniques and developed new equipment to create new capabilities. Without the early involvement of Charles Minot Dole's leadership and the Army's strategy to test multiple divisions in ski patrolling, it is unlikely that a formalized process for mountain and winter training would have been developed. The way in which the Army chose to equip and gather observations from the multitude of locations and units provided the required data to support specialized training for mountain troops. After the 87th and the MTC were established, processes were refined and improved over the next two years. Although the MTC was presented with many challenges, the work of the NSP and the leadership of Brigadier General Rolfe ultimately produced some of the most highly trained, best-equipped, intelligent, and physically fit soldiers in the Army. From the initial days of renting ski lodges at Mount Rainier to the establishment of new mountain and winter equipment, military skiing and mountaineering standards, the MTC paved the way for mountain warfare training. The leadership and staff of the 87th and the MTC were given an ambiguous mission with no doctrine. They had little resident expertise on winter and mountain operations. By leveraging the experience of NSP-recruited soldiers and internally managing personnel talent, the MTC established a highly skilled cadre that formed the backbone of mountain experts for the 10th Mountain Division. The challenge of establishing a winter and summer mountain training program while also managing a replacement basic training center was a daunting task. However, the MTC staff and leadership balanced both requirements while inventing new ways to train on tasks the Army had never executed before.

The resourceful men of the 87th and the MTC also established unique training aids to facilitate new types of training, such as the artificial glacier at Camp Hale or the wooden climbing walls at Fort Lewis. Personnel and fiscal resources were constrained throughout the process. Resourcing issues were further complicated by a lack of understanding at multiple higher headquarters, primarily due to a lack of liaison between echelons. Higher echelons did not appreciate or understand the challenges faced by

Brigadier General Rolfe and his team. Few leaders physically came to see how the unit was training and it was only on those rare occasions that some problems were alleviated. Still, constraints and challenges compelled leaders and soldiers to innovate. They continued to apply new and creative ideas to challenging situations. Over a ten-month period, the Mountain Training Center's achievements were numerous and unprecedented. The men and equipment that were the products of this training and experimentation were the key ingredients that made the 10th Mountain Division into the highly adaptive unit it became.

Notes

1. Gordon Rottman, *US 10th Mountain Division in World War II* (Long Island City, NY: Osprey Publishing, 2012), 7.
2. Robert P. Patterson, "Honorable Robert P. Patterson, Under Secretary of War to Mr. Ernest M Hopkins," 26 April 1941, in Thomas Govan, "Study No. 23: Training in Mountain and Winter Warfare" (Historical Section–Army Ground Forces, Washington, DC, 1946), 3.
3. John Jay, "Study No. 24: History of the Mountain Training Center" (Historical Section–Army Ground Forces, Washington, DC, 1948), 2.
4. Jay, 2.
5. Rottman, *US 10th Mountain Division in World War II*, 7.
6. Jay, "History of the Mountain Training Center," 2.
7. Jay, 3.
8. Jay, 3.
9. Jay, 3.
10. Jay, 4.
11. Jay, 4.
12. Jay, 4.
13. Jay, 4.
14. Jay, 4.
15. Jay, 27.
16. Govan, "Training for Winter and Mountain Warfare," 4.
17. "For the Secretary General Staff, April 17, 1941. Subject: Establishment of Command Post for a Division in High Mountain Terrain" (memorandum) in Jay, "History of the Mountain Training Center," 9.
18. "For the Chief of Staff, April 28, 1941. Subject: Winter Warfare Training and Equipment" (memorandum) in Govan, "Training in Winter and Mountain Warfare," 3.
19. Rottman, *US 10th Mountain Division in WWII*, 10.
20. Jay, "History of the Mountain Training Center," 27.
21. Jay, 28.
22. Jay, 28.
23. Jay, 38. For more information on the area surrounding Camp Hale and the lack of local recreational outlet available to the soldiers, see Rene Coquoz, *The Invisible Men on Skis: The Story of the Construction of Camp Hale and the Occupation by the 10th Mountain Division 1942–1945* (Boulder, CO: Johnson Publishing, 1970).
24. John Imbrie, *Chronology of the 10th Mountain Division in World War II: January 6, 1940–November 30, 1945* (National Association of the 10th Mountain Division, 2004), 5, http://10thmtndivassoc.org/chronology.pdf.
25. Jay, "History of the Mountain Training Center," 27.
26. Although the 87th Mountain Infantry Regiment was the nucleus of the initial test bed for mountain warfare training, they were earmarked to assist in the assault on Kiska Island in August 1943. The most experienced skiers and

mountaineers would be transferred to the 86th Mountain Infantry Regiment to help the formal establishment of the Mountain Training Center at Camp Hale. The 87th Mountain Infantry would eventually return to Camp Hale in February 1943 and be reintegrated into the 10th Mountain Division.

27. Govan, "Training for Winter and Mountain Warfare," 5.

28. Jay, "History of the Mountain Training Center," 12.

29. Pvt. Olaf Rodegaard instructed Lieutenant Colonel Newman in the correct use of wax on skis, Mount Rainier, February 1942, in "The History of the Mountain Training Center," Denver Public Library, Charles Minot Dole Papers Box No. 7.

30. Kent Greenfield, Robert Palmer, and Bell Wiley, *The Organization of Ground Combat Troops*, U.S. Army in World War II: The Army Ground Forces (Washington, DC: US Army Center of Military History, 1987), 4.

31. "War Department Directive AG 320.2, November 15, 1941. Subject: Constitution of 87th Infantry Mountain Regiment and Activation of 1st Battalion" (memorandum) in Jay, "History of the Mountain Training Center," 22.

32. Jay, 22.

33. Jay, 16.

34. Jay, 16.

35. Jay, 22.

36. Jay, 21.

37. Jay, 21.

38. Jay, 23.

39. "Colonel Rolfe to Major General Mark W. Clark, April 28, 1943" (letter) in Jay, "History of the Mountain Training Center," 23, and in Govan,"Training in Mountain and Winter Warfare," 8.

40. Jay, 63–64.

41. "Historical Officer with Captain John Woodward of the Mountain Training Center Staff, January 1944" (interview) in Jay, 23.

42. "General McNair to Mr. John C. Case, 7 July 1943" (letter) in Jay, 63.

43. "Major Jake Tappin, G-3 Army Ground Forces Special Projects Branch, for Chief of Staff Army Ground Forces February 17, 1943. Subject: Observations during Visit to MTC 4-12 Feb 43" (letter) in Jay, "History of the Mountain Training Center," 58.

44. "President of the Board, Headquarters 10th Medical Battalion (Mtn) to Commanding General MTC, February 17, 1943. Subject: Qualification Requirements for Mountain Troops" (letter) in Jay, "History of the Mountain Training Center," 50.

45. "Historical Officer with Brigadier General Rolfe, 7 Jan 1944" (interview) in Jay, "History of the Mountain Training Center," 22.

46. Jay, 26.

47. Jay, 26.

48. "General Rolfe with the Historical Officer, March 1943" (interview) in Jay, "History of the Mountain Training Center," 42.

49. Jay, 70.

50. Jay, 73.

51. "Colonel Onslow Rolfe for GNHIS, December 12, 1947. Subject: Report on Activities of MTC" (memorandum) in Bell Wiley, "Study No. 11: Training in the Ground Army 1942–1945" (Historical Section–Army Ground Forces, Fort Monroe, VA, 1948), 8.

52. Jay, "History of the Mountain Training Center," 46.

53. Govan, "Training for Mountain and Winter Warfare," 8; Jay, 47.

54. Jay, 47.

55. Jay, 48.

56. Jay, 112–15.

57. Jay, 8.

58. Jay, 37.

59. Jay, 29.

60. "War Department AG 320.2, November 15, 1941. Subject: Constitution of the 87th Mountain Battalion and Activation of 1st Battalion" (letter) in Wiley, "Training in the Ground Army 1942–1945," 7.

61. Jay, "History of the Mountain Training Center," 75.

62. Jay, 76.

63. "Captain Jackman, 87th Mountain Infantry Regiment to the Commanding General Army Ground Forces, June 20, 1942. Subject: Report of Mount Rainier Test Expedition" (report) in Jay, "History of the Mountain Training Center," 75–76.

64. Jay, 77.

65. Jay, 77.

66. Robert Bates, "Mount McKinley 1942," *The American Alpine Journal* (1943): 1, accessed 15 May 2017, http://publications.americanalpineclub.org/articles/12194300100. This was a quote from Captain Bates, a member of the test team during an interview on the work done in Alaska.

67. Jay, "History of the Mountain Training Center," 42.

68. Jay, 78.

69. Jay, 78.

70. Thomas Brooks, *Tenth Mountain Division* (Paducah, NY: Turner Publishing, 1998), 17–18; Rottman, *US 10th Mountain Division in World War II*, 45.

71. Jay, "History of the Mountain Training Center," 79.

72. Jay, 79.

73. Jay, 83.

74. Jay, 70–74.

Chapter 4
The 10th Mountain Division

On 15 July 1943, the 10th Light Division (Alpine) was officially activated at Camp Hale and was commanded by Brig. Gen. Lloyd E. Jones. The division had three infantry regiments: the 85th, 86th, and 90th.[1] The division also had three artillery battalions. However, these battalions consisted of 75-mm pack howitzers instead of the 105-mm and 155-mm pieces found in a regular division.[2] Additionally, the division included an anti-aircraft artillery machine gun battalion, a motorized engineer company, pack mule transportation, and both light wheeled and tracked transportation.[3] The division was directed to test the organization and equipment for employment in mountain warfare and attain ultimate combat efficiency in mountain warfare.[4] This initial mission challenged the newly formed division staff and subordinate units. Until this point, large-scale collective training had not been a priority at Camp Hale due to an improperly resourced staff, limited cadre, and competing administrative requirements. Subsequently, the division worked to build on lessons learned during its first year in order to meet the requirements from the Army and validate the concept of a division-sized mountain unit. This training and organization, along with two years of hard work and innovation, led to the division's eventual success in Italy. The division capitalized on years of experimentation and innovation to increase collective training readiness, which empowered soldiers to rapidly adapt to their new environment when they finally arrived in Italy. The combined adaptations to tactics, equipment, and organization enabled the US Fifth Army to begin a new offensive and ultimately overwhelm the German forces that had mounted a stubborn resistance to the Allies in the mountainous terrain of northern Italy.[5]

Training the Division for War

Personnel turnover was one of the biggest challenges the division faced. It mirrored a standard light infantry division table of organization for personnel. To meet the numbers of personnel required, the division was filled with replacements. More than thirty officers and 2,000 enlisted men were brought in to fill shortages in the division. Then the expertise that resided in the 86th Mountain Infantry Regiment and members of the former Mountain Training Center (MTC) were spread across the division. The command spent the first week and a half reorganizing units to ensure that every unit had some mountain expertise in its ranks.[6] However, this resident experience did not mitigate the large amounts of new personnel and the turnover.

The influx of replacements put the units at various levels of training proficiency. This problem was compounded by the fact that new arrivals continued to trickle into Camp Hale instead of arriving in large batches.[7] New arrivals constantly arrived unsuited physically for the rigors of high mountain training and, in most cases, were reassigned outside of the division.[8] Officer turnover was also an issue. The division received numerous orders to furnish officers to Army Ground Forces (AGF) replacement depots.[9] Therefore, the units constantly struggled to keep their formations properly manned and trained. The 10th Division did not finally reach full strength until 22 March 1944.

The personnel turnover had a tremendous impact on training readiness as well. Much like the MTC, the 10th Division was required to train basic infantry skills for new recruits and still manage specialized mountain training as well as collective level training.[10] The division adopted the training structure developed by the MTC. It used a formal cadre and school for training. Within the first week of the activation, a board consisting of field grade officers was established to recommend a directive for the division's squad and platoon collective training.[11] Additionally, the new leadership and staff were given instruction on mountaineering and winter techniques. This training was to educate them on the techniques and capabilities expected of soldiers in their unit. The 10th Division then received guidance from its headquarters on expectations for upcoming training. The 11th Corps Headquarters directed two training periods. The first was 15 August 1943 to 8 January 1944. This period allowed the units to focus on individual and collective training in preparation for larger combined operations. The second window from 10 January 1944 to 31 March 1944 was to focus on exercises and maneuvers that supported the initial mission given to the 10th.[12]

Over the course of the next year, the division continued to train, develop its techniques, and increase its readiness to go to war. Its soldiers were outfitted with the most current mountain and winter equipment and clothing in the Army supply system.[13] There were little to no equipment shortages, and therefore, the division could focus on how to effectively employ what it had. During the initial training period, the first division-level field exercise was conducted. This large-scale event tested the division's ability to conduct a large movement seven miles into a 2,000-foot climb. This event identified numerous issues and challenges with sustainment. Divisional leaders determined that the pack animals struggled to keep up on icy sections, which naturally slowed down the movement of the entire division column. Additionally, the cadre noted that the division's transportation was inadequate

to conducting timely ammunition resupply.[14] Later in February 1944, the division conducted its first combined arms training. This period consisted of a six-week cycle that required four to seven nights a week in the field. The second six-week period consisted of one two-week exercise and one three-week exercise, which was known as the "D-Series" exercise.[15]

This exercise was the first validation of the division's ability to conduct large-scale operations in winter and on mountainous terrain. The first night of the exercise, the temperature dipped to thirty-five degrees below zero. The exercise tested the men's individual and collective training and the capabilities of their equipment. Units were required to move their personnel and equipment across unforgiving terrain while addressing a series of field problems along the way. One soldier commented, "There are ten thousand versions of the D-Series. . . . No one who took part in those maneuvers will ever forget them."[16] Although the unforgiving weather and terrain resulted in men being evacuated for frostbite and snow blindness, the exercise displayed that the soldiers could endure and operate in harsh conditions for extended periods.[17] The division started the exercise with 9,296 personnel. In total more than 1,300 soldiers were evacuated at one point during the exercise. The majority of evacuees were due to frostbite and general injuries sustained while training. Of this total number, more than 50 percent were returned to duty before the conclusion of the exercise, which left an effective strength of 8,673 soldiers who finished training.[18] This number of medical evacuations indicates the harshness of the weather and the terrain but also shows the division's ability to sustain combat power in the harshest of conditions.

Umpires assisted in evaluating the units and controlling the exercise. Their observations gave the division a good evaluation, and the event gave the division's units an opportunity to validate their tactics, certify their leaders, and validate their distribution of equipment. However, the division was still not where the Army wanted it. In a report to the Army Chief of Staff, the observers recommended changes to the division's equipment and organization to resemble something similar to a regular division. The challenges of sustaining a force in harsh terrain required a stronger logistics and supply backbone.[19] Following the D-Series exercise, many soldiers felt their future was still uncertain.

The recommendation from the D-Series exercise started a series of decisions that led to the division heading to Camp Swift, Texas. The soldiers were required to acclimatize and were issued the initial order to prepare for exercises at the Army's Louisiana Maneuvers site. During this period, morale sank as rumors circulated that the 10th Division was transitioning

to a standard division.[20] At one point, maps of the Burma area were handed out for leaders to study, which made morale fall even further.[21] Many wondered why the division was not being given the chance to deploy and fight. Some rumored that commanders had no requirement for the division. However, a conversation between General George C. Marshall and Charles Minot Dole clarified the lengthy delay. When Dole inquired why the division had not been deployed, General Marshall replied:

> You must remember, however, I only have one mountain division. If I commit them at point X and two months later it turns out I need them much worse at point Y, problems of transportation are so great I can't get them there. That is why I have had to hold them in reserve. . . . If I'd had a winter-trained mountain division in Italy during the winter of 1943, the entire Italian campaign might have gone differently. The largest center of communications that the Germans had was just on the other side of Cassino. With a mountain division I could have wiped it out, but as it was we were held up for seventeen days by heavy snows and couldn't move.[22]

This conversation indicated that the decision to employ the 10th Mountain was reserved by the Chief of Staff. He did not lack faith in the division's capabilities.

Less than ninety days after the division arrived at Camp Swift, the operational situation changed in northern Italy. The US Fifth Army had made progress but began to culminate as the winter season began. Units were stretched from their railheads and advance bases for logistical support. Although they had prepared for the mountains, the operational demands in November and December 1944 exceeded what was anticipated by Allied planners.[23] At this point, General Marshall made the decision not to convert the 10th Mountain into a standard division; instead, he ordered an increase in its manpower and equipment to ensure it could fight in the mountains. The division received more than 2,000 personnel while at Camp Swift. Each infantry battalion stood up a heavy weapons company, and the division was augmented with an additional 5,000 mules.[24] The number of mules exceeded the total number of pack mules that had supported the entire Fifth Army in late 1944.[25] This priority for resourcing was a clear indicator that the Army was finally preparing the 10th for combat. On 6 November 1944, the 10th Light Division was reorganized as the 10th Mountain Division. The division was finally officially recognized as a mountain unit after four long years of trials, experimentation, and challenges.

The 10th Mountain Division from 1943 to 1944 highlighted the challenges faced by the division's leaders and soldiers. The 10th Mountain never received a clear mission for which to train. They continued to evolve and train into a large, effective fighting formation that would prove immediately invaluable to the US Fifth Army in northern Italy.

Following its official designation as a "mountain" division, the 10th Mountain received a new commander. Brigadier General Jones had become increasingly ill with a respiratory infection and was replaced by Maj. Gen. George Price Hays. Hays was a renowned field artilleryman and had served with the 3rd Infantry Division in World War I. He was awarded the Medal of Honor for his actions in France on 15 July 1918.[26] Prior to the Second World War breaking out, Major General Hays served in the War Department's War Plans Division. In 1942, he commanded the 2nd Infantry Division Artillery, arriving at Omaha Beach at D-Day plus one. Hays was then tasked with commanding the 34th Division Artillery in Italy. He supported one of the most intensive mountain assaults the US Army had conducted thus far in Italy: the 34th Division's attack in the area of Monte Cassino against a well-trained German force.[27] The mountain division was about to receive the right leader for their new mission. Hays was an experienced combat veteran who had most recently observed the challenges of mountain warfare and the capabilities of the enemy that the division was going to face.

Arrival in Italy

The 10th Mountain Divisions arrived in Italy in January 1945, and its accomplishments that winter highlight the division's successful and effective adaptation in combat. Its first operation was executed successfully by launching a large-scale frontal attack against an enemy occupying the high ground. In the months prior, the US Fifth Army had made three failed attempts to dislodge the enemy. The Fifth Army was preparing for a spring offensive by reconstituting the force when the 10th Mountain Division arrived. The 10th Mountain was given the initial mission to attack the German defenses and retain the high ground. After its initial success, the 10th Mountain Division led the rest of Fifth Army north, ultimately achieving success in every subsequent operation until the war's end. The division's operation in February 1945 highlighted its ability to adapt. With the lack of a theater-specific mission and numerous changes that occurred at Camp Swift, the division came into theater with only the expertise of its commander and its training. Upon arriving in Italy, soldiers and officers

needed to adapt their organizations and equipment for the fight that now confronted them.

In December 1944, the US Fifth Army had reached a stalemate with its German opposition. The priority for the Army was to regroup and resupply.[28] Fifth Army was operating on a 5,000-mile logistical line of communication that extended from the United States across the Atlantic Ocean and over mountainous terrain to arrive at the front lines.[29] Many units were exhausted from the previous fall's fighting in harsh weather and the rugged terrain. Artillery stockpiles desperately needed to be replenished, and units were in need of replacements.[30]

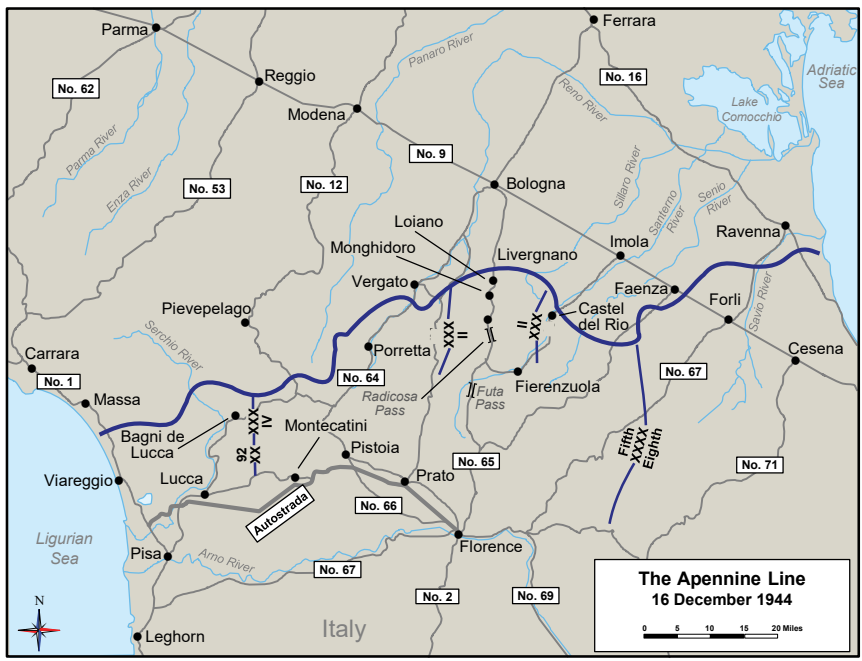


Figure 6. Allied Disposition in Italy 1944.

Source: US Fifth Army, *Fifth Army History, Volume 8: The Second Winter*.

The general disposition of forces in Italy was that the US Fifth Army occupied the western portion of the Italian peninsula. In December 1944, the Army's boundary stretched from the Ligurian Sea east to the Senio River. The British Eighth Army operated on the right flank of the US Fifth Army and owned the eastern half of the peninsula. The only way for both armies to move north to Bologna was through the Po River Valley via highways 12, 64, and 65. Unfortunately for the Allies, the high ground overwatching these routes was occupied by German defenders. The plan

for the spring offensive, named Operation Encore, was to conduct a double penetration by both the US Fifth Army and the British Eighth Army to break out to the north.[31] In December 1944, Fifth Army was at a geographical disadvantage. To the immediate north was a large valley floor and Highway 64, which was the key route for the Allies to continue their movement north. Without securing Highway 64 and the valley, there would be no way to move logistics and armored formations farther north. North of this location, the Germans occupied the high ground and were oriented south. By occupying Mount Belvedere (3,736 feet) and Mount Gorgolesco (approximately 4,200 feet), the Germans had total observation of Highway 64 and the valley floor in front of them.[32] To the north and west of the Fifth Army front, the Germans also occupied the Mount Pizzo Di Campiano Ridge. This ridge, also known as Riva Ridge, provided the Germans with a commanding position that allowed them to employ direct and indirect fires into the valley floor from the west. The ridge consisted of ten mountain peaks that ranged from approximately 3,100 to 6,100 feet.[33] For the Fifth Army, the seizure of Mount Belvedere and Mount Gorgelesco was critical to the push north into the valley floor below. However, based on the last three failed attempts, it was clear that Riva Ridge first needed to be seized in order to move north.[34]

By 28 January 1945, the entire 10th Mountain Division had finally arrived in the IV Corps sector of the Fifth Army area of operations. The division was assigned to Task Force 45 under control of IV Corps. Major General Hays recommended that to seize Mount Belvedere, Riva Ridge needed to be scaled and secured first. Nothing this daring had been attempted by any Fifth Army units. The division organized to execute its mission to attack, seize, organize, and defend the Mount Belvedere high ground.[35] Once the high ground was seized, the rest of Fifth Army would move northward to continue pressuring the German defenders then advance toward Bologna.[36]

Riva Ridge and Mount Belvedere

The division's general scheme of maneuver was to conduct two different frontal attacks. The first attack on Riva Ridge was planned to take place twenty-four hours prior to the attack on Mount Belvedere. The 1st Battalion of the 86th Mountain Infantry Regiment was selected to conduct the assault on Riva Ridge. Once the ridge was seized, the 85th and 87th Infantry regiments would seize the eastern and western sides of Mount Belvedere. The Division had approximately two weeks to rehearse and prepare for the operation.

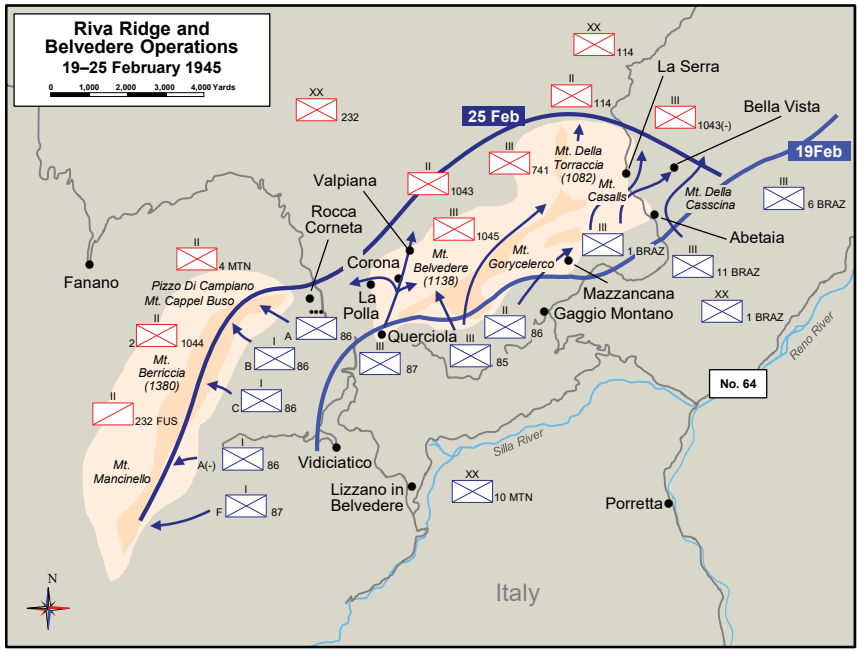


Figure 7. Riva Ridge and Mount Belvedere Operations Map.

Source: US Fifth Army, *Fifth Army History, Volume 8: The Second Winter.*

In the two weeks leading up to the attack, the division's units and leaders made adaptations. As more intelligence was collected on the terrain and enemy units, leaders and soldiers understood the importance of adapting their techniques. As noted by Lt. Col. Henry Hampton, commander of the 1st Battalion, 86th Infantry Regiment, previous units conducted no patrolling or ground reconnaissance of Riva Ridge.[37] Since the objective area spanned eight kilometers and contained ten different peaks, it was necessary to gather as much intelligence on the terrain and enemy locations as possible. The 1st Battalion immediately conducted reconnaissance and surveillance patrols. It was identified that the average gradient for Mount Cappel Buso was about thirty degrees, and the Mount Serrasiccia was around forty degrees.[38] Steep terrain characterized much of the ridge's eastern portion. This presented the most unique challenge for the 1st Battalion of the 86th Mountain Infantry Regiment. Patrols began to understand the terrain in detail and assess the enemy's composition and disposition.

Movement around the terrain was initially an issue. However, the men of the 86th Regiment began to employ their skiing techniques to move toward the ridge. Once they arrived at a final concealed location,

they dismounted to make initial contacts with the enemy. Each patrol assisted in building the intelligence picture. In January, these patrols identified a total of five trails. Patrol leaders assessed that each trail could support the movement of the battalion's companies.[39] Each approach to Riva Ridge was numbered and then terrain and enemy situation details were developed for each route. This intelligence was critical to how the battalion would task-organize for the eventual attack. Certain companies needed more rope and climbing assets as they faced more sheer rock and cliffs. Other companies required pioneer squads to support building hasty bridges over terrain to support the movement of large numbers of personnel.[40] Each example shows how intelligence was shaping how the units changed and adapted their techniques and organizations to meet the threat. The division identified four enemy battalions defending the Riva Ridge and Mount Belvedere area plus four additional enemy battalions in reserve and a total of eighty-three artillery pieces.[41] Although the intelligence was not perfect, the 10th Mountain soldiers were starting to understand that they were in for a fight.

Figure 8. Mountain Soldiers near Mount Belvedere as Painted by Tech. Sgt. Savo Radulovic.

Source: US Fifth Army, *Fifth Army History, Volume 8: The Second Winter*.

As intelligence continued to come in from the front, preparations were constant. To facilitate briefs and rehearsals, large sand tables were built using aerial imagery and ground intelligence report details.[42] At one point in early February, the majority of the 1st Battalion, 86th Infantry was pulled off the line to conduct rehearsals. During this time, the battalion intelligence officer continued to patrol the approaches with a platoon of men and communicated updates back to the rear. This intelligence allowed for the companies conducting preparations to get daily updates on the status of enemy and terrain in their respective areas.[43] The accuracy of the intelligence and the time to conduct thorough orders briefs and rehearsals were critical to the success of the Riva Ridge operation. The division achieved understanding of the plan at the lowest level through continued rehearsals and constant preparation.

During this time, leader observations and soldier experiences were driving adaptation all over the battlefield. Patrols quickly determined that moving through open terrain was not possible under enemy observation. Wooded areas that would normally offer concealment had been shelled repeatedly, which left the wooded areas littered with branches and debris that made noise discipline impossible. Since maintaining secrecy was of the upmost importance during these reconnaissance efforts, patrols moved at night through rocky ravines. It was the only terrain that helped hide the patrol and masked their noise during movement. However, moving in this unforgiving terrain amplified the need for physically capable soldiers.[44] Men started to adapt their equipment as well. They used techniques such as wrapping boots in burlap sacks to avoid slipping, which was more effective than attaching the issued snow cleats to boots.[45] Soldiers also made adaptations in the employment and use of their communications equipment. In the example of wire communications, soldiers began to tie knots in the wire at 100-yard intervals as the patrols moved toward their objective areas. This provided everyone in the patrol with an accurate idea of how far the patrol had moved and how close they were in proximity to enemy locations. Additionally, the lines proved helpful in guiding patrols back after the reconnaissance was completed.[46] The division also began to experiment with the use of searchlights in the distance at night to help illuminate the difficult terrain. This provided the patrols with just enough ambient light to move slowly through rugged terrain without giving away their locations.[47] These were just a few of the many adaptations that occurred before the first major operation in February 1945. The 10th Mountain Division was using combat experience to adapt techniques that

had been rehearsed stateside in an organization that encouraged creative techniques and valued the judgment of its soldiers on the ground.

The division was finally ready for its first major offensive. The unit integrated lessons learned over the previous month to launch its first of many successful operations in Italy. On 15 February 1945, the 10th Mountain Division received the order to detach from Task Force 45. The division resumed operations in its sector under IV Corps control. Major General Hays indicated that the division was capable of attacking by 19 February. The time for the assault on Riva Ridge was set for 2300 hours on 18 February, with the main attacks occurring on Mount Belvedere at 2300 hours on 19 February. Once the 10th Mountain Division controlled the high ground, the rest of Fifth Army could then begin to move northward toward the Po River Valley. On 18 February, the mountain soldiers of the 1st Battalion, 86th Mountain Infantry departed toward Mount Belvedere under cover of darkness. The companies used communication wire that had been laid the previous day to communicate at hourly intervals back to their headquarters. Radios would only be used in extreme emergencies, as the key element to success was total surprise against the defending German soldiers.[48] Additionally, preparatory fires were not used during the attack. Each company moved with the aid of searchlights in the distance and used assault climber teams to lay pitons and affix rope for follow-on forces to climb the rock face.[49] All companies began the assault by approximately 0100, and the final companies had secured the ridge by 0500 on 19 February. Luck also played a part in the assault; minus some minor contacts, the Americans completely caught the Germans unaware. The 2nd Battalion, 1044th Grenadier Regiment was in the process of conducting a relief in place with the 232nd Fusilier Regiment when the 10th Mountain Division soldiers reached the summit of the ridge.[50] US soldiers hastily occupied unmanned German foxholes and caught multiple German patrols by complete surprise. By 0600 on 19 February, Riva Ridge was declared secure. The mountain soldiers of the 1st Battalion, 86th Infantry had achieved complete tactical success. Their success was largely due to their training but also their willingness to understand the terrain and enemy and adapt their techniques and equipment to address problems and challenges.

The morning of 19 February and subsequent days were spent fighting German counterattacks and reinforcing Riva Ridge with supplies, ammunition, heavy weapons, and artillery. Moving the heavy equipment and supplies was critical to the eventual attack on Mount Belvedere. The job of moving the 75-mm pack howitzers fell to the battalion's anti-tank pla-

toon. Attempts were made to move the howitzers by sled up the ridge, but this method proved ineffective. Eventually, pack mules were used. The climb was so extreme that the mules used to carry the artillery died hours after arriving at the summit.[51] In addition to the pack animals, the 126th Mountain Engineers erected an aerial tramway that spanned 1,700 feet and climbed more than 600 feet. The tramway was capable of ferrying close to 400 pounds per load. During the first days of operation, it moved more than 10,000 pounds of supplies and ammunition and evacuated more than fifty casualties.[52] The 1st Battalion, 86th Infantry continued to overcome the challenges of sustaining operations on the ridge, while fending off numerous German counterattacks, in preparation for the assault on Mount Belvedere.

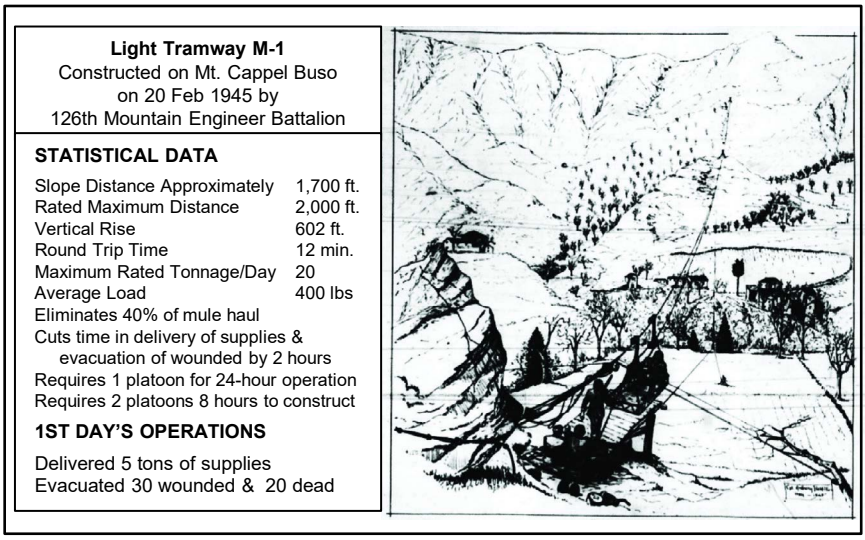


Figure 9. Engineer Tramway Constructed at Riva Ridge.

Source: "Italian Campaign: Engineer Accomplishments February–March 1945, IV Corps" (Government Printing Office, n.d., microfilm).

During the night of 18 February while the men of the 86th were assaulting Riva Ridge, the remainder of the division used the cover of darkness to move north into preplanned positions that included homes and barns.[53] To mitigate the risk of moving over open terrain, leaders made the decision to move at night. The subsequent occupation of structures in the valley below was virtually unnoticed by the German defenders. American soldiers were under strict orders on the day of 19 February to cease all outdoor movement in the positions they occupied in the valley below.[54] Meanwhile, forces still operating in the division's previous line resumed

normal operations to avoid alerting the German defenders. As planned at 2300 hours on 19 February, the division executed the main assault on Mount Belvedere. Unlike the assault on Riva Ridge, however, the Germans were prepared for an attack.

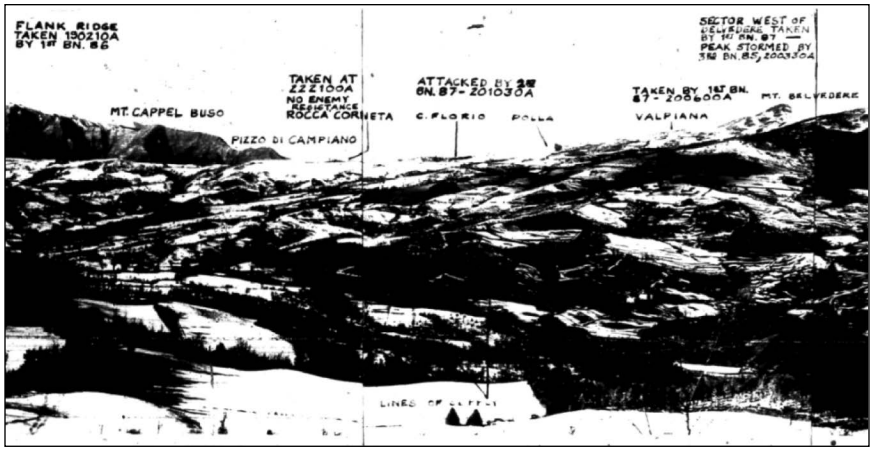


Figure 10. Operational Photograph of Riva and Mount Belvedere.

Source: "Italian Campaign: G-3 Periodic Report 19 February–28 February 1945*"* (Government Printing Office, n.d., microfilm).

The Mount Belvedere assault was a hard—but ultimately successful—battle for the division. Fighting uphill at night against stiff German resistance tested the 10th Mountain's mettle. The lead company made contact less than a half-mile into the assault. Numerous companies from the 85th and 87th Mountain Infantry contended with intense small arms, artillery fire, minefields, and fortified enemy positions.[55] However, the assaulting battalions maneuvered to encircle Mount Belvedere. By 1000 hours on 20 February, Mount Belvedere was secured. The supporting fires from the artillery and heavy machine guns located on Riva Ridge, along with the close air support provided by a "Rover Joe" aircraft controller unit, proved invaluable to the attack on Mount Belvedere. The first phase of the division's operation was successful due to the planning, preparation, and ability of units, leaders, and soldiers to successfully adapt to the challenges presented by the terrain and the enemy.

The division continued to attack the remaining hills to the northwest over the subsequent days. Each day was hard-fought as the division continued to use lessons learned from initial operations to overwhelm the German defenders. On 21 February, the remainder of the 86th Mountain Infantry successfully attacked Hill 1088. On 22–23 February, the 85th

Mountain Infantry moved forward to take Hill 1055. The division secured the final objective of Mount Della Torraccia on the morning of 25 February.[56] The division continued to fight off German counterattacks through early March but had achieved its mission to support the IV Corps and Fifth Army approach north. Following the operations, Lt. Gen. Lucian K. Truscott, the Fifth Army commander, sent a message to the division:

> The 10th Mountain Division in its first operation has been an inspiration to the entire Fifth Army. You have set a high standard and have demonstrated the highest qualifications in leadership and combat. Your outstanding success in your first operation augurs well for a brilliant future. I am proud indeed to have this division fighting shoulder to shoulder with the veteran divisions of the Fifth Army.[57]

The 10th Mountain Division led the US Fifth Army through the rest of the war in Italy. During each operation, the division showcased its ability to overcome the enemy even when the Germans appeared in a position of advantage.

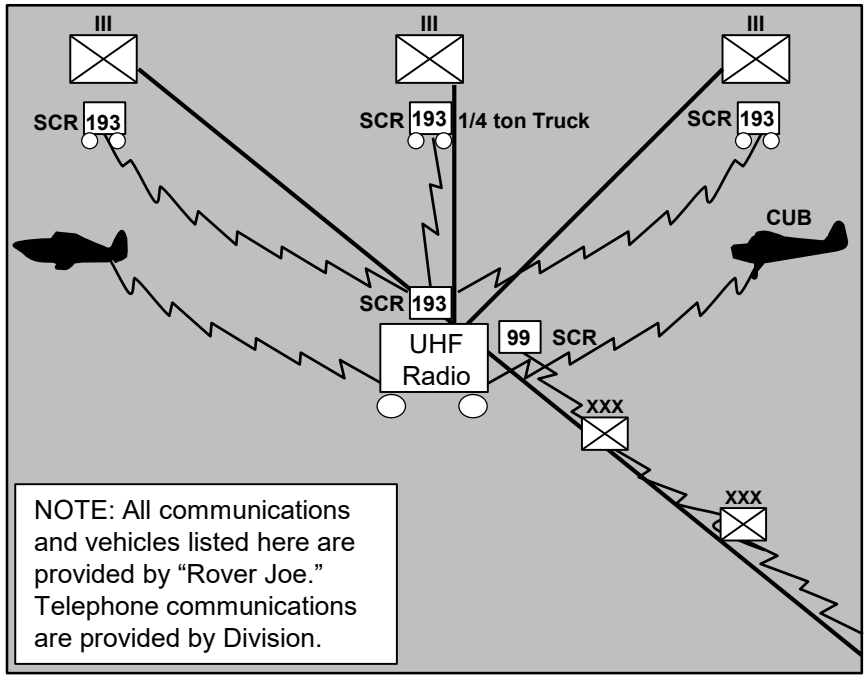


Figure 11. Fifth Army "Rover Joe" Communications Architecture.

Source: "Italian Campaign: Special Annexes; Mobile Air-Ground Communications 'Rover Joe' System of Fifth Army" (Government Printing Office, n.d., microfilm).

The operations at Riva Ridge and Mount Belvedere forced other tactical adaptations by units and soldiers. Leaders identified that to maintain momentum when attacking in rugged terrain, supplementary ammunition needed to be loaded on pack-boards. The ammunition was then moved by a secondary force behind the attacking force to provide immediate resupply and help reduce the weight carried by the attacking force.[58] Leaders and soldiers understood that once an objective was taken, the Germans would begin shelling the area. Digging in deep immediately with overhead cover became a standard operating procedure. Additionally, leaders attempted to maneuver in the open only if they had the overhead support of the Air Force observer and controller "Rover Joe."[59] This capability enabled ground units to coordinate close-air support through a controller located in a liaison aircraft above the battlefield, resulting in extremely timely and accurate fires from the air. The 10th Mountain was one of the first units in Italy to successfully use Rover Joe or the Tactical Air Command. The controller in the air coordinated with both ground and air units to provide accurate air support. Fifth Army and subsequently the 10th Mountain Division were some of the first units in the Army to employ forward liaison aircraft to control close air support.[60] In addition to air-ground coordination, mortar men developed improved methods for firing at night. They marked rounds to identify the difference between high explosive and smoke rounds. They also explored methods to mark aiming stakes for night firing.[61] These immediate adaptations in combat show how peacetime innovation fostered a learning and adaptive spirit within the 10th Mountain Division. Soldiers and leaders constantly found new ways to tackle extremely complex and daunting tasks. More importantly, these changes occurred immediately and were key to the division's early success.

Conclusion

From its establishment in 1943 until its arrival in Italy in 1945, the 10th Mountain Division innovated areas of training, doctrine, and equipment. In many cases, the division took foundations established by the MTC and built on them to create a more robust and capable formation. Although challenged with personnel turnover and a variety of training issues, the division still executed a high-altitude division-level maneuver in the unforgiving terrain around Camp Hale. Following a brief period of uncertainty at Camp Swift, the division maximized training and built both physical and tactical readiness in the formation. With the arrival of the division's first units in Italy in January 1945, units, leaders, and soldiers wasted no time in adapting their expertise to the environment and the en-

emy. The time spent leading up to the Riva Ridge and Mount Belvedere operations was well used. Units wasted no time initiating reconnaissance patrols, testing equipment, and developing and adapting tactics to best fit the terrain and the enemy. Adaptations that occurred in the division in January through February 1945 highlight how innovation could translate to immediate organizational adaptation. The 10th Mountain Division soldiers and leaders lived through constant change and challenges leading up to their deployment. Innovation was a recurring theme in managing the challenges of training in the areas of mountain and winter warfare, an area the Army had never dealt with before. The formations consisted of soldiers and leaders who were intelligent, physically fit, and, in many cases, extremely knowledgeable in the areas of mountain and winter warfare. Combining these two created an agile and adaptive formation that conducted a successful division attack at night within its first sixty days in combat against a well-postured enemy. This attack was a feat that had not been achieved by veteran units in three different attempts in the months prior to the 10th Mountain's arrival. The military organization that adapts the fastest will hold an advantage over their enemy. This advantage is what the 10th Mountain achieved. The soldiers and their leaders adapted their expertise and techniques in a way that overwhelmed the capabilities of the German units they faced. It is for this reason that adaptation is so important to success in war.

Notes

1. The 90th Infantry Regiment was stood up then later relieved from assignment to the 10th Mountain Division and moved to Camp Carson. The 87th returned to Camp Hale in January 1944 from operations in the Aleutians, clearing Kiska Island.

2. Gordon Rottman, *US 10th Mountain Division in World War II* (Long Island City, NY: Osprey Publishing, 2012), 21.

3. Thomas Govan, "Study No. 28: History of the Tenth Light Division (Alpine)" (Historical Section–Army Ground Forces, Washington, DC, 1946), 1.

4. "First Draft: History of the 10th Light Division" (report, Eisenhower Presidential Library, 10th Mountain Division, Box No. 822).

5. From 24 November to 12 December 1944, the Germans repelled three different attacks by Fifth Army's IV Corps. The first allied attack on 24 November consisted of three infantry battalions supported by tanks and artillery. The second and third were conducted by the 1st Brazilian Infantry Division. Following these repelled attacks, the Germans further fortified their positions in anticipation of future allied attacks in order to ensure their ability to hold this key terrain.

6. Govan, "The History of the Tenth Light Division (Alpine)," 5.

7. Govan, 5.

8. Govan, 4.

9. Govan, 4.

10. Govan, 5.

11. Govan, 5.

12. "Headquarters XI Corps to Commanding General 10th Mountain Division, AG 353. Subject: Training of the 10th Light Division (Alpine), August 11, 1943" (memorandum, Eisenhower Presidential Library Collection of Military Records, 1918–50, Series III, Box No. 3).

13. "War Department AG 322. Subject: Organization of the 10th Light Division, July 22, 1943" (memorandum, Eisenhower Presidential Library, Collection of Military Records, 1918–50, Series III, Box No. 3).

14. Govan, "The History of the Tenth Light Division (Alpine)," 7.

15. Govan, 8.

16. Harris Dusenberry, *Ski the High Trail: World War II Ski Troopers in the Colorado Rockies* (Portland, OR: Binford and Mort, 1991), 13.

17. Thomas Brooks, *Tenth Mountain Division* (Paducah, NY: Turner Publishing, 1998), 24.

18. "Casualties during 'D' Series" (report, Denver Public Library, Charles Minot Dole Papers Box No. 7).

19. Brooks, *10th Mountain Division*, 24.

20. Brooks, 25.

21. Rottman, *US 10th Mountain Division in World War II,* 21; Brooks, *10th Mountain Division*, 25.

22. “Untitled” (speech, n.d., Denver Public Library, Charles Minot Dole Papers Box No. 7).

23. Ernest Fisher Jr., *Cassino to the Alps*, U.S. Army in World War II: Mediterranean Theater of Operations (Washington, DC: US Army Center of Military History, 1977), 411.

24. Brooks, *10th Mountain Division*, 25.

25. Fisher, *Cassino to the Alps*, 414.

26. Citation for Major General Hays’s actions reads, “At the very outset of the unprecedented artillery bombardment by the enemy, his line of communication was destroyed beyond repair. Despite the hazard attached to the mission of runner, he immediately set out to establish contact with the neighboring post of command and further establish liaison with two French batteries, visiting their position so frequently that he was mainly responsible for the accurate fire therefrom. While thus engaged, seven horses were shot under him and he was severely wounded. His activity under most severe fire was an important factor in checking the advance of the enemy.” Congressional Medal of Honor Society, “Recipients: George Price Hays,” accessed 27 April 2017, http://www.cmohs.org/recipient-detail/2537/hays-george-price.php.

27. Dominick Graham, *Cassino: Ballantine’s Illustrated History of the Violent Century, Battle Book No. 16*, ed. Barrie Pitt and David Mason (New York: Ballantine Books, 1970), 53–66.

28. US Fifth Army, *Fifth Army History*, vol. 8, *The Second Winter* (Washington, DC: Government Printing Office, 1947), 30–32.

29. Fisher, *Cassino to the Alps*, 414–15.

30. Fisher, 417.

31. William Herrington, “Operations of the 10th Mountain Division on Mount Belvedere, February 16–26, 1945” (paper, Fort Benning, GA: Advanced Infantry Officers Course, 1949–50), 5.

32. Herrington, 5, 6.

33. The summits on Riva Ridge from north to south were Pizzo di Campiano 3,175 feet; Mount Cappel Buso 3,800 feet; Mount Serrasiccia 4,600 feet; Mount Riva 4,672 feet; Mount Mancinello 4,800 feet; Cingio del Bure 4,628 feet; Le Piagge 4,900 feet; Serra dei Baichetti 4,350 feet; Cingio Sermidiano 5,400 feet; and Mount Spigolino 6,030 feet. Harris Dusenberry, “Report of LTC Hampton on the Riva Ridge Operation” in Harris Dusenberry, *The North Apennines and Beyond* (Portland, OR: Binford and Mort Publishing, 1998), 179.

34. Dusenberry, 180.

35. *Climb to Glory: WWII 10th Mountain Division in Italy*, directed by The United States Army Pictorial Center, DVD (The Historical Archive New Media, 2015).

36. Fisher, *Cassino to the Alps*, 424–26.

37. Dusenberry, *The North Apennines and Beyond*, 181.

38. Dusenberry, 179.

39. Dusenberry, 186–87.

40. Dusenberry, 184.

41. Herrington, “Operations of the 10th Mountain Division on Mount Belvedere,” 9.

42. Herrington, 9.

43. Dusenberry, *The North Apennines and Beyond*, 183.

44. “Army Ground Forces Intelligence Division Report A310: Patrol Operations under Winter Conditions” (report, Combined Arms Research Library N-8390).

45. “Army Ground Forces Intelligence Division Report A310.”

46. “Army Ground Forces Intelligence Division Report A310.”

47. “Army Ground Forces Intelligence Division Report A310.”

48. Dusenberry, *The North Apennines and Beyond*, 190.

49. Herrington, “Operations of the 10th Mountain Division on Mount Belvedere,” 11.

50. Herrington, 12.

51. Dusenberry, *The North Apennines and Beyond*, 196.

52. “Italian Campaign: Engineer Accomplishments February–March 1945, IV Corps” (Government Printing Office, n.d., microfilm).

53. Herrington, “Operations of the 10th Mountain Division on Mount Belvedere,” 15.

54. Herrington, 15.

55. Fisher, *Cassino to the Alps*, 429.

56. Herrington, “Operations of the 10th Mountain Division on Mount Belvedere,” 16–19.

57. “MG George Hays to the 10th Mountain Division, March 10, 1945. Subject: Letter of Commendation” (letter, Denver Public Library, Charles Minot Dole Papers Box No. 7).

58. “Army Ground Forces Intelligence Division Report A370: Headquarters 87th Mountain Infantry Lessons Learned in Combat” (report, Combined Arms Research Library N-12789).

59. “Army Ground Forces Intelligence Division Report A370,” 5.

60. Riley Sunderland, “Evolution of Command and Control Doctrine for Close Air Support” (study, Office of Air Force History, 1973), 15.

61. Sunderland, 11.

Chapter 5
Conclusions and Recommendations

The capabilities of the 10th Mountain Division were a unique construct that mirrored the characteristics of its innovative creators and leaders. The early peacetime innovations translated into a highly adaptive formation in combat. The 10th Mountain bore the qualities of the parts of American society that it represented. The division was manned with some of the highest quality soldiers in the Army—physically fit, educated, and highly experienced mountain soldiers. None of this would have been possible, however, without the intrepid leadership and innovation of Charles Minot Dole and his exhaustive efforts with the War Department. His work to assist with recruitment of personnel and development of equipment was instrumental in developing these mountain soldiers. Dole's efforts led to the early testing of winter training techniques by multiple divisions. This innovative approach to validating the feasibility of training units for mountain and winter warfare training was the first step toward creating a formal structure and capability in the Army.

The training developed by Brig. Gen. Onslow S. Rolfe, the Mountain Training Center (MTC), and the Mountain and Winter Warfare Board (MWWB) was also critical in developing and testing mountain warfare equipment, building the organizational structure, and creating the standards for training. Without these organizations and Brigadier General Rolfe's leadership, the Army would not have been able to organize, train, and equip mountain units. The time spent during the testing and the early development phases was critically important. There were still numerous challenges that affected this period. Lack of resources, improper prioritization of the mission, and the lack of a good liaison with headquarters all created friction in the process. In the face of these challenges, the MTC, MWWB, and Brigadier General Rolfe achieved groundbreaking work for the Army. The training techniques and equipment experimentation were highly successful. This period of innovation coupled with the recruiting efforts of Charles Minot Dole were critical to the overall success of the 10th Mountain Division and its immediate adaptations in combat.

The persistent innovation occurred for many reasons. There was a lack of institutional knowledge in the Army about how to properly operate in mountainous and extreme cold environments. This knowledge deficit forced the War Department to leverage civilian expertise to assist with the development of training and equipment. Additionally, the War Department

did not have the luxury of time to deliberate on ways to address these problems. This sense of urgency forced innovation to happen. Whether that included the recruitment efforts by the National Ski Patrol (NSP), or the recommendations by the Volunteer Winter Defense Committee, the Army and the War Department provided high-quality mountain experts to fill the ranks of the 87th Mountain Infantry Regiment and the MTC.

The 10th Mountain Division went through multiple permutations before it finally was given a clear purpose and mission from the War Department. The 87th Mountain Infantry Regiment's initial mission at Fort Lewis was to provide a test unit for mountain and winter warfare training. The early training at Fort Lewis was critical to the eventual capabilities later established at the MTC at Camp Hale. The mission of the MTC was to test equipment and build organizations for mountain and winter warfare training. A secondary outcome was that this process built a core group of well-trained men who would form the nucleus of the 10th Mountain Division in 1943. Similarly, the division's initial mission focused on training. The execution of the D-Series exercise demonstrated that the division was capable of large-scale maneuvers in winter and mountain terrain. The exercise also validated the individual training of the men and the capabilities of their equipment. Although evaluators identified shortfalls, especially in logistics and overall organizational structure, the division achieved its assigned mission. During the division's time at Camp Swift, General George C. Marshall and the War Department eventually determined the operational need for a mountain unit to assist with the challenges being faced by the men of US Fifth Army in Italy. During operations in Italy, the division displayed why highly specialized and well-trained soldiers were essential to winning in the mountains. The Fifth Army commander in Italy, Lt. Gen. Lucian Truscott, wrote in his autobiography: "The performance of this 10th Mountain Division in its first battle was impressive; they performed like veterans. . . . The operation aroused the admiration of the whole Army."[1] In the end, the MTC and 10th Mountain Division provided the capability that the Army wanted and needed: well-trained and equipped mountain soldiers capable of operating in winter and mountainous terrain against any enemy.

In addition, the division's ability to quickly adapt was highlighted by its successes after arriving in Italy. The division did not repeat the mistakes that other Fifth Army units had made over the previous months. Instead, the division's leaders and soldiers took an aggressive approach to understanding the enemy and the terrain through the use of extensive ground and air reconnaissance. The men quickly adapted their doctrine to create techniques that achieved the element of surprise and maximized

the capabilities of their equipment. Additionally, the 10th Mountain conducted thorough and efficient planning and rehearsals. Leaders and soldiers alike were knowledgeable and confident in their plans and, therefore, were able to improvise and use creative techniques to overwhelm the German opposition. The division's immediate and successful adaptations highlight the importance of the years of innovation before their eventual deployment. These aspects played a vital role in the evolution of the division's capabilities.

This historical example of how peacetime innovation increased wartime adaptation holds direct applications today. Some of the lessons learned by the Army and the War Department through the creation of the 10th Mountain Division are relevant to how we as an institution deal with change. The Army Capabilities Integration Center (ARCIC) until recently used the concept of Warfighting Challenges to address "current and mid-term military problems and gaps that help define capabilities needed for current and future force combat effectiveness."[2] There are multiple linkages between how the War Department created a new capability to fight in the mountains in World War II and how today's Army is attempting to identify and address capability issues. The Army had to adapt and innovate to create new capabilities for meeting the threat abroad. To satisfy its need for a mountain capability, the Army was willing to leverage non-institutional expertise and circumvent certain established processes to create capability. The MWWB's equipment development and NSP's personnel recruitment were non-standard practices that required the institutional Army to innovate. If the innovations had not occurred or leaders had not been willing to change or modify the normal systems of practice, the idea of building a mountain and winter warfare capability would have died with Charles Minot Dole's first meeting with General Marshall.

Every military throughout history faced the challenges of preparing its forces for war, often without knowing where or when the fight would be or capabilities of the enemy. For contemporary militaries, this is truer than ever. Today's threats are more diverse and unpredictable than ever before. To help address how we prepare for this next war, the US Army is examining how to ensure training is realistic and properly prepares our men and women for the next conflict. Arguably in 1943, few Army units trained under more realistic conditions than the soldiers of the 10th Mountain Division. Training conditions presented to the men of the 10th Mountain Division were more extreme than anything they experienced in combat. This level of realistic training was achieved because the Army understood the important roles that altitude, terrain, and extreme weather would play

in mountain operations. The Army selected Camp Hale because its terrain provided realistic challenges to prepare the 10th Mountain Division soldiers for some of the worst possible conditions and situations. One 10th Mountain soldier was quoted as saying, "If we can survive this (D-Series), we can survive anything."[3] Creating tough, realistic, and demanding training is what we should expect of our unit leaders. Your best day in a training exercise should replicate your worst day in combat. The D-Series exercise provided this type of preparation for 10th Mountain soldiers. The training exercise mentally and physically pushed them to their limits and ultimately prepared them for the rigors of combat.

The 10th Mountain Division history also offers insights on how to improve soldier, leader, and team performance. The Division started with an innovative recruitment strategy. The Army went outside institutional norms to leverage the expertise of a civilian organization to recruit personnel. The NSP had access to the right social networks and the right potential for service before presenting their files to the Army. This process made many people nervous. There was a fear that a bunch of Ivy League skiers was not the right fit for the Army. However, the qualities and capabilities that they brought to the Army were invaluable. As we look at developing new capabilities to meet future requirements for today's Army, it is necessary to maintain an open perspective to ensure that we recruit the right people. Sometimes, these people may not look like the right fit for the Army. However, our duty is to train and prepare them while also respecting the skill sets and backgrounds that they bring to the fight.

The 10th Mountain Division history also offers some insight into how the Army develops agile and adaptive leaders. Prior to the deployment of the 10th Mountain Division to Italy, the leaders of the MTC, MWWB, and 10th Mountain had generic missions and were minimally resourced. It is logical to think that the answer to fix these problems would be to procure more resources to include time, personnel, and equipment. However, it appears that operating in a resource-constrained environment forced leaders and soldiers to innovate. They routinely found new ways to address a variety of challenges. The 10th Mountain Division soldiers and leaders trained and prepared for war in an environment where the missions were vague and the metrics for success were defined as they occurred. The need for innovation as well as the ambiguity and uncertainty in training increased unit leaders' ability to think outside of the box. Leaders and soldiers in the 10th Mountain Division were not afraid to experiment and try new things; they did it routinely in their training and preparation for combat. If the

Army wants leaders who can think on their feet through complex situations, it must foster an environment where a certain level of risk is acceptable. Orders can be intentionally ambiguous to force leaders to innovate. In this type of an environment, units and their personnel are more like to adapt quickly and successfully meet challenges they face in combat.

The way the 10th Mountain trained for an ambiguous mission and an unknown theater provided them with capabilities that are reflective of how today's Army is addressing the new concept of multi-domain battle. The terrain shaped how the 10th Mountain Division trained. However, the specific area that the division would operate in was not known until the last minute. Therefore, training addressed a range of mountain and winter challenges. This training prepared units to be comfortable operating dispersed in harsh terrain with limited communications. The fact that they could operate this way, along with their specialized training, prepared them to create multiple dilemmas for the enemy. The Riva Ridge and Mount Belvedere operation showed how large formations achieved the element of surprise and leveraged their training and equipment to rapidly seize the high ground. Multiple examples exist during this operation that highlight how surprise, the use of special equipment, tactical adaptations, and combined arms completely overwhelmed an enemy that occupied key terrain. The division's ability to create multiple tactical dilemmas for their enemy changed the momentum of the operation in its favor. These are some principles that the Army is currently trying to develop by synchronizing tactical actions in time, space, and purpose in multiple domains. These coordinated actions will force the enemy to choose where to commit military resources. This type of dilemma can potentially create opportunities that we must be prepared to exploit. The only way to achieve this synchronization is through highly trained and well-equipped formations that can operate independently and use their capabilities to exploit these opportunities when they arise.

The US military must approach the improvement of current capabilities and the creation of new doctrine, materiel, and technology in an innovative manner. The only way to prepare for the unknown threats of the future is to develop new capabilities that leaders can adapt to a variety of situations in order to meet the challenges presented in war. These adaptations can only be achieved by being prepared to move outside of the bureaucratic norms of some military processes and by leveraging new expertise and techniques to build capacity to fight emerging twenty-first century threats.

Recommendations

1. As the US Army faces new and uncertain challenges across the globe, the need to create new capabilities in organizations, doctrine, and equipment is crucial. As new threats in the sea, air, land, and cyber domains appear, the Army must produce capable and well-equipped formations that can adapt and meet any challenges they face. If the correlation is valid, innovation must occur in peacetime to prepare for quick wartime adaptation. It is not that units will not change, but the speed and efficiency with which they adapt will be slower. The slower these changes occur, the higher the potential risk to both the force and the mission.

The Army also needs to create innovative and challenging training scenarios. The challenges presented to our military formations should stress units and push them to the extent of their capabilities. Only by breaking from the status quo and presenting the most daunting training scenarios will the Army achieve the full extent of its leader and formation capabilities. Although the Army does this well at both the National Training Center and the Joint Readiness Training Center, challenging formations is much harder to achieve during the standard unit training cycle. Commanders and leaders at every echelon must think creatively while simultaneously managing risk to create tough and challenging training scenarios that push units physically, mentally, tactically, and technically. The Task and Evaluation Outlines that provide the standard to evaluate training should be the baseline from which units go above and beyond to challenge their leaders and subordinates. Additionally, units should constantly be searching for better ways to employ capabilities and equipment. Critical to this whole process is the sharing of lessons learned and best practices within the Army. Innovation is a collaborative and collective effort to improve capability. If units embody the philosophy of innovation in peacetime, their ability to adapt in the face of unforeseen challenges will only increase.

2. There are multiple areas for further research. This work focused on the period from 1940 to 1943 and primarily looked at innovation and adaptation impacts pertaining to the division and its infantry regiments. A recommendation for future investigation is to examine the history of the enablers that were not discussed in this work, such as early training and equipment development for the artillery, engineers, and logisticians. Taking this information and identifying innovative trends that occurred prior to 1945 would then highlight how these units did or did not adapt in combat. This examination would provide additional data to support or refute the argument made in this summary. In addition, comparing 10th Mountain Division achievements and capabilities against other Fifth or Eighth

Army divisions fighting in similar terrain against a similar enemy would provide additional comparisons to support or refute this work's thesis.

3. This summary also suggests implications for how the Army balances its ability to build new capabilities within the Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel, and Facilities (DOTMLPF) framework with requirements and processes that are a part of the Army force management system. If a new capability or requirement develops that was not identified previously in a future concept or in experimentation, the Army may need to look at the feasibility of streamlining or reducing the timeline associated with the normal Army force management processes. This streamlining should be the exception not the rule. We need to maximize the availability of civilian expertise, available technology, and skilled personnel to create the capability needed to achieve success on the battlefield. This concept was the approach taken by the War Department and the Army to create a mountain and winter warfare capability. In numerous instances, standard procedures and policies were changed, modified, or bypassed altogether to tackle a unique problem for the Army.

The achievements made by the Army and the War Department from 1940 through 1945 were numerous. In the case of training for mountain and winter warfare, units and leaders faced many challenges. Over the course of four and one-half years, however, the Army created one of the finest divisions at the time. The 10th Mountain Division provided the Army with the capability it required and achieved success in combat. None of this would have occurred without fostering innovation and adaptation. These lessons should be considered as we look ahead to the Army's next unknown battlefield.

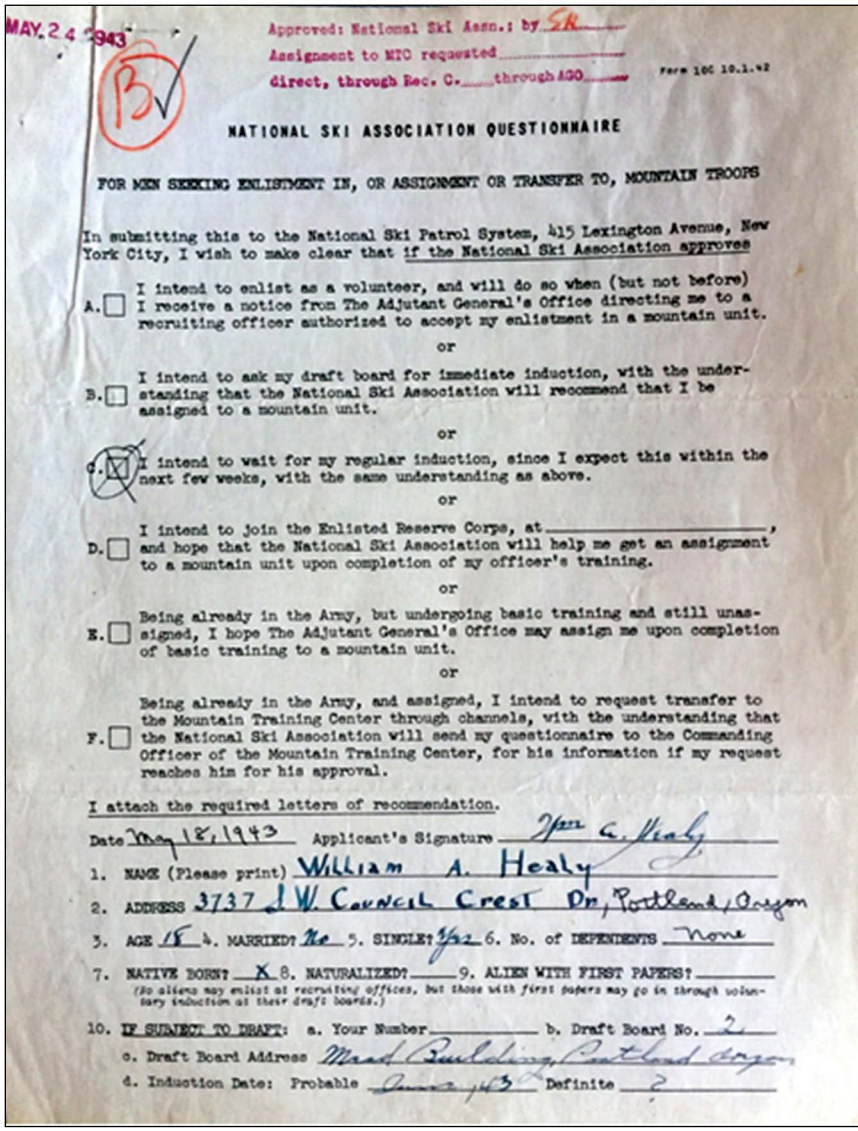
Notes

1. Luscian Truscott, *Command Missions: A Personal Story* (New York: E. P. Dutton and Company, 1954), 468.

2. Army Capabilities Integration Center, "Army Warfighting Challenges," *STAND-TO!* (12 May 2010), https://www.army.mil/article/38972.

3. Thomas Brooks, *Tenth Mountain Division* (Paducah, NY: Turner Publishing, 1998), 24.

Appendix A
National Ski Patrol Application Packet



MAY 24 1943

Approved: National Ski Assn.: by SK
Assignment to MTC requested
direct, through Rec. C. through AGO

Form 100 10.1.42

NATIONAL SKI ASSOCIATION QUESTIONNAIRE

FOR MEN SEEKING ENLISTMENT IN, OR ASSIGNMENT OR TRANSFER TO, MOUNTAIN TROOPS

In submitting this to the National Ski Patrol System, 415 Lexington Avenue, New York City, I wish to make clear that if the National Ski Association approves

A. ☐ I intend to enlist as a volunteer, and will do so when (but not before) I receive a notice from The Adjutant General's Office directing me to a recruiting officer authorized to accept my enlistment in a mountain unit.

or

B. ☐ I intend to ask my draft board for immediate induction, with the understanding that the National Ski Association will recommend that I be assigned to a mountain unit.

or

C. ☒ I intend to wait for my regular induction, since I expect this within the next few weeks, with the same understanding as above.

or

D. ☐ I intend to join the Enlisted Reserve Corps, at _____, and hope that the National Ski Association will help me get an assignment to a mountain unit upon completion of my officer's training.

or

E. ☐ Being already in the Army, but undergoing basic training and still unassigned, I hope The Adjutant General's Office may assign me upon completion of basic training to a mountain unit.

or

F. ☐ Being already in the Army, and assigned, I intend to request transfer to the Mountain Training Center through channels, with the understanding that the National Ski Association will send my questionnaire to the Commanding Officer of the Mountain Training Center, for his information if my request reaches him for his approval.

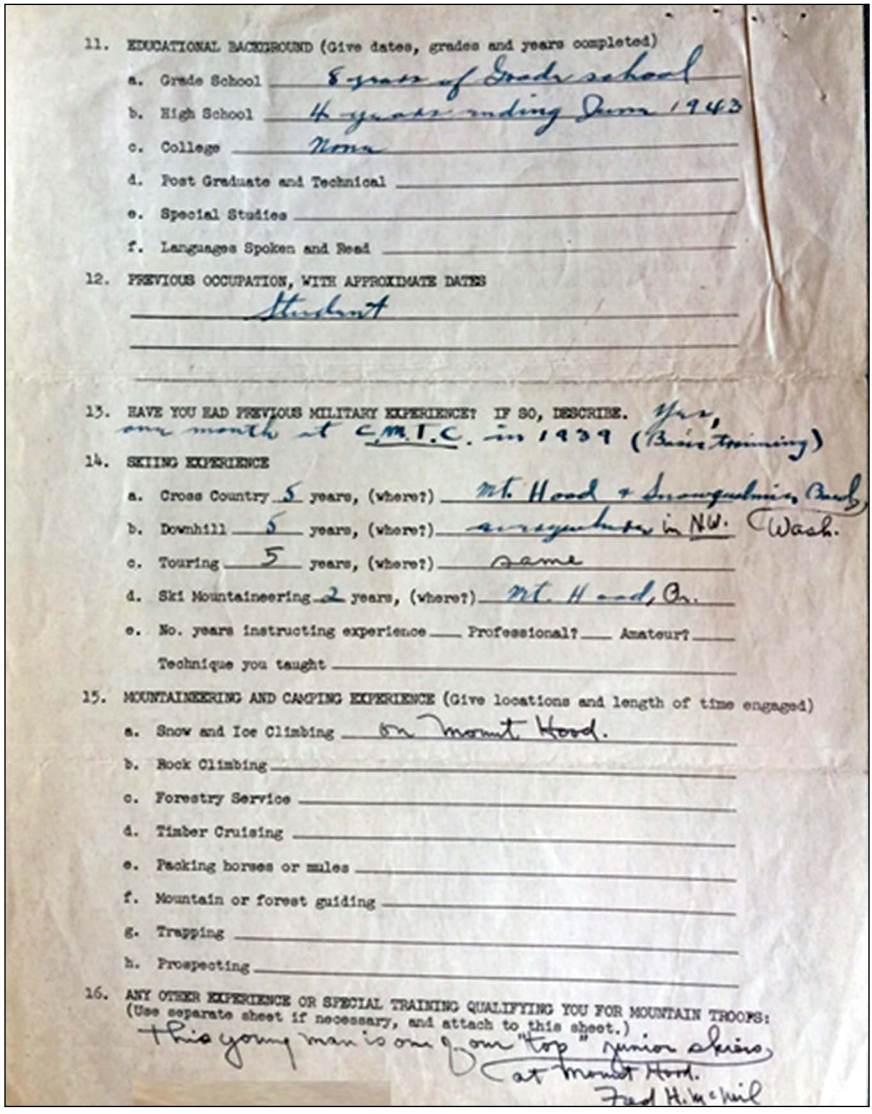
I attach the required letters of recommendation.

Date May 18, 1943 Applicant's Signature Wm A. Healy

1. NAME (Please print) William A. Healy
2. ADDRESS 3737 S.W. Council Crest Dr, Portland, Oregon
3. AGE 18 4. MARRIED? No 5. SINGLE? Yes 6. No. of DEPENDENTS None
7. NATIVE BORN? X 8. NATURALIZED? _____ 9. ALIEN WITH FIRST PAPERS? _____
(No aliens may enlist at recruiting offices, but those with first papers may go in through voluntary induction at their draft boards.)
10. IF SUBJECT TO DRAFT: a. Your Number _____ b. Draft Board No. 2
c. Draft Board Address Mead Building, Portland Oregon
d. Induction Date: Probable June 43 Definite ?

Figure 12. National Ski Association Questionnaire, page 1.

Source: Denver Public Library, Charles Minot Dole Papers.



11. EDUCATIONAL BACKGROUND (Give dates, grades and years completed)
a. Grade School 8 years of Grade school
b. High School 4 years ending June 1943
c. College None
d. Post Graduate and Technical
e. Special Studies
f. Languages Spoken and Read

12. PREVIOUS OCCUPATION, WITH APPROXIMATE DATES
Student

13. HAVE YOU HAD PREVIOUS MILITARY EXPERIENCE? IF SO, DESCRIBE. Yes, one month at C.M.T.C. in 1939 (Basic training)

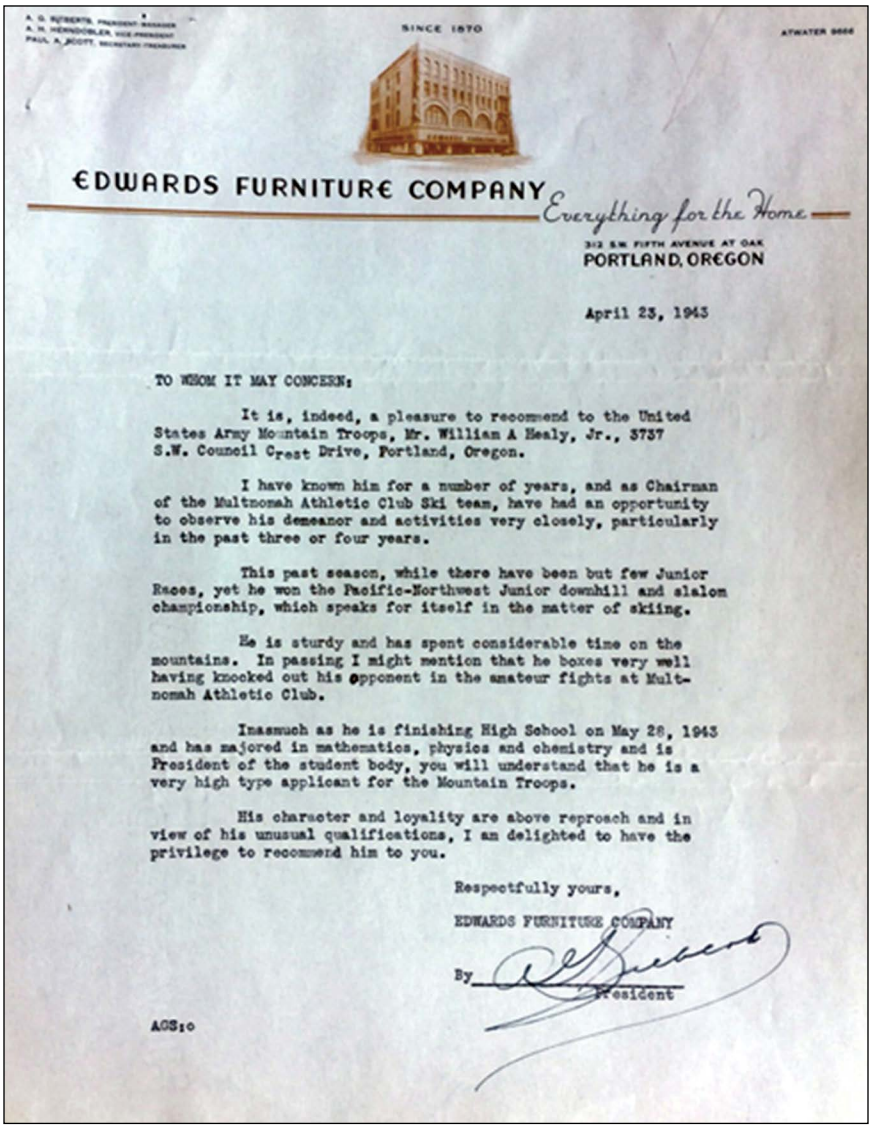
14. SKIING EXPERIENCE
a. Cross Country 5 years, (where?) Mt. Hood + Snoqualmie, Cas. Wash.
b. Downhill 5 years, (where?) Snoqualmie in NW. Wash.
c. Touring 5 years, (where?) Same
d. Ski Mountaineering 2 years, (where?) Mt. Hood, Or.
e. No. years instructing experience ___ Professional? ___ Amateur? ___
Technique you taught

15. MOUNTAINEERING AND CAMPING EXPERIENCE (Give locations and length of time engaged)
a. Snow and Ice Climbing On Mount Hood.
b. Rock Climbing
c. Forestry Service
d. Timber Cruising
e. Packing horses or mules
f. Mountain or forest guiding
g. Trapping
h. Prospecting

16. ANY OTHER EXPERIENCE OR SPECIAL TRAINING QUALIFYING YOU FOR MOUNTAIN TROOPS: (Use separate sheet if necessary, and attach to this sheet.)
This young man is one of our "top" junior skiers at Mount Hood.
Fred Hicks Weil

Figure 13. National Ski Association Questionnaire, page 2.

Source: Denver Public Library, Charles Minot Dole Papers.



SINCE 1870

EDWARDS FURNITURE COMPANY *Everything for the Home*

312 S.W. FIFTH AVENUE AT OAK
PORTLAND, OREGON

April 23, 1943

TO WHOM IT MAY CONCERN:

It is, indeed, a pleasure to recommend to the United States Army Mountain Troops, Mr. William A Healy, Jr., 3737 S.W. Council Crest Drive, Portland, Oregon.

I have known him for a number of years, and as Chairman of the Multnomah Athletic Club Ski team, have had an opportunity to observe his demeanor and activities very closely, particularly in the past three or four years.

This past season, while there have been but few Junior Races, yet he won the Pacific-Northwest Junior downhill and slalom championship, which speaks for itself in the matter of skiing.

He is sturdy and has spent considerable time on the mountains. In passing I might mention that he boxes very well having knocked out his opponent in the amateur fights at Multnomah Athletic Club.

Inasmuch as he is finishing High School on May 28, 1943 and has majored in mathematics, physics and chemistry and is President of the student body, you will understand that he is a very high type applicant for the Mountain Troops.

His character and loyalty are above reproach and in view of his unusual qualifications, I am delighted to have the privilege to recommend him to you.

Respectfully yours,

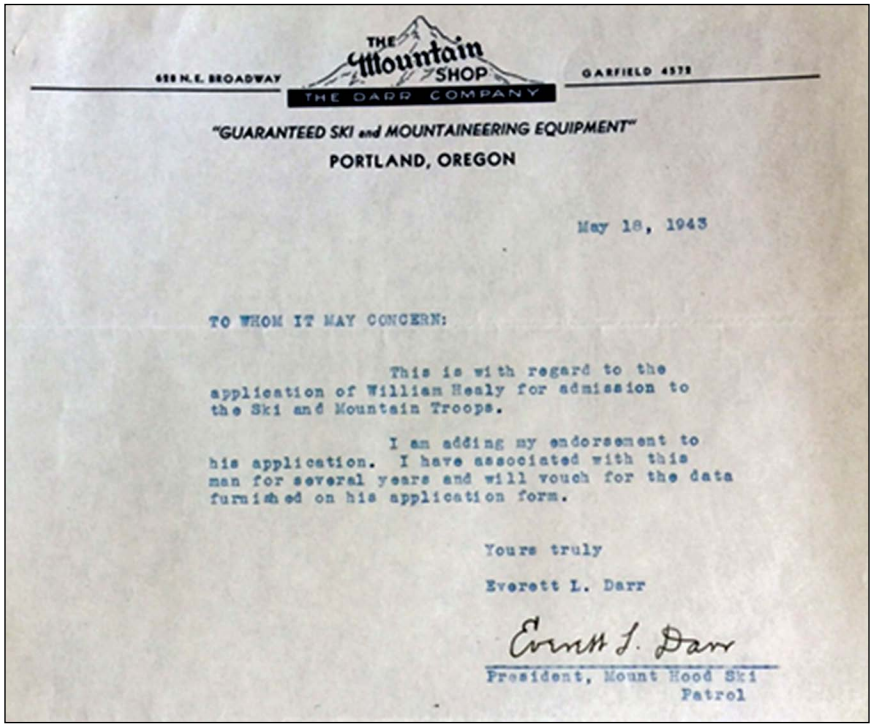
EDWARDS FURNITURE COMPANY

By _____
President

AGS:o

Figure 14. Sample Endorsement Letter 1.

Source: Denver Public Library, Charles Minot Dole Papers.



THE Mountain SHOP
THE DARR COMPANY
628 N.E. BROADWAY
GARFIELD 4578

"GUARANTEED SKI and MOUNTAINEERING EQUIPMENT"
PORTLAND, OREGON

May 18, 1943

TO WHOM IT MAY CONCERN:

This is with regard to the application of William Healy for admission to the Ski and Mountain Troops.

I am adding my endorsement to his application. I have associated with this man for several years and will vouch for the data furnished on his application form.

Yours truly

Everett L. Darr

Everett L. Darr

President, Mount Hood Ski Patrol

Figure 15. Sample Endorsement Letter 2.

Source: Denver Public Library, Charles Minot Dole Papers.

Appendix B

National Ski Patrol Recruiting 1941–45

Analysis of National Ski Patrol System Recruiting December 1941–July 1945	
Enlisted Personnel	
Volunteers authorized to enlist	472
Inductees and Voluntary Inductees recommended to Adjutant General's Office (December 1941–April 1943)	2,581
Inductees and Voluntary Inductees assigned directly to Camp Hale without reference to Adjutant General's Office (April–December 1943)	1,909
Inductees assigned to 10th Division on conclusion of basic training (December 1943–July 1945)	2,576
Total	**7,538**
Officers	
Approved transfers from other units or for assignment upon graduation from Officer Candidate School	333
Approved applications from medical officers	43
Total	**376**
Grand Total	**7,914**

Figure 16. Analysis of National Ski Patrol Recruiting, December 1941–July 1945.

Source: Created by Author based on Denver Public Library, Charles Minot Dole Papers Box No. 7.

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