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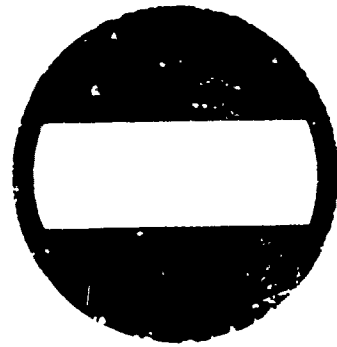
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HISTORY OF THE

MOUNTAIN TRAINING CENTER

STUDY NO.24



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ARMY GROUND FORCES

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The Army Ground Forces

HISTORY OF THE MOUNTAIN TRAINING CENTER

Study No. 24

By
John C. Jay
Maj., Inf. Res.

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Historical Section--Army Ground Forces
1948

DEPARTMENT OF THE ARMY
Office, Chief, Army Field Forces
Fort Monroe, Virginia

GNEIS 314.7(30 Jun 48)

30 June 1948

SUBJECT: Studies in the History of Army Ground Forces

TO: All Interested Agencies

1. The history of the Army Ground Forces as a command was prepared during the course of the war and completed immediately thereafter. The studies prepared in Headquarters Army Ground Forces, were written by professional historians, three of whom served as commissioned officers, and one as a civilian. The histories of the subordinate commands were prepared by historical officers, who except in Second Army, acted as such in addition to other duties.

2. From the first, the history was designed primarily for the Army. Its object is to give an account of what was done from the point of view of the command preparing the history, including a candid, and factual account of difficulties, mistakes recognized as such, the means by which, in the opinion of those concerned, they might have been avoided, the measures used to overcome them, and the effectiveness of such measures. The history is not intended to be laudatory.

3. The history of the Army Ground Forces is composed of monographs on the subjects selected, and of two volumes in which an overall history is presented. A separate volume is devoted to the activities of each of the major subordinate commands.

4. In order that the studies may be made available to interested agencies at the earliest possible date, they are being reproduced and distributed in manuscript form. As such they must be regarded as drafts subject to final editing and revision. Persons finding errors of fact or important omissions are encouraged to communicate with the Office, Chief, Army Field Forces, Attention: Historical Section, in order that corrections may be made prior to publication in printed form by the Department of the Army.

FOR THE CHIEF, ARMY FIELD FORCES:



L. V. WARNER
Colonel, AGD
Adjutant General

1 Incl
Historical Study

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PREFATORY NOTE

The training of mountain troops was from the very outset in 1940 a project requiring the combined efforts of the Army and representatives of the National Ski Association. Best results were possible when the prerogatives of Army command were subordinated to the superior knowledge and skills of the mountaineering experts who had come into the Army from civilian life, and when at the same time the experts subordinated their enthusiasm for their specialties to Army discipline. That such rapprochement could be and was in some instances achieved is evident from the official documents and from this study. But there are also unmistakable indications that in some areas of the Mountain Training Center command, conflict in purposes instead of cooperation prevailed. This conflict is in the official records, and any impartial study of the Mountain Training Center's activities will reveal it.

Since the Mountain Training Center had failed to comply with the Army Ground Forces directive that an account of its activities be submitted, this history was originally written without the advantage of access to such an account. The original study was prepared after the Mountain Training Center had been discontinued. It could not meet the requirement that the studies of subordinate commands represent the points of view of their commanders. It, therefore, reflected the point of view of the author, Major John C. Jay,¹ who was solely responsible for the statements made and the opinions expressed. Major Jay's active participation in the events recorded gave the study value in that it reflected the point of view of an important element in the command, namely, the soldiers who in civilian life had been experts in mountaineering and skiing and who had been brought in by the War Department because of their special knowledge and skills.

After the study had been published and circulated in December 1946, a former staff officer of the Mountain Training Center challenged it on the grounds that it was prejudicial and inaccurate. On a recommendation of G-3, Army Ground Forces, approved by the Deputy Chief of Staff, AGF, the Historical Section recalled the history for restudy and revision. The documents on which it was based were assembled and examined; additional information was obtained from former members of the Center and also from its former commander, who was available for consultation. The study, although greatly strengthened by these additions and by full reference to documents, is in its form and substance essentially as Major Jay originally planned and wrote it. Both Major Jay and the former commander of the Mountain Training Center have read the study in its final form and have given it their approval. The revision, the work of Dr. Sina K. Spiker, Historian-Editor, Office, Chief, Army Field Forces, was concerned mostly with details. Sentences and paragraphs were corrected and re-written when recommendations seemed to warrant changes; footnotes were added, revised, and enlarged where possible to make documentation more firm. But no attempt was made to water down the truth or to whitewash any person involved.

1. Major (then 2d Lt) Jay was assigned to the Mountain and Winter Warfare Board as Meteorologist and Photographer, and became an officer of the Mountain Training Center when the Board was transferred to Camp Carson and later to Camp Hale in November 1942, as an element of the Center. From 1 October 1942 to July 1943, he acted as assistant to the Assistant Chief of Staff G-2 of the Mountain Training Center. When the Center was disbanded, he became Commanding Officer of the 10th Reconnaissance Troop. The original study was completed by him as a Captain while on temporary duty at Headquarters, Army Ground Forces, from 7 May to 30 May 1944. In civilian life Major Jay is head of the John Jay Films, Norfolk, Connecticut.

The documents upon which this history is based are available in the official record, and the issue which emerges is essentially that of a conflict between the points of view of the professional army officer and the civilian expert. It is the considered belief of the Historical Section that such an issue as this should not be evaded. The potentialities for a repetition of such a situation as existed at the Mountain Training Center are usually present, and in the event of another crisis such an occurrence could prove costly to the cause of the United States. By using this history and other related studies as guides, it is hoped that similar difficulties may be avoided in the future, and concepts which produced good results can be utilized.

Joseph Rockis

Joseph Rockis
Lt. Col., Inf.
Historical Officer

30 June 1948

CHAPTER I

BACKGROUND OF THE MOUNTAIN TRAINING CENTER

Up to the spring of 1940, little had been done to train and equip American soldiers for mountain fighting. Mountains, like jungles and deserts, were conventionally regarded as natural barriers. If in an army's possession, they provided security for its flanks; held by the enemy, they were to be avoided and by-passed.

When, however, Russia invaded Finland in 1939, the Finns, veterans of winter warfare for centuries, put on skis and white parkas and struck back savagely in sub-zero cold with surprising effectiveness. When Germany might invade neutral Norway, the routed remnants of the British Expeditionary Force, sent to give resistance, limped home from Narvik beaten by an enemy that understood mountain warfare and was organized to overcome not only the enemy but the elements and the terrain as well. It was the same story in Albania and Greece. The reason for mountain training became clear. This was no normal war such as had been fought for centuries on standard battlefields; this was a war in which no terrain was regarded as impossible.

THE NATIONAL SKI PATROL

Concurrent with these developments on foreign battlefronts, people of the United States--the most sportsminded nation in the world--were in increasing numbers turning their attention to the impending probability of war. Particularly, its two million skiers, stirred by reports of Finnish heroism, were wondering just where their specialized niche might be. As Fred H. McNeil of the Oregon Journal pointed out, "skiing is more than a sport; . . . it was a means of transportation before it became a sport, and it remains today a practical transportation device."¹ The achievements of the Finnish ski troops undoubtedly excited the enthusiasm of Americans for similar troops. The instrumentality for converting this enthusiasm into action was the National Ski Association of America and its subsidiary body, the National Ski Patrol System.

The initiative for the formation of the Mountain Training Center came from Charles Minot Dole, chairman of the National Ski Patrol System. In June 1940, Mr. Dole called on Gen. Irving I. Phillips, Chief of Staff, II Corps Headquarters, at Governors Island, N.Y., told him of the National Ski Patrol, and offered to the Army the services of his organization. General Phillips replied that the Army was planning to train in the South that winter, but suggested that Dole talk to those in Washington.² This he did, writing President Roosevelt on 18 July 1940 to summarize the case for skiers in the service, advancing the opinion that "it is more reasonable to make soldiers out of skiers than skiers out of soldiers." He concluded by suggesting establishment of two camps, in the East and in the Northwest, where about two hundred men could be trained in military patrol work, preparatory to being sent to other army units as instructors.³ President Roosevelt acknowledged Dole's letter and replied that the matter had been referred to the War Department for further action.⁴

1. Fred E. McNeil, "Skiing and National Defense," American Ski Annual, 1942, pp 5-21.

2. Ibid, p 7.

3. Personal ltr of Charles M. Dole to President Roosevelt, 18 July 40. 314.7/1 (Study No. 24) (C).

4. American Ski Annual, 1942, p 8.

Mr. Dole, then, accompanied by John E. P. Morgan, treasurer of the National Ski Patrol System, went to see Arthur Palmer, special assistant to the Secretary of War; he also talked with Senator Wadsworth.⁵ The reactions of these gentlemen were favorable, although the General Staff officers, with but two exceptions, were skeptical.⁶ Morgan, nevertheless, began compiling a skiing manual, using parts of books by Otto Lang, Charles Proctor, Benno Rylyzka, and Walter Prager. Bestor Robinson and others began to collect information on ski mountaineering and equipment.

The next step was an appointment of Mr. Dole and Mr. Morgan with General Marshall in September 1940. General Marshall said that several divisions were being left in the North for winter training, and thanked Dole and Morgan for their assistance.⁷ In October 1940, Brig. Gen. F. M. Andrews released plans for purchasing winter equipment; names of manufacturers and available equipment were given him by Mr. Dole.⁸ A month later General Marshall wrote to the National Volunteer Winter Defense Committee, which Roger Langley, president of the National Ski Association had by then organized, saying that the War Department appreciated the advice and assistance of the National Ski Association.⁹ He issued a directive to troops in the snow belt to the effect that the National Ski Association (Patrol System) would assist the Army in winter warfare training as well as experiment with light tents and other means of shelter, and would be prepared to furnish guides and cooperate in antiaircraft and antiparachute warning service. "This assistance," concluded General Marshall, "has the approval of the War Department."¹⁰

This directive was issued on 5 December 1940 in an order from the Secretary of War. It went through channels to the 1st Division at Ft. Devens, Mass., to the 44th Division at Ft. Dix, N.J., the 5th Division at Ft. Custer, Mich., the 6th Division at Ft. Leonard Wood, Mo., and the 3d and 41st Divisions at Ft. Lewis, Wash.¹¹ Roger Langley printed the order in full in the Ski Bulletin, and urged all members of the National Ski Association to offer their services.

The directive for the ski patrols established a mission roughly as follows: Selected men were to be taught the use of skis, snowshoes, and the fundamentals of camping and travelling in the snow and high mountains. Each patrol was allotted a fund of approximately \$1,200 for the purchase of equipment, to be bought locally in the open market and tested for military use by the patrols.

The 26th Infantry (less the 2d Battalion) was designated as the unit of the 1st Division to conduct ski training. Training was conducted at Plattsburg Barracks, N.Y., and in addition, for a period of seven days each, a detail of ten officers and a hundred enlisted men was sent weekly to Lake Placid, N.Y., to receive concentrated ski instruction under Rolfe Monsen, three times captain of a United States Olympic

5. Ibid. p 9.

6. Statement of Mr. C. Minot Dole, Chairman of the National Ski Patrol System to Hist Off, 6 Mar 44.

7. American Ski Annual, 1942, p 8.

8. Ibid. p 9.

9. Personal ltr of Gen G. C. Marshall to Mr. Roger Langley, 9 Nov 40. 314.7/1 (Study No. 24) (C).

10. WD ltr AG 353(7-30-40) (1) Sec 2 to CGs, etc, 5 Dec 40, sub: Relations with National Ski Association. AG 353.

11. Ibid.

Team. Nine such details were sent, training approximately a thousand officers and men. Three officers and fifty-three men were formed into a ski patrol, which attained a high degree of skill.¹²

Training was terminated on 28 February 1941 by lack of snow and a permanent change of station. Col. James I. Muir, Commander of the 26th Infantry, summarized the lessons learned:¹³

Teaching troops to use snowshoes is simple Any person who meets the Army's physical requirements only needs a short course of instruction and then a short hardening or conditioning period to be able to maneuver proficiently on snowshoes. . . .

The problem of teaching troops to ski is comparatively simple. Young men of good physique, particularly those with well-coordinated sense of balance, can become expert on skis in a relatively short time. The major problems are those of supporting weapons, ammunition, evacuation, and supply.

In conclusion, Colonel Muir stated: "I believe that ski training is an asset; like the Texan's six-shooter, you may not need it, but if you ever do, you will need it in a hurry, 'awful bad.'"

Units of the 6th Division conducted ski training as follows: Company I, 1st Infantry at Ft. Warren, Wyo., snowshoeing and skiing; Company H, 3d Infantry, Ft. Snelling, Minn., snowshoeing; a composite company, 20th Infantry, Ft. Warren, skiing and showshoeing. A specially selected ski patrol of eleven officers and eleven enlisted men was organized from all the units, and was trained by Mr. Alfred D. Lindley of the National Ski Association and Mr. Glen Stantley of Minneapolis. After they had given a total of twenty hours of instruction, Lt. John H. Hay, a reserve officer on active duty with the 6th Division at Ft. Snelling, concluded the instruction, totalling 120 hours.¹⁴

In reply to the questions drawn up in the War Department directive, Maj. Gen. C. S. Ridley gave the following information and suggestions: There was no need for changing the Tables of Organization. Specially trained patrols were required, to which the best qualified men should be detailed. One ski platoon for each battalion was suggested. A platoon of three squads of twelve men each should make up a ski patrol, one man in each squad to be armorer-artificer, carrying the spare parts and maintenance tools. All rifle companies in the Infantry should be ski-equipped. The weapons platoon should use snowshoes. Medical units should use both. General Ridley's report included the recommendation for an instructors' school for officers and noncommissioned officers in winter warfare. The ski patrol required expert skiers and has the same function as the cavalry patrol. And, of interest in view of later events, "troops must be stationed at places known to be suitable for snowshoeing and skiing."¹⁵

12. 26th Inf ltr (AG 353 Sec 2) to TAG, 31 Mar 41, sub: Winter Tng. 314.7/2 (Study No 24) (C).

13. Ibid.

14. 6th Div ltr (AG 353 (11-14-40) MM-C) to TAG, 21 May 41, sub: Winter Tng and Test-Northeastern & North Central US. 314.7/3 (Study No 24) (C).

15. Ibid.

The training area of the 5th Division was shifted from Ft. Custer, Mich., to Camp McCoy, Wis., because of more suitable snow conditions at the latter station. Since this was to be the most concentrated training of all, a Winter Warfare Training Board of officers and men was set up, under the direction of Capt. Albert H. Jackman, as of 8 December 1940. Patrol training was carried out by the 3d Battalion, 2d Infantry, consisting of about a thousand officers and men, using basic equipment. A ski patrol test detachment of about 5 officers and 250 enlisted men, using the best commercial equipment available, was set up. Two, later four, civilian instructors were hired. Training, mainly in cross-country work was carried on extensively all winter because of the flat nature of that immediate terrain. Intense cold prevailed. Lt. Col. Joseph L. Ready reported the following observations: It is comparatively simple to teach men the fundamentals of skiing on level ground, in soft deep snow. Personal hygiene instruction must be stressed to prevent frostbite of the hands, face, and feet. The technique of winter camping must be taught all men. All ski patrol members must be specifically trained.¹⁶ Many excellent conclusions on winter warfare in general were drawn up by Captain Jackman's detailed report for the Winter Warfare Training Board, accompanied by photographs.¹⁷

In February 1941, the 44th Division Ski Patrol was formed from men of that unit stationed at Ft. Dix, N.J. In charge was Lt. Eric C. Wikner, formerly of Sweden, with considerable experience in cross-country skiing and winter camping. Pvt. Harold Sorensen, Olympic skier from Norway, who had been inducted into the Army a few days previously, was selected as coach for the patrol of twenty-three men. The area surrounding Old Forge, N.Y., was chosen as the training ground. For 3½ weeks the men were given extensive training in military skiing and camping in extreme cold--sometimes as low as 20 degrees below zero. Detailed tests were conducted and reports written on various types of sleeping bags, clothing, skis, and general winter equipment. The men engaged in actual combat maneuvers during the last few days. As usual, the ski-vs-snowshoe argument was raised by the local inhabitants. Two test races were held between skiers from the patrol and native snowshoers, the best in the Adirondack Mountains, including an Indian. Though the course had been laid out by the snowshoers themselves, with emphasis on uphill and deep woods terrain, each time the skiers won with ease, proving conclusively that skis are faster for general snow travel. For the most part, the members of the patrol had had previous skiing experience, but they could not in any sense of the word be termed expert military skiers. However, after nearly a month of concentrated instruction in the snow plow and the lifted stem Christiania, the 44th Division ski patrol was able to travel up to 25 miles a day with a 45-pound pack and be ready for combat on arrival. It had become a military ski patrol.¹⁸

Three thousand miles away, on the other side of the continent, the 41st Division ski patrol at Ft. Lewis was also organizing for training. Commanded by Lieutenant Phelps, the unit consisted of twenty-five men and one officer, most of whom had had little previous skiing experience but were distinguished for their athletic ability and general ruggedness. The patrol moved to Mt. Rainier in January 1941, and was quartered at the Ashcroft CCC Camp, three miles outside the Rainier National Park. The instruction was given by Sgt. Karl Hinderman, former ski teacher from Montana, who achieved excellent results with his comparatively green men. Here

16. 5th Div ltr (AG 353, Sec 2) to TAG, 13 Jan 41, sub: Winter Warfare. 314.7/5 (Study No. 24) (C).

17. Report on Winter Warfare, AG 353(7-30-40) (1) Sec 1 (Bulky package). AGO Records.

18. Lt Eric C. Wikner, in conversation with Hist Off, May 1942.

again emphasis was on fundamentals deemed necessary for military ski patrols--cross-country work, snowplow, and lifted stem Christianias. The patrol's mission was to cover great distances over snow safely with greatest possible speed, carrying their own food, supplies, and weapons, in an effort to determine the effectiveness of the training program.

By the end of February the individual ski training had been completed, and the patrol set out to cross the Olympic Mountains in four days, up the Quinalt River and down the Dosewalips River, from west to east. They were now under the direction of Lt. John B. Woodward, former University of Washington ski-team captain, who was loaned from the 3d Division ski patrol also stationed at Ft. Lewis. The men and equipment stood upwell on this 40-mile trip through snow depths up to 12 feet, across rocky peaks and through heavily forested areas. It is interesting to note that skis with steel edges proved far superior on this trip to those with plain wooden bottoms. The latter type chopped up and became so rounded as to be almost useless.

Next, came a long two weeks' trip across the northern end of the Olympic Mountains, seldom travelled in winter. After the first week the strain began to tell on both men and equipment; some boots and bindings fell apart, and some of the men developed blisters or became exhausted. Eight of the group were sent back, but the rest continued the trip for another week to a successful conclusion. On 20 April 1941, the 41st Division ski patrol was disbanded.¹⁹

The 3d Division ski patrol, also from Ft. Lewis, was organized on 9 December 1940 from picked volunteers out of the 15th Infantry. Capt. Howard Crawford was administrative officer, and Capt. Paul R. Lafferty, former University of Oregon ski coach, was technical adviser. Lieutenant Woodward acted as ski instructor. Eighteen men made up the unit which was quartered in a converted Part Service garage at Longmire on Mt. Rainier. As in the case of the other two patrols, the first six weeks were spent in ski instruction on cross-country and stem turns. Route selection and camouflage discipline as well as trail discipline were stressed. Four overnight marches were made during this phase, starting with a two-day trip, and ending with a week's journey around the flanks of Mt. Rainier and across many of its glaciers.²⁰

During this period it was found that the equipment purchased locally out of the allocated fund of \$1,200 proved generally satisfactory except for the boots. They were styled for advance skiing and not for cross-country warmth. The rations were made up of such dehydrated foods as were then available, consisting mostly of cereal, dried potatoes, chipped beef, powdered eggs, and spaghetti, weighing roughly 1½ pounds for each man daily, compared to the 2½ pounds of the Mountain Ration which was later developed. The latter, however, contained more calories. The average pack weighed 55 pounds, which included the M1 rifle. All the men finished the trips they started, and the average daily mileage on such trips was 10 miles. This patrol, like all the others, was disbanded in the spring of 1941.²¹

So, by the end of April 1941, the United States Army had ample data on various experimental ski patrols from which to conduct future operations. Not all the information was favorable--much of it pointed up lessons for later work--but all in all, the path towards activation of official mountain units in the United States

19. Interview of Hist Off with Capt John B. Woodward, 10 Jan 44. 314.7/29 (Study No. 24) (C).

20. 15th Inf Ski Patrol Det ltr (AG 353, Sec 2) to CO, 15th Inf, 26 Feb 41, sub: Tng for Winter Warfare--Final Rpt, 3d Div Ski Patrol. 314.7/6 (Study No. 24) (C).

21. Ibid.

Army, however rough, appeared passable. Among the significant lessons learned was the fact that men with no previous skiing experience could be taught military skiing in two months well enough to become instructors themselves--provided they were picked for rugged health and athletic ability.²² Balancing this, on the other side of the ledger, was the evidence that no matter how good a "practice slope skier" a man might be, if he had not had a previous winter of camping experience, he was liable to be the first to fall by the wayside when the going got tough. These were points in personnel for the War Department to consider during the busy summer of 1941 when plans were being laid for the activation of the first United States Army mountain units.

Meanwhile, back in Washington and New York, Dole, Morgan, and Robinson had been busily occupied. A member of the General Staff went to New York in November 1940 to discuss the plans for the forthcoming winter training. Dole objected vigorously and rightly to the toestrap binding that was being proposed for the Army's ski troops, even going so far as to write General Marshall about the paramount importance of a skier's foot being rigidly attached to the ski so that its muscular reaction would be properly transferred to the whole ski. He also warned that in hilly terrain accidents would be inevitable with toe straps, and asked that if necessary, the Army cut its program in half so that funds might be made available to purchase correct equipment.²³

The War Department replied that it shared Dole's low opinion of toe strap bindings, but was forced to use that type in order to secure large quantities of skis and bindings in a hurry, without the delay of competitive bidding and other red tape. Later, when better bindings could be obtained, the toe strap would be discarded and replaced by the correct type. "In the meantime--we will have battalions that go several miles across country in deep snow, and then take their skis off and fight, whereas, without skis the battalions would be restricted to the roads. . . . In this winter warfare our objective is to get several thousand men on skis and do it now."²⁴ Dole agreed, and the program continued.

Late in November 1940, the Volunteer Winter Defense Committee met with the National Ski Association at La Crosse, Wis., to discuss further ski training for the Army, and it was out of this session that the Equipment Committee was born. General Marshall had assigned Lt. Col. Charles E. Hurdis and Nelson M. Walker to attend the conferences. These two officers, who had come to seek advice and cooperation for this new Army venture from the experts of the ski world, soon discovered to their amusement that even the experts could not agree on such fundamental issues as the type of binding to be used.²⁵

Nevertheless the work of the Equipment Committee was far-reaching and of value to the Army. Established at La Crosse in November 1940, by Alfred D. Lindley of Minneapolis, who stipulated that it should report directly to the War Department "on necessary equipment and technic of ski troops," it was headed by Bestor Robinson, well-known skier and mountaineer from Oakland, Calif., and included Mr. Lindley, Douglas Burkett of Boston, and Peter Hostmark of Seattle. Langley and Dole were later added ex officio, and the group was further enlarged to include John E. P. Morgan, Charles M. Dudley, of Hanover, N.H., Walter A. Wood, Alaskan explorer from

22. Interview of Hist Off with Capt. Woodward. 314.7/29 (Study No. 24) (C).

23. Personal ltr of Charles M. Dole to Gen Marshall, 3 Nov 40. 314.7/1 (Study No. 24) (C).

24. Ltr of Lt. Col. Nelson M. Walker to Mr. Dole. 9 Nov 40. *Ibid.*

25. American Ski Annual, 1942, p 11.

the American Geographical Society, Rolfe Monsen, Instructor at Lake Placid, and David J. Bradley of Madison, Wis., a former member of the Finnish Military Ski Patrol.

The job which the Army set before this committee was a large one. Whereas there were over two million skiers in the United States, about half of them knew only enough skiing to enable them to go out in the winter and slide down a packed slope for a few hours at a time. The Army was interested only in skiers who could live out of their packs for many days on expeditions into rough country in all kinds of weather. Such hardy individuals were the rare exceptions, and consequently offered little business to equipment manufacturers, who preferred to concentrate on the more lucrative "downhill only" trade. Many essential items such as lightweight stoves were not even manufactured in this country; other articles, such as skis, boots, and clothing had been made from the civilian point of view, not the military.

One of the first things the committee did was to assemble all the foreign manuals on winter warfare and make a thorough study of these publications. Adams Carter, an able translator with many years of American and European skiing experience, gave valuable service in this phase of the work. It soon became apparent to the committee, however, that the American terrain presented unique problems that could not be solved by applying foreign techniques. In the matter of shelter, for example, the European technique depended largely upon the existence of near-by huts, barns, and farmhouses for overnight bivouac. These structures are common to much of the European and Scandinavian mountain terrain, but they are not found on the American continent, especially in Alaska. The Finns transported their equipment on horse-drawn sleds, on which were carried heavy conical tents, housing as many as eighteen men, and kept warm by body heat alone. The Swiss even dug huge caves in their glaciers and cornices. No such procedures would work in the soft powdery snows and the roadless mountains of the Western Hemisphere. It must be remembered that at this time all thoughts were on defense against invasion--not invasion by us. It was to repel possible hostile attacks on North America itself that the United States Mountain Troops were first organized.

The records of Arctic and Antarctic expeditions were carefully scrutinized, and men like Sir Hubert Wilkins and Dr. Vilhjalmur Stefansson gave freely and patriotically of their time and knowledge. But here again the polar technique proved useless for mountain troops, because they were based on the use of dogs and motorized equipment, and there were just not enough sled-dogs in the world to supply an army. Nor has the dog or machine yet been discovered that could make satisfactory progress up steep grades in deep soft snow.

Glacial mountain climbing and Himalayan ascents offered still other techniques of many years' trial. But the committee soon discovered that these were based upon relaying supplies from camp to camp, requiring weights well over the maximum military load.²⁶

The closest approximation to the standards the Army had set up for the military mountain trooper turned out to be the work done by the Sierra Club of California. Primarily mountaineers, its members also included a certain number of technicians--physicists, chemists, and engineers--whose passion for skiing, as Bestor Robinson pointed out,²⁷ had led them to work out a system of lightweight backpacking on skis so that the total load necessary for camping on snow weighed fourteen pounds, to which was added two pounds of food a day for each man. They even drilled holes in

26. American Ski Annual, 1942, p 14.

27. Bestor Robinson, "How the USA is Assuming Winter Warfare Leadership," The Commonwealth, Part Two, XVIII (1942). 102.

their toothbrush handles to reduce weight. As Robinson remarked with masterly understatement, this allowed adequate margin for military loads.

But from every source that was investigated there came some kind of contribution, and in each were principles that aided in solving the problem. The job was to reconcile all this heterogeneous information into a workable blueprint for the Army to use. And this the committee did, but not without some Herculean labors and many, many experiments.

For one thing, as Chairman Robinson pointed out, the lack of technical information was appalling. "We were unable to find any reports showing laboratory tests on the insulating value of sleeping bags, and the importance of varying factors of design and permeability of fabrics, and types of insulating material. The method of testing generally used has been based on an individual's claim of comfort . . . after a night's sleep."²⁸

Nevertheless, substantial progress was made, and by the late summer of 1941 the Operations and Training Division and the Quartermaster General's Office had approved specifications on the following items: rucksacks, sleeping bags, parkas, ski trousers, gaiters, head bands, felt insoles, knives, shoe protectors, mittens, ski tents, ski caps, white camouflage trousers, ski repair kit, snowshoes, climbers, poles, skis, ski boots, and a host of assorted items which even included stoves and ski waxes.²⁹

In April 1941, Captain Lafferty, of the 15th Infantry, a member of the 3d Division Ski Patrol at Ft. Lewis, had been detailed to accompany Bestor Robinson and a party of ski experts on a ski touring expedition in the high Sierra of California for the purpose of testing equipment. Zero weather, blizzards, and gales met with by the group of twenty men, provided excellent conditions for testing the various items, and the results of these findings were incorporated into the many recommendations sent to the Army during the summer.

During the year of 1941, work went ahead everywhere. Governors of the states in the snowbelt were asked by Chairman Dole to appoint individuals who would coordinate activities in the National Ski Patrol System between federal and state governments. In April 1941, the War Department ordered Colonels Murdis and Walker, along with Robert Monahan of the United States Forest Service, to study sites in the West which might be adequate for a divisional camp housing fifteen thousand men, where year-around training in winter and mountain maneuvers would be available.³⁰

In May Colonel Walker and Maj. Ridgely Gaither met the nineteen section leaders of the National Ski Patrol System at Stowe, Vt., and reported on the progress made by both sides, the Army and the civilian. Later, Dole and Morgan sat in on the convention of the Canadian National Amateur Ski Association in Montreal and discussed winter training with the Dominion staff officers. Dole then sent a report on the progress made to President Roosevelt, and received the following reply from Mr. Edwin M. Watson, secretary to the President: "The President has asked me . . . to assure you of his sincere appreciation for the cooperation of the National Ski Association with the Defense Program. He realized that you yourself are to be credited in large measure for what has been accomplished, and he asked me to convey his personal thanks."³¹

28. American Ski Annual, 1942, p 15.

29. Ibid.

30. Ibid., p 12.

31. Ibid.

And from General Marshall, after the Stowe meeting, came this heartening message:³²

It is gratifying to know that this meeting was a success, and that the representatives of the War Department were able to stimulate the interest of these patrol leaders in their patriotic contribution to national defense. In this respect you may be sure that the cooperation of the entire National Ski Association is fully appreciated. In addition to the fine work of your patrol organization, your Equipment Committee has already furnished the War Department with many excellent reports which are of great value in their application to winter and mountain warfare training.

THE NEW MOUNTAIN UNIT

Throughout the summer of 1941; plans were discussed by staff officers in the War Department for the establishment of a division camp in high mountain terrain. On 2 April 1941, Col. Harry L. Twaddle, Acting Assistant Chief of Staff, G-3, submitted a memorandum to the Chief of Staff recommending the immediate construction of such a camp, to cost about \$15,000,000. He pointed out that "most European armies contain mountain units, and it is quite possible that part of our army will be called upon to fight in the mountains and we should not be totally unprepared as were the British in Norway."³³

Objection to this proposal came from Col. Orlando Ward, Secretary, General Staff, who replied on 14 April that it was believed that satisfactory training in mountain warfare could be obtained by moving divisions located in the vicinity of mountainous terrain into field camps on such terrain for short periods of training. He went on to inquire why it would not be possible to train the Infantry divisions located at Ft. Lewis, Wash., Ft. Ord, Calif., and San Luis Obispo, Calif., in this manner.³⁴ To this Colonel Twaddle replied:³⁵

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. . . .

Fort Lewis is about sixty miles from terrain which is barely satisfactory for this purpose. Camp Ord and San Luis Obispo are about one hundred miles from suitable terrain.

To back up his argument, Colonel Twaddle called attention to G-2 reports from the Balkans indicating that the success of the German Army was due largely to the use

32. Personal ltr of Gen Marshall to Mr. Dole, 12 May 41. 314.7/1 Study No. 24 (C).

33. WD memo (C) G-3/42507 for CofS, 2 Apr 41, sub: Estab of Cp for a Div in High Mt Terrain. 314.7/7 (Study No. 24) (C).

34. WD memo (C) of Secy, GS, OCS/21247-1, for ACofS, G-3, 14 Apr 41, sub: Estab of Cp for a Div in High Mt Terrain. Ibid.

35. WD memo (C) G-3/42507 for Secy, GS, 17 Apr 41. sub: Estab of Cp for a Div in High Mt Terrain. Ibid.

of armored elements and units trained in mountain warfare, and that the British in Norway had to turn over the fighting mountains to French and Polish troops because they had no units of their own trained to operate in such terrain.³⁶

Colonel Ward, on 25 April, suggested the vicinity of Bend, Ore., as a suitable camp site for a mountain division.³⁷ In reply General Twaddle (recently promoted) stated that Bend had already been investigated and that the area was found unsatisfactory because of a short snow season, bad rock, inadequate water supply, and dangerous dust conditions.³⁸ Then on 5 May Colonel Ward stated that the decision had been reached not to allocate any additional funds for a mountain camp, but that "in the selection of division camp sites for a possible augmentation of the Army, the inclusion of a camp site in high mountain terrain suitable for training in mountain warfare will be given full consideration."³⁹ He added that West Yellowstone, Mont., and Pando, Colo., were being considered with this in mind.

Defeated temporarily in his efforts to have a mountain division camp approved, General Twaddle turned to the next best thing--the establishment of a small test force in high mountain terrain. On 7 May he prepared a memorandum for the Assistant Chief of Staff in which he urged the importance of the early development of clothing, equipment, and organization for winter and mountain warfare. He now recommended establishing at least a small test force by autumn to initiate tests and to make available a small nucleus of experienced men for later expansion into a division. He pointed out that it would be practicable and desirable to conduct a small school for training selected personnel of various units in order to develop instructors in skiing, snowshoeing, technique of camping under conditions of snow and low temperatures, and general training technique of mountain and winter warfare. He concluded by saying that "it is felt that the cost of housing such a test force would be so small in comparison with the importance of the project that the Chief of Staff might favor the use of funds now available or soon to be appropriated."⁴⁰

The matter remained undetermined for the greater part of the summer of 1941, while Dole and others of the National Ski Patrol kept up correspondence with Washington. After the middle of the summer, however, it became obvious that no camp could be erected in time for winter use.

On 15 July 1941 General Twaddle tried once more. He submitted a memorandum to the Chief of Staff on the need for organization of the mountain division, pointing out that we already had in existence triangular, square, motorized, cavalry, and armored divisions. "G-3 believes that there is a definite need that our Table of Organization also include a mountain division. This is a distinct type that cannot be readily improvised by attachment but must be specially organized and trained."

36. Ibid.

37. WD memo (C) of Secy, GS, OCS 21247-1, for ACofS, G-3, 25 Apr 41, sub: Estab of Cp for a Div in High Mt Terrain. Ibid.

38. WD memo (C) G-3/42507 for Secy, GS, 28 Apr 41, sub: Estab of Cp for a Div in High Mt Terrain. Ibid.

39. WD memo (C) of Secy, GS, OCS 21247-1, for ACofS, G-3, 5 May 41, sub: Estab of a Cp for a Div in High Mt Terrain. Ibid.

40. WD memo (C) G-3/42507 for ACofS, WPD, 7 May 41, sub: Estab of a Small Test Force in High Mt Terrain. Ibid.

Emphasis was to be on pack animal transport for combat elements. A Table of Organization for a mountain division accompanied the memorandum.⁴¹ And he added, "a mountain division also can be more readily adapted to air transport than can other types."

Lt. Col. John M. Lentz backed him up a few days later in a memorandum: "All concerned agree in need for organization of the Mountain Division." He added that autogyros should be included organically for reconnaissance--one squadron for infantry and artillery use, in addition to the Division Reconnaissance Troop.⁴²

With this support, Lt. Col. Mark W. Clark, G-3, submitted a memorandum for General McNair on 25 July 1941. "Recommend we concur; at least we may get one more division; its proposed equipment, particularly artillery, is such that it could be readily moved by air."⁴³ Dole and General Twaddle held their breath; it looked as if the Mountain Division was at last to become a reality.

On 5 August General McNair sent back Colonel Clark's memorandum "without concurrence." He went on to state that while mountain divisions existed abroad, the need of any in our service was questionable. Moreover, the proposed organization was "inefficient so far as transportation is concerned, in that it has 7,983 animals, presumably mostly pack animals, and only 369 motor vehicles. Each howitzer of the division artillery involves 68 artillerymen and 68 animals. The pack animal is deplorably inefficient." General McNair went on to say that "rather than organize a special division, it is believed an effort should be made to adapt an infantry division, or the necessary components of it, to operations in difficult terrain. . . It is recommended that efforts for the present be directed toward the development of an infantry battalion and an artillery battalion, capable of operating effectively in mountainous terrain, and containing a minimum of pack transportation and a maximum of motor transportation."⁴⁴

On the same day as General McNair's memorandum, 5 August, Lt. Col. L. S. Gerow of the General Staff Corps stated in a memorandum to the Assistant Chief of Staff, WPD, that decision on the small test force had been withheld pending result of cost estimates. He then went on to quote extracts from a recent report submitted by our military attache to Italy, to the effect that the Italian army was defeated in the Balkan campaign by lack of well equipped mountain troops. After the Greek counteroffensive had driven the Italians back across the mountains of Albania in the dead of winter, "the Italian High Command could only throw piecemeal into the operations infantry divisions of the line as fast as they could be gotten to Albania. These divisions were not organized, clothed, equipped, conditioned, trained for either winter or mountain fighting. The result was disaster. Twenty-five thousand were killed, ten thousand were frozen, large numbers made prisoners; loss in morale and prestige were irreparable." The extract concluded that "one of the important lessons learned from this was that an army which may have to fight anywhere in the world must have an important part of its major units especially organized, trained, and equipped for fighting in the mountains and in winter. . . . Such units cannot be improvised hurriedly from line divisions. They require long periods of hardening and experience, for which there is no substitute for time."⁴⁵ As Colonel Gerow

41. Memo for CofS, USA, 15 Jul 41, sub: Orgn of Mt Div. AGF 322.139.

42. Memo of Lt Col John M. Lentz for G-3, GHQ, 23 Jul 41. Ibid.

43. Memo for Gen McNair, 25 Jul 41, sub: Mt Div. Ibid.

44. Memo of Gen McNair for G-3 WD, 5 Aug 41, sub: Orgn of Mt Div. Ibid.

45. Memo of Lt Col L. S. Gerow for ACoS, WPD, 5 Aug 41. Ibid.

pointed out, this was a powerful argument for specialized training, and he suggested that the plan for a test force in the mountains be again taken up with a view to reconsideration.⁴⁶

Thus it became apparent that despite the efforts of members of the National Ski Patrol, it was the lessons learned from European armies that at last persuaded the War Department to take action for the development of mountain troops. On 22 October 1941, Dole received letters from Secretary of War Stimson, and from General Marshall, stating that on 15 November 1941 the 1st Battalion (Reinforced), 87th Mountain Infantry would be activated at Ft. Lewis, Wash.

THE 87th MOUNTAIN INFANTRY IS ACTIVATED

The choice of Ft. Lewis as the site of the first official Mountain Troops in the United States Army was probably due to several contributing factors. It was the only Army post then in existence with the exception of Ft. Ethan Allen, Vt., which was located near the mountains. The unreliable snow conditions on Mt. Mansfield, closest to the latter camp, probably ruled out selection of that post. Two experimental ski patrols from the 3d and 41st Divisions had already been in successful operation from Ft. Lewis during the winter of 1940-41, and a great deal of preliminary ground work on equipment, training, and selection of personnel had been carried out by two officers of the 15th Infantry then stationed at that post. All in all it seemed a logical choice.⁴⁷

Because of the highly specialized nature of the training, it was essential that the proper personnel be picked to form cadres for the new outfit. With the exception of four Regular Army officers, all of whom had had experience in winter climates or with pack animals, the initial cadre was organized from a canvass of men from the 3d Division, the California National Guard, the 41st Division, and from volunteers who had had previous skiing experience in Yosemite and similar ski areas along the West Coast. This group, commanded by Lt. Col. Onslow S. Rolfe, himself a crack horseman, was soon augmented by a steady flow of volunteers and transfers from all parts of the country, but mainly from the New England area. The Mountain Troops soon lost their purely Western makeup and began to assume a definite Yankee character as more reinforcements continued to pour in from the East.

At this point G-1 enlisted the aid of the National Ski Patrol System in procuring and weeding out candidates for service in the Mountain Troops. All red tape was cut and The Adjutant General's Office authorized the NSPS to recruit properly qualified men. It was necessary for every inductee to fill out a questionnaire for approval by the NSPS before the Army would accept him for service with the Mountain Troops. By February 1944, the NSPS had placed over eight thousand qualified men in this highly specialized branch of the service.⁴⁸

Colonel Rolfe, fresh from the faculty of the Artillery School of Ft. Sill, Okla. was soon faced with more than the usual difficulties attendant upon the activation of a new command. Just as the nucleus of his outfit was being organized, Japan struck at Pearl Harbor, and the entire West Coast was put on a constant alert. Ft. Lewis became a deserted camp as the various outfits were pulled out to defend other areas, or sent to the near-by hills for dispersion reasons. Gradually, however, the 1st Battalion (Reinf) of the 87th Mountain Infantry began to take shape. Regular infantry training was conducted by Regular Army officers and noncommissioned

46. Memo of Gen McNair for G-3 WD. 5 Aug 41, sub: Orgn of Mt Div. Ibid.

47. Conversation of Hist Off with Lt Col Paul Lafferty, MTC Staff Off, Jan 44.

48. Statement of Mr C. Minot Dole to Hist Off, 6 Mar 44.



ONSLOW S. ROLFE, BRIG. GEN., USA



MOUNTAIN TROOPS DRILLING IN THE CLEARED AREA IN FRONT OF PARADISE LODGE, WHICH WAS THEIR BARRACKS ON MT. RAINIER FROM FEBRUARY TO JUNE 1942.



THE GLEE CLUB OF THE 1ST BATTALION, 8TH MOUNTAIN INFANTRY, SANG ON SATURDAY NIGHTS FOR SOLDIERS AND CIVILIANS AT PARADISE LODGE. THEY WROTE THE WORDS AND MUSIC OF MANY MOUNTAIN TROOP SONGS. MARCH 1942.



MULES OF THE 87TH AT FORT LEWIS. AUGUST 1942.



COLONEL ROLF LEAVES THE 87TH MOUNTAIN INFANTRY REGIMENT AT FORT LEWIS TO TAKE
COM.MND OF THE MOUNTAIN TRAINING CENTER AT CAMP CARSON, COLO. HIS MEN GIVE
HIM AN IMPRESSIVE FAREWELL. 7 AUGUST 1942.

officers. Colonel Rolfe himself quickly corrected the supposition among the men that they were going to be ski troops, and ski troops only. "We are mountain troops, and skiing will play only a small part," he told his men at their first meeting.⁴⁹ This statement went a long way towards clearing up any idea of an "Army Sun Valley" the men might have had, and was further borne out by the arrival of muleskinners, forest rangers, trappers, prospectors, and all types of men used to living and working in the mountains. And nearly all of them came through the efforts of the National Ski Patrol System.⁵⁰

As the weeks passed in a continual drizzle of rain, it became increasingly obvious that if any ski training was to be done, it would have to be somewhere else beside Ft. Lewis and it would have to be soon. Colonel Rolfe had not been idle, however; through the fall and early winter he had been busy inspecting various sites for a temporary ski camp, including Mt. Baker, Mt. Shuksan, Mt. Hood, and Mt. Rainier. After much negotiation with National Park Service officials, and with the War Department, he finally made arrangements to lease Paradise Lodge and Tatoosh Lodge, two large two-story hotels five thousand feet up on the side of Mt. Rainier.⁵¹ The lease ran from February till June. This was an ideal location because of the nearness to Ft. Lewis--62 miles over paved and ploughed highways. The buildings had a combined military capacity of about four hundred men--enough for almost three rifle companies. Rations and mail were brought up daily from Ft. Lewis by truck, and all meals were cooked by Army personnel in the capacious kitchens of the Lodge. But above all, this lodge was located right in the heart of the best snowfields of the State of Washington, and skiing started from the front door, or rather from the second-story windows, thanks to a 20-foot average snow depth. And the season lasted till June.

On 13 February 1942 the move from Ft. Lewis to Mt. Rainier was made by motor convoy, and shortly thereafter the instruction began. The best men in the outfit had previously been selected and interviewed to determine their fitness to teach military skiing, and a nucleus of about thirty men was designated as the instructional cadre. They came from all parts of the country--from Franconia and North Conway in the East; from Wisconsin in the Midwest; from Yosemite, Sun Valley, and Mt. Hood in the Far West, to mention a few. Their techniques were as varied as their names, and a standard of military skiing had to be developed. A school for instructors was hastily organized by Captain Lafferty, assisted by Peter Gabriel of Franconia and Arnold Fawcus of Yosemite, and a composite type of military skiing was established, which can best be designated as a modified Alberg technique. Cognizance was taken of the fact that most of the skiing was to be done with heavy packs, so that the graceful sweeping turns of civilian skiing were out. Emphasis was placed on safety and endurance rather than upon speed and daring.⁵² After only one all-too-short day of conferences and demonstrations, the various instructors started teaching their several classes. The mountain training phase had begun.

For eight weeks, six days a week, eight hours a day, snow or shine, the troopers learned skiing the military way. All military training was temporarily put aside to leave room and time for this important task. It was rugged training. Some men couldn't take it and were sent back to Ft. Lewis, thence elsewhere. The vast majority survived and even thrived on the intensive training. Their faces grew dark

49. Memo of Col O. S. Rolfe for GNHIS, 12 Dec 47, sub: Rpt on Activities of MTC. 314.7/53 (Study No. 24)(C). Hereinafter referred to as Rolfe memo.

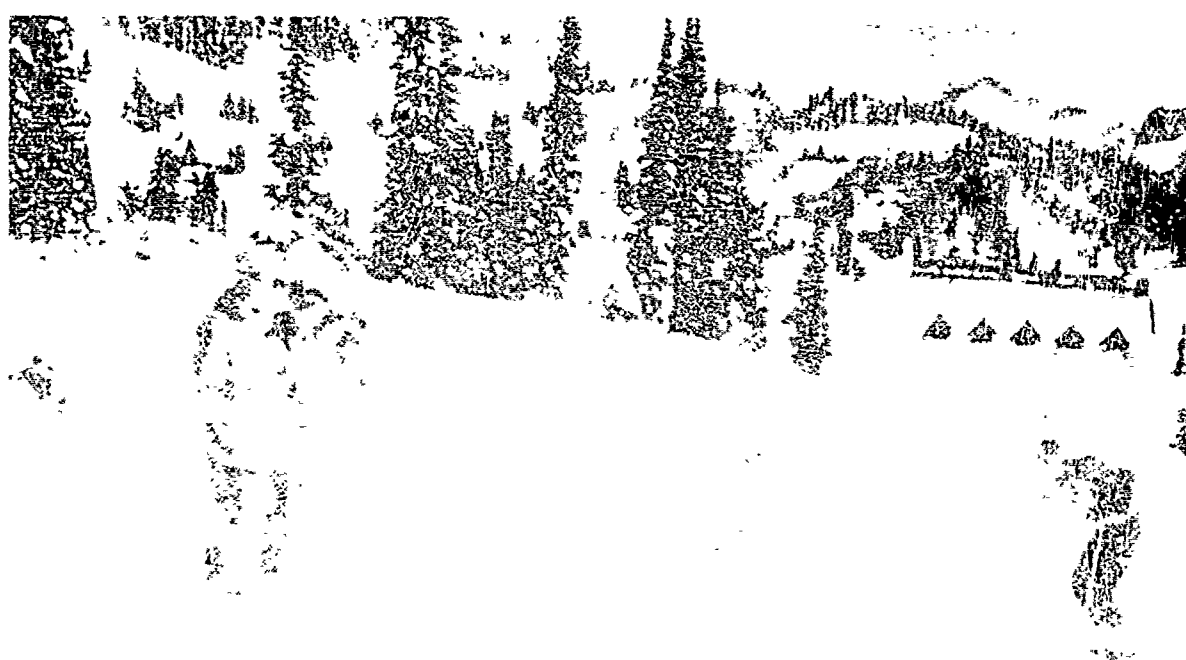
50. American Ski Annual, 1943, p 23.

51. (1) Informal talks of author with Col Rolfe. (2) Rolfe memo 314.7/53 (Study No. 24)(C).

52. American Ski Annual, 1943, p 27.



MOUNTAIN TROOPERS EATING LUNCH IN THE FIELD ON MT. RAINIER



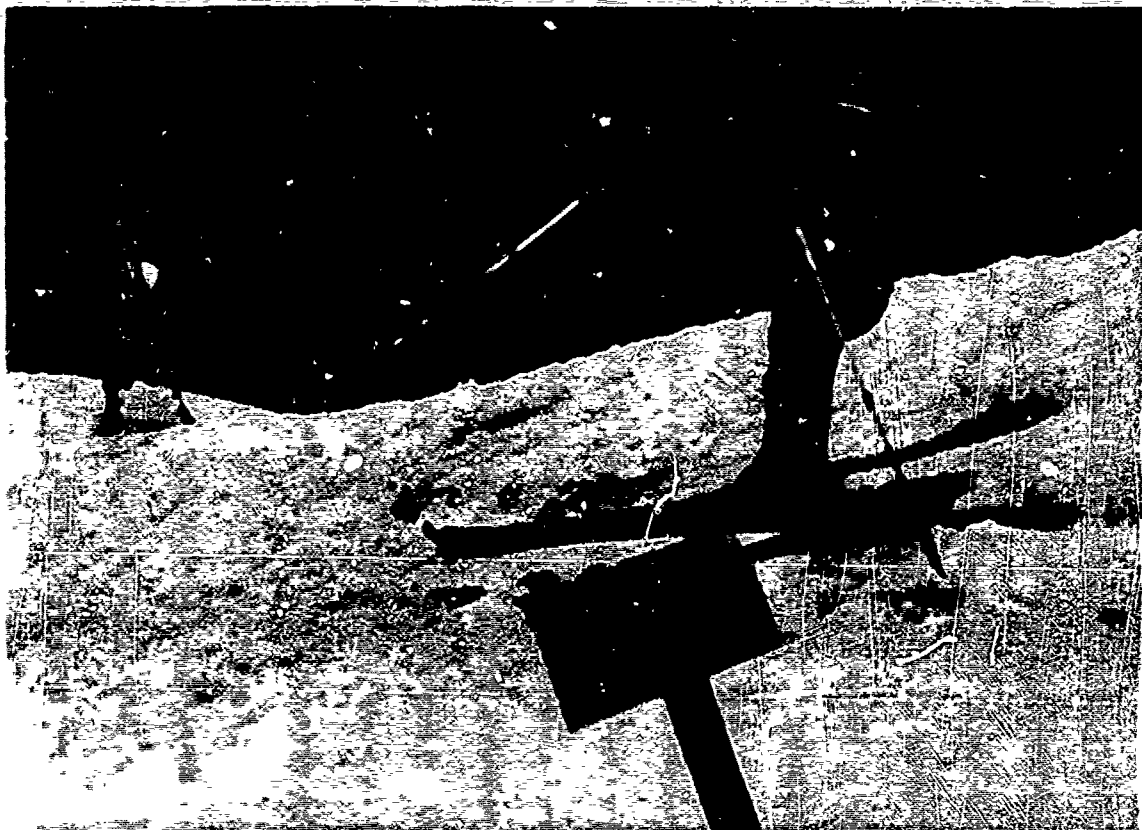
MOUNTAIN TROOPERS EATING LUNCH IN THE FIELD ON MT. RAINIER, WINTER 1942



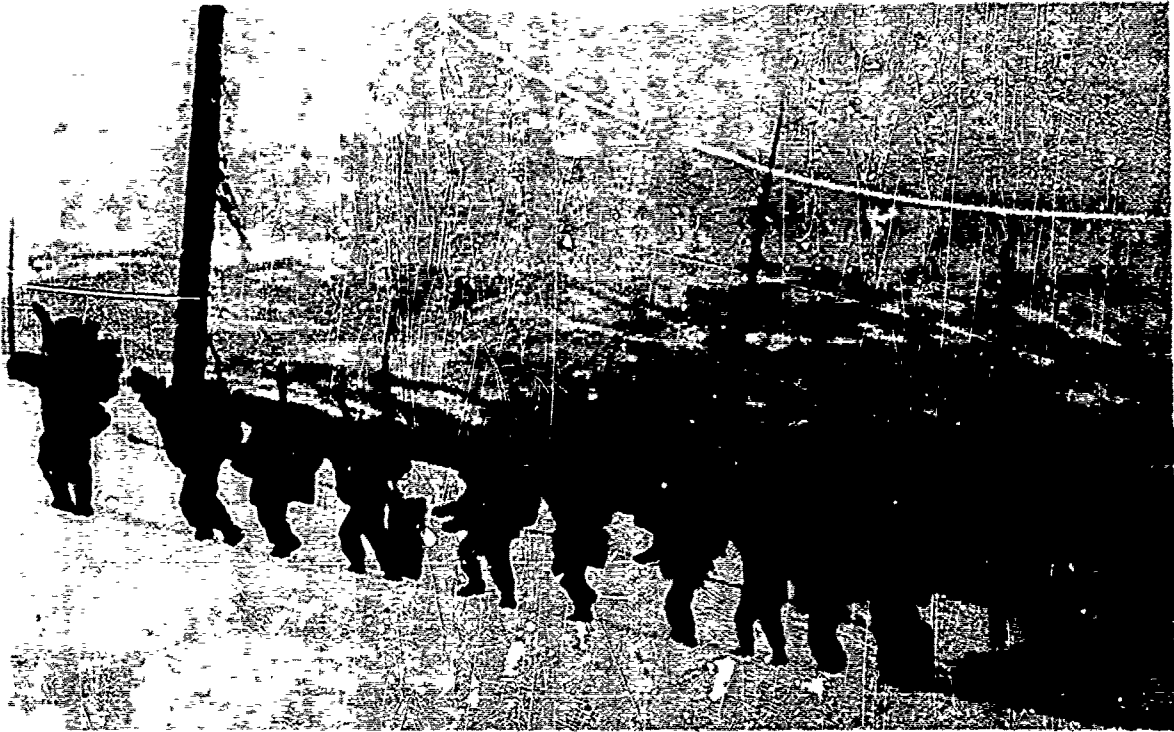
KNEES BENT, SKI TIPS TOGETHER



MOUNTAIN TROOPERS IN SKI CLASS ON MT. RAINIER ARE TAUGHT SNOWPLOW TURN.



TROOPERS GOING THROUGH PHASES OF THE MILITARY SKI
QUALIFICATION COURSE ON MT. RAINIER. March 1942.



MOUNTAIN TROOPS ON OVERNIGHT BIVOUAC, CAMP HALE. WINTER 1943.

and tough as leather, their muscles grew hard, and their reactions quickened. As Lt. Charles McLane pointed out in the 1943 Ski Annual, "there were probably few troops anywhere who were healthier than we at the height of our training."⁵³ Colonel Rolfe, in a letter to Maj. Gen. Mark W. Clark, written 28 April 1942 stated:⁵⁴

I do not believe I have ever seen a better group of physically trained men in my life. For example, we just took a ski march with the battalion, seven miles with a thirty pound rucksack, from Paradise Lodge (5,500 foot elevation) to Sugar Loaf (9,500 feet) then down the Paradise Glacier, and over Mazama Ridge to the Lodge. This was done on the fifth day of a five-day test on the K Rations. Result: No accidents and every man completed the march.

The morale of the men was high; they loved the life on skis, seldom asked for a week-end pass, and formed a glee club which won considerable fame.

At the end of the two-month training period every man was required to run through a military ski qualification course with a pack. This course was two miles in length, uphill, downhill, and along the level. Instructors were stationed at intervals along the course to grade each man as he performed some fundamental technique of skiing at that particular point. The scores were all compiled, the man's total elapsed time averaged in and a final mark was tabulated for each man. The result showed that 75 percent of the troopers qualified as military skiers third class or better on a course that would have given civilian Class B skiers plenty of trouble even without a pack and the rifles carried by the troopers.⁵⁵

In mid-April Companies A and B returned to Ft. Lewis to take over the guard duties of Company D, which had been required to perform guard duty along the sector in the vicinity of Ft. Lewis. Upon the arrival of these two companies, however, the 1st Battalion, 87th Mountain Infantry (Reinf) was relieved of this guard duty, and as a result, the two companies were able to conduct pack training. Company C remained on Mt. Rainier for two weeks of unit training on skis and snowshoes. Company A returned to Mt. Rainier and spent the first two weeks of May in company unit training, and Company C returned to Ft. Lewis. In the last two weeks of May, Company B conducted similar training on Mt. Rainier and Company A returned to Ft. Lewis. The program continued, but on a more intensified scale because of the deteriorating condition of the snow. Since Company D was the heavy weapons company of the battalion, more stress was laid upon snowshoe instruction. Snowshoes had been used but sparingly and with obvious distaste by the men of the preceding classes. Ammunition packs and mortars weighing 70 and 80 pounds were dangerous loads for skiers, and could be carried more safely by the slower-moving but surer-footed snowshoers. Actual tests found it imperative to back-pack the weapons and ammunition instead of hand-pulling on toboggans, which over variable terrain is a man-killing job.⁵⁶

Colonel Rolfe pointed out that "the main thing we learned on Mt. Rainier from February till June was to forget civilian skiing and to concentrate on military skiing. Civilian skiing is nearly all downhill skiing, with no excess weight being

53. Ibid.

54. Personal ltr of Lt Col Onslow S. Rolfe to Maj Gen Mark W. Clark, 28 Apr 42. 314.7/15 (Study No. 24)(C).

55. American Ski Annual, 1943, p 27.

56. MWW Sch and Tng Center ltr to CG, AGF, 10 Mar 47, sub: Comments to Study No 24, "The MTC." 314.7/49 (Study No. 24)(C).

carried. Military skiing teaches the individual to operate not only downhill but across country with a heavy pack and accessories, and to develop proper stamina and form. The colleges are beginning to realize this distinction, as is the National Ski Association, and I believe that military type skiing will occupy a much greater place after the war is over."⁵⁷

One of the greatest handicaps during this period was the National Park regulation which forbade the use of firearms in the park area. Not even blank ammunition was permitted the men for use in maneuvers for fear of disturbing the wildlife, and it was only by special permission that empty rifles were allowed to be carried by the troops. Thus, tactics were immediately relegated to a minor role, and very little was accomplished along that line.

In the late spring the first two rifle companies went through two weeks of scouting, patrolling, camouflage discipline, and the combat principles of squads and platoons, all on skis or snowshoes. The experienced mountain men who had been acting as instructors all winter were now back in the ranks as corporals and privates. The Regular Army officers and noncommissioned officers who had graduated from their eight weeks of snow schooling soon found to their surprise that they had a great deal to learn about the mountains besides controlling two hickory planks on the snow. Their lack of experience caused them to try to run ordinary flatland infantry problems without regard for the specialized nature of the terrain or the weather; twice, it was only good fortune that kept a whole platoon from obliteration by avalanches. As Lieutenant McLane pointed out at the conclusion of his article, "we found it was possible to make skiers in eight weeks, but not skiers who were qualified to fight hard and fast under winter conditions. . . . The spirit can be kindled in a short time, but not matured. . . . A machine gunner, a pilot, a tank man, before he can be effective to a high degree, has to know the possibilities and limitations of his instrument. What handicapped us more than any other one thing was that we were not sure enough of the possibilities and the limitations of ours."⁵⁸ It was becoming evident that mountaineers were not to be made overnight.

Another serious handicap was the indefiniteness of the original mission assigned to the mountain troops. The 1st Battalion (Reinforced), 87th Infantry Mountain Regiment was organized "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." It was further directed that this unit be trained "to function under conditions imposed by cold weather and mountainous terrain in accordance with training doctrine and technique prescribed in Sections VI and VII, Chapter 12, FM 100-5 (FSR Operations 1941) and FM 31-5 (Operations in snow and extreme cold)."⁵⁹ The directive was phrased in these general terms undoubtedly because of the newness of the venture and the fact that at that time the War Department had no concept of where or when these new troops might be called upon to operate. This directive went to the Western Defense Command, thence to the Fourth Army, and finally to the IX Corps, none of which professed to know its precise meaning. Colonel Rolfe repeatedly asked the commanding general and his successor, Maj. Gen. Charles H. White, for advice, but both of them merely told him to proceed as he saw fit, saying that they knew nothing about the development of the mountain troops and did not propose to try to interpret

57. Interview of Hist Off with Brig Gen Rolfe, 71st Inf Div, 7 Jan 44. 314.7/28 (Study No. 24)(C).

58. American Ski Annual, 1943, p 33.

59. WD Directive AG 320.2 (11-10-41) MR-M-C, 15 Nov 41, sub: Constitution of 87th Inf Mt Regiment and Activation of 1st Bn (Reinf). 320.2/33. Copy in AGF Hist file, 314.7/59 (Study No. 24)(C).

his mission. Fourth Army and Western Defense Command were even less helpful. They actually interfered with Colonel Rolfe's task, which was primarily to train his men in the mountains. They were continually having blackouts on the Pacific Coast, and they threatened to absorb Colonel Rolfe's personnel into the defense force for the entire West Coast. They never took much stock in what the 87th was supposed to do, and eventually one of the main reasons for the move to Camp Hale was to break away from the restrictions of the Western Defense Command and be free to train.⁶⁰ "The mission throughout was indefinite," Colonel Rolfe stated. "We never knew whether we were training small units to go overseas (as many of our own units actually did) or whether we were developing a large tactical unit which would go across as a whole."⁶¹

On 30 May the last troops left Paradise Lodge on Mt. Rainier and returned to Ft. Lewis. Plans for expansion were in prospect. Colonel Rolfe had arranged through Colonel Walker in Army Ground Forces to have all his officer candidates at Ft. Benning returned directly to him--breaking a longstanding military tradition but nevertheless utilizing the special training of these men to good advantage. Colonel Rolfe planned to promote the four Regular Army officers under his command to key positions. Maj. Robert L. Cook was to be Regimental Executive; Maj. George E. Fletcher, Commanding Officer of the 1st Battalion; Capt. Avery M. Cochran, the 2d Battalion; and Capt. Richard F. Reidy, the 3d Battalion.⁶² The National Ski Association, at the request of Washington, replaced its old questionnaires with new ones in a concerted drive for "mountaineers, loggers, timbercruisers, prospectors and rugged outdoor men." Apparently the War Department still had the "ski club" prejudice regarding the mountain troops despite the 87th record of achievement on Mt. Rainier, despite, indeed, Colonel Rolfe's blunt assertion to General Clarke:⁶³

We have found that it takes seven weeks to train a man to become a military skier or a mountaineer. 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.

Coupled with this recruiting drive was a War Department directive for transfer to the mountain troops of all suitable men now in the Army. In this way it was planned to continue the flow of basically trained men into the mountain units rather than force the establishment of a replacement training center by Colonel Rolfe at Ft. Lewis.⁶⁴ Actually, newly inducted men did arrive at Ft. Lewis, and it was finally necessary to establish a special replacement training center anyway.⁶⁵

60. Interview of Hist Off with Brig Gen O. S. Rolfe, 7 Jan 44. 314.7/28 (Study No. 24)(C).

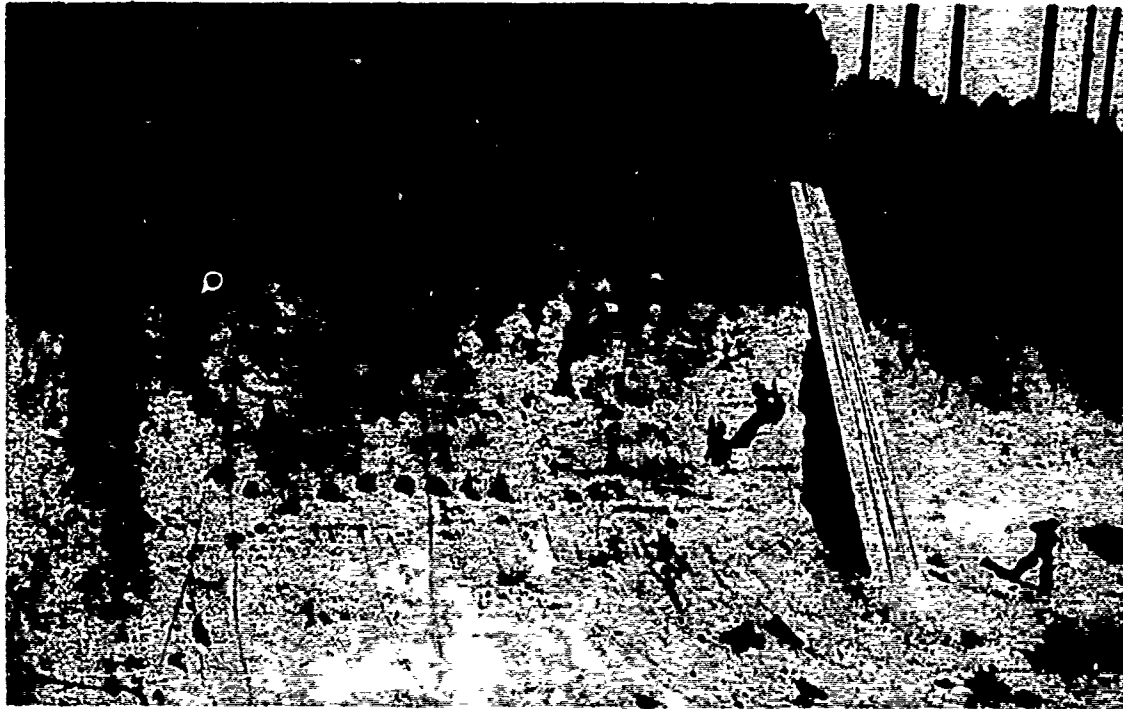
61. Ibid.

62. Pers ltr of Col Rolfe to Col Walker, 26 Apr 42. 314.7/14 (Study No. 24)(C).

63. Pers ltr of Col Rolfe to Maj Gen Mark W. Clark, 28 Apr 43. 314.7/15 (Study No. 24)(C).

64. Pers ltr of Col Walker to Col Rolfe, 4 May 42. 314.7/16 (Study No. 24)(C).

65. Conversation of Hist Off with Capt John Woodward of the MTG Staff in Jan 44.



PRACTICE CLIMBING COURSE HELD IN AN OLD GRAVEL PIT, FORT LEWIS. A WOODEN CLIMBING WALL IS AT THE RIGHT. SUMMER 1942.



LT. COL. ROBERT L. COOK, COMMANDING OFFICER OF THE 86TH MOUNTAIN INFANTRY.



MOUNTAIN TROOPERS USING BELAYING ROPES ON THE CLIMBING WALL. AUGUST 1942.

On 1 June 1942, activation of the 2d and 3d Battalions of the 87th Mountain Infantry was begun. All second lieutenants in the 1st Battalion were promoted; other officers went ahead as soon as possible. Arrangements were made by Colonel Rolfe with G-3, Fourth Army, and the IX Corps to expand to four thousand within the present block at Ft. Lewis. Men and animals went on long conditioning marches; plans were laid to maneuver with the 1st Battalion for tactical training with animals in the Olympic Mountains, using issue shoes until mountain boots were made available, because of the unsuitability of the ski boot for hiking. This plan fell through and was replaced by a two weeks' trip of the Intelligence and Reconnaissance Platoon under Lt. Charles B. Borden, the net results of which proved conclusively that horses are useless, from a military standpoint, in the high mountains. From then on, Colonel Rolfe thought of transport only in terms of mules.⁶⁶ Men were given intensive training in packing, saddling, and general management of these sturdy, sure-footed beasts during the summer of 1942.

Meanwhile the mountain training phase of the mountain troops had all but foundered in the whirling waves of regimental expansion. The Mountain and Winter Warfare Board had practically ceased to exist. Maj. Robert Tillotson was at Lake Louise running the Columbia icefields expedition for Studebaker Corporation to test snow vehicles; Captain Jackman was in Alaska on Mt. McKinley on a joint Army Air Force-Quartermaster test expedition; only Lieutenant Jay was left, and he spent a month in Washington with the Chief Signal Officer and in the Office of the Quartermaster giving verbal reports. No new tests were conducted during the summer; no man of the 87th officially set foot on Mt. Rainier after 28 May 1942.

But the new men recruited by the National Ski Association had to be trained, and the men of the 1st Battalion of the 87th, though veterans in the Mt. Rainier school of military skiing, still had to be instructed in the fundamentals of military mountaineering. It was obviously impossible to move any considerable number of men back to Mt. Rainier without disrupting the basic training of the new recruits. Plans for training small groups of key men as instructors on the mountain were also discouraged by higher headquarters.

In desperation, Captain Woodward ordered the construction of three 30-foot high wooden walls in an old sand and gravel pit near the stables at Ft. Lewis. Hand and footholds were notched in the logs, and the men were taught the use of ropes, pitons, and rappelling--in short, all the general mountaineering technical work that could be demonstrated on these improvised structures. The entire program was under the tutelage of such experts as Sgt. Walter Prager and Cpl. Hal Burton. Colonel Rolfe himself went through the course.

No work could be done on ice climbing, however. In the absence of Colonel Rolfe, Colonel Cook dispatched eight men with Lieutenant Jay as photographer to make a training film on rock and ice climbing on Mt. Rainier to be financed by an appropriation from company funds. This project was finished by 1 September and proved of sufficient value to justify sending other men up to Rainier for organized instruction, a week at a time. This last program was just getting under way when orders came through for the 1st and 2d Battalions of the 87th to move to Hunter Liggett Reservation in California for two months of maneuvers with the 1st Filipino Regiment. There, in the low snowless mountains of the Coast Range, the 87th Mountain Infantry had its first real trial and emerged with flying colors. Official reports of the maneuvers were full of praise for the stamina of the mountain troops and their mules in this ragged, roadless terrain. Two months later the 87th reported to the new Mountain Training Center at Camp Hale, Colo., and there their winter training began immediately.

66. Ibid.

CHAPTER II

ESTABLISHMENT AND EARLY DAYS OF MOUNTAIN TRAINING CENTER

After 7 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--larger than just one regiment, for example. To accomplish this at Ft. Lewis, the birthplace of the Mountain Troops, was obviously impossible, for as Col. Lowell W. Rooks pointed out to General McNair, "Ft. Lewis is not suitable as a station for mountain training. A half day is required for movement to Mt. Rainier, the nearest suitable terrain."¹ Secondly, no adequate housing facilities for the large training force were available on the terrain itself. Lastly, the Western Defense Command seriously interfered with training.

Accordingly, as early as the spring of 1941, before the 1st Battalion of the 87th Mountain Infantry had even been decided upon, Colonels Walker and Hurdie began to investigate various other high mountain areas of the United States. The Yellowstone Park area in Idaho and Montana was thoroughly investigated, and proved quite satisfactory, but utilization was blocked at the last moment by pressure groups from the Wildlife Conservation Committee, which claimed that this area was the breeding ground for the nearly extinct trumpeter swan. Colorado appeared to be the next best terrain, with fifty-two peaks over 14,000 feet within the state.

The Army was looking for certain definite characteristics. The spot selected had to be over 9,000 feet high, possess an area suitable for 20,000 men, be accessible by railroad and highway, have adequate fuel and water, and contain sufficient space for maneuvers and artillery ranges. These requirements soon narrowed down the choice to three areas.

Accordingly, on 7 and 8 March, Colonels Hurdie, Walker, Hunter, and Thomas made an examination of the Aspen-Ashcroft area, the Pando area, and the Wheeler area.²

The Aspen area, it seemed, had sufficient flat ground for a camp site, but it was nearly all privately owned by ranchers. Suitable terrain was too far away, and maneuver space was insufficient. Ashcroft, 13 miles up a valley to the south, provided excellent rugged ski terrain but was too small for a camp, and was accessible only by a Forest Service truck trail. The Wheeler area was even more remote, the nearest railroad being at Leadville, 18 miles away. The Pando area, therefore, with its sheltered valley floor at 9,200 feet elevation, served by both rail and highway, seemed to offer the best solution.³

With this information at hand, the War Department ordered a further investigation of Pando by a board of officers from the VIII Corps Area, Ft. Sam Houston, Tex.⁴ On 13 June 1941 five officers, including the G-3 and headed by Col. James O'Conner from the Fourth Army Engineers, made a trip to Pando.

1. Memo of Col Lowell W. Rooks for Gen McNair, 31 Mar 42, sub: Mountain Troops. 314.7/11 (Study No 24)(C).

2. Memo for record of John V. Leighou, Forest Supervisor, 11 Mar 41. AG 600.1 MTC.

3. Ibid.

4. WD ltr AG 601.1(5-8-41)MC-D to QMG & CGs, etc, 12 May 41, sub: Plans for Increased Housing for the Army--West Yellowstone, Mont area and Pando, Colo area. 314.7/9 (Study No 24)(C).

This board, in addition to making an actual reconnaissance of the ground, interviewed local inhabitants around Pando, including Mr. John V. Leighou of the U. S. Forestry Service. Chamber of Commerce officials in various towns, and officials of various railroads operating in the Arizona-New Mexico-Colorado area were also questioned.

Briefly, this board recommended Pando for the following reasons: It was located in National Forest land, directly on the Eagle River and Rio Grande Railway. According to Mr. Leighou, the Forestry Supervisor, the Pando area received a heavier annual snowfall than any other large area in Colorado; it was the only area of heavy snowfall which contained a cantonment location accessible by highway and railroad. Mr. Leighou stated that the snowfall started the first of October and lasted until the first of June. The valley floor was large enough for a triangular division and formed a natural bowl, sheltered from wintry blasts by 14,000-foot mountains on all sides. The Eagle River and its branches were available for pure water; because of their meandering course, it was proposed to divert these streams at a cost of \$85,000. U. S. Highway 24, an all-winter road, served the camp site and would have to be moved to parallel the railroad for \$157,500, a reallocation which the Highway Department had been planning anyway. Very few railway spurs needed to be built. An 110,000-volt power line was available. No gas was near by, but coal could be had at Newcastle, 90 miles away on the railroad. Several ranges suited to the employment of mountain artillery could also be developed, and large cleared areas were available for ski courses.⁵

The principal disadvantage that the board found was the lack of social outlet for the troops. The closest city was over 150 miles distant by rail. The nearest town, Leadville, was eighteen miles away and definitely not suitable as a recreational center for military personnel. To solve this, the board suggested that pressure be brought to bear on local civil authorities to clean up the town of Leadville, and that special furlough trains be run by the railroad to Denver and Colorado Springs, 150 miles away. Hunting and fishing would also provide recreational outlets.

The housing of noncommissioned officers' families presented another problem. The board recommended that a housing project for the noncommissioned officers be included in the plans for the cantonment construction, to be built in the valley of Homestake Creek, where the area was level, close to the water and power supply, and but a short distance from the railroad. "It is believed that a housing project in this location would add materially to the morale of the command," the board concluded. "If it is proposed to have this cantonment established by the spring of 1942, construction should begin, if practicable, about 1 July 1941."⁶

Pando seemed to be the top choice for a high mountain camp. The only dissenting vote was cast by the Engineers. After analyzing the reports of the VIII Corps Board, General Brehon B. Somervell submitted a memorandum for the Assistant Chief of Staff, G-4, stating that on the basis of the information submitted, "the Pando, Colorado site is found NOT well-suited from an engineering and construction viewpoint for a cantonment of thirty thousand men embracing a Triangular Division." He admitted it might be suitable for a camp of 15,000 men. The report went on to state that "while land costs are extremely low, in all other aspects this site appears to be unsatisfactory. The water supply is uncertain and the sewage disposal may cause difficulties. The cantonment is small and hemmed in on all sides so that there is no room

5. VIII Corps Area ltr (AG 601.1) to CG VIII Corps Area, 23 Jun 41, sub: Rpt of Investigation by Bd of Offs, VIII Corps Area, of Proposed Camp Site in Pando, Colo, Area. AG 600.1(MFC).

6. Ibid.

for expansion. Access to the training area is limited . . . and construction costs will be higher for northern climates." Furthermore, Col. E. V. Dunstan, Constructing Quartermaster of the Eighth Construction Zone wrote to the Quartermaster General on 12 June 1941 that "this office is not responsible for the selection of this site (Pando) for a camp."

On 6-9 February Colonel Rolfe, Commanding Officer of the 1st Battalion (Reinf) of the 87th Mountain Infantry, made the trip over the same areas for a closer examination. His findings were substantially the same as those of the VIII Corps Board.

As it did to others, Pando seemed the solution to Colonel Rolfe. At the time of his inspection on 6 February he found two feet of snow on the level. Mountain terrain was available on three sides--the Gore Range on the east, a ridge cut by basins on the west, and Mitchell Creek, leading up to Homestake Peak on the south. An artillery range was available up Homestake Gulch to the north for seven miles, served by a road. (This was the area recommended as a housing site by the VIII Corps Area board.) Colonel Rolfe recommended that the Pando-Wheeler area be combined into one, with the Wheeler area as a bivouac site for field maneuvers. He recommended that BK-74 or BK-63 type barracks with minus-20-degree insulation be used, because, as he wisely pointed out, not all the men coming into the mountain troops would be the seasoned veterans of Mt. Rainier and would have to be acclimated gradually. Furthermore, the isolation of the camp and the lack of social outlets made it imperative to house men as comfortably as possible. He further suggested that a sports area and a special indoor arena be built for the use of the troops as a recreational center.

For the pack animals, Colonel Rolfe recommended that the S-9 type stable be used, with sliding doors to accustom the animals gradually to the severe weather. Civilian livestock, he pointed out, were permitted to graze outdoors under all climatic conditions, but they had been reared in this particular climate and were hardened to the rigors of a Colorado winter. In these stables a ten-foot aisle with a hard surface floor was stipulated so that the buildings could be used interchangeably to house either motor vehicles or animals, if necessary. In addition, a supply room, SH-9 (100 by 25 feet) was recommended for each infantry regiment for the storage and maintenance of the additional winter equipment necessary for operations in high, cold climates.⁷

Colonel Rolfe's report was accepted practically in toto, and the wheels began to turn. Pando was officially selected as the home site of the future mountain troops. On paper it looked ideal. The real work, however, had just begun.

On 31 March 1942, Colonel Rooks, in response to a request from General McNair, reported on the status of the mountain troops. At Ft. Lewis there was the 1st Battalion of the 87th Mountain Infantry, one battalion of 75mm pack artillery (How) and the Mountain and Winter Warfare Board (four officers and a recorder). At Ft. Bragg there was another battalion of pack artillery, with a new one to be activated in April 1942. Also, at the same camp in July the 89th Division was scheduled for activation as a normal triangular infantry division. The 100th Mountain Division, originally scheduled for activation as a normal unit in Lewistown, Ill., was to be activated at Pando in November 1942.

The problem presented was whether our mountain troops should be produced by a training center system like the Desert Training Center, or in a special command system, like the Airborne Command, Colonel Rooks continued. The former, i.e., rotation of normal type units through an establishment for special training, should be used wherever possible. It was applicable when the special training could be

7. Rolfe memo. 314.7/53 (Study No 24)(C).

conducted with little or no change in organization, except the addition of necessary special clothing and equipment. Specifically, it was applicable to desert training, amphibious training, and to winter warfare training except in high mountains.

Colonel Rooks stated further that while our own experience was still too limited, that of foreign powers had proved conclusively the need for mountain troops for the following reasons:

1. For each five thousand feet gained in elevation, men and animals must be acclimated, a process involving several months.
2. Mountain operations are carried out in terrain devoid of road-net, depending upon manpower, pack animals, and airplanes for supply.
3. Because of the change of seasons in the mountains, highly trained specialists for summer rock-climbing and winter snow travel are vital.

Colonel Rooks concluded by recommending that the 87th Infantry and the Mountain and Winter Warfare Board be moved to Pando as soon as possible, later to be redesignated and incorporated into the 100th Division. Three of the four pack artillery battalions should be moved to the Camp Carson-Pando area. The commander of the mountain division should be designated as soon as possible, to take charge of the mountain command thus created. The 89th Division, after completion of its normal training, was to operate in low mountainous terrain, and was to be further trained in conjunction with the troops at Pando. Operating thus in low mountain terrain, it would have available some roadnets, while specially organized mountain troops, like the 87th, were to operate in the more rugged, adjacent districts.⁸

A week passed while General McNair conferred with General Marshall. It seemed to these officers that to activate a division in December in the heart of the Rockies, and start basic training with raw recruits at that altitude and season was not a wise move. On 8 April General McNair submitted a memorandum to General Marshall with the following suggestions: First, it was inadvisable to activate a new division at Pando in December 1942 for the reasons given above. It was suggested that the 89th Division be designated as the special type mountain division and activated as such at Camp Carson in July 1942 with specially selected personnel. Then upon completion of Pando in November 1942, the 89th would move up to that site, and the 100th Division (normal type, triangular) would be activated at Camp Carson.⁹

The 87th Mountain Infantry, under this plan, was to expand at once at Ft. Lewis to an overstrength regiment of four thousand men. Personnel for this expansion would be secured by direct recruiting, and MFP training would be completed before moving to Camp Carson. The four present and prospective pack artillery battalions would be used for the 89th Mountain Artillery. The 4th Cavalry, then at Ft. Meade, S.D., would be constituted as the cavalry troop and moved to Camp Hale in the fall. The present cadres of infantry and artillery would be diverted to other uses, but the signal, engineer, quartermaster, medical, and ordnance cadres would be used as set up. Most important of all, from the long-range point of view, a chart of organization for a mountain division was approved for planning purposes.¹⁰ Detailed tables of organization for infantry, artillery, etc., were being worked out, but a definite basis for construction at Pando was needed by 12 April, when representatives of the Army Ground Forces had to meet the Engineers at Pando itself for final

8. Memo of Col Rooks, Tng Div, AGF, for Gen McNair, 31 Mar 42. 314.7/11 (Study No 24)(C).

9. Memo of Gen McNair for CofS USA, 8 Apr 42, sub: Mountain Troops. 353/17 (Mt Warfare). Copy in 314.7/12 (Study No 24)(C).

10. Ibid.

agreement on the layout. Therefore, it was concluded that the present "flatland" tables of organization must be used. "Flexibility in construction will permit later changes."¹¹ Time was running out, and the fate of the mountain troops seemed to be hanging in the balance. All seemed ready to go, but at the eleventh hour another obstacle appeared.

On 9 April Brig. Gen. H. R. Bull, Assistant Chief of Staff, suggested a different approach to the problem of activating The Mountain Division at Pando.¹² General Bull stated that it was very doubtful if suitable equipment for use by this division could be procured, inasmuch as provision for it had not been made in the fiscal program of 1942, and no one had yet determined suitable types of transport and other equipment. Thus, without equipment or transportation available for thorough test, it seemed unwise to activate a complete division and station it at Pando during the winter months. Nevertheless, he agreed that speed was the essential factor. Therefore, the following plan was suggested: to activate the 89th Division in July at Camp Carson as a normal triangular division, and to construct the camp at Pando at the earliest possible date for a mountain division, in general, according to the present table of organization. Then, in November 1942, to establish an experimental mountain unit at Pando, using as a nucleus the 87th Mountain Infantry, a reconnaissance troop from the 4th Cavalry, and detachments of other arms and services, including pack artillery. The Commanding General of the 89th Division would be charged with the supervision of the training of this experimental force and the development of his own division for eventual conversion to a mountain division when equipment and transportation problems had been solved by tests. Camp Carson was to be the housing base for all future pack artillery in view of the limitations of the area at Pando. This changed the construction figures at Pando from 20,000 to 15,000. Under this plan, the activation of the mountain division was postponed till spring 1943, "but a great deal of preliminary training and experimentation would be accomplished and the camp completed so that the Division would complete its organization and initiate mountain training early in 1943."¹³ The idea was thereby dropped of making the 100th Division a mountain unit, and it was listed for activation elsewhere as a normal unit. The Pando Division was to come from the 1943 Troop Basis. The increase necessary for the expansion of the 87th and the additional Cavalry Troop was authorized outside the 1942 Troop Basis.

This plan seemed a good one to General McNair and was subsequently approved with certain changes, as outlined in a memorandum put out by General Clark on 20 April 1942.¹⁴ The 89th Division was to be activated at Camp Carson as planned, and then to receive further training in mountain terrain. Construction of a high mountain camp at Pando was to begin at once for 15,000 men for completion in November or December, with maximum flexibility; i.e., the shelters would be suitable for either motors or animals, as suggested in Colonel Rolfe's report of 9 February 1942. Thus the War Department was leaving room for changes that might have to be made as a result of tests conducted in the winter. A test force only was to occupy Pando during the winter, from which a Mountain Division would be activated in the spring of 1943. It was contemplated that pack artillery and selected units from the 89th Division would be sent to Pando during the winter for test of training and equipment. The 87th Mountain Infantry was to be expanded to a regiment at Ft. Lewis and to be filled

11. Ibid.

12. Memo of Gen H. R. Bull (WDGCT 320.2 Mt Div(3-27-42) for CG AGF, 9 Apr -, sub: Mt Troops. Ibid.

13. Ibid.

14. Info memo (R) of Gen Mark Clark, 20 Apr 42, sub: Mtn Trps. 320.2/1 (Mtn Tr)(R).



CAMP HALE, COLO., 9,500 FEET ABOVE SEA LEVEL.
A PALL OF SMOKE HUNG LOW OVER THE FLAT VALLEY
DURING THE WINTER MONTHS.



THE COOPER HILL SKI AREA



THE COOPER HILL SKI LIFT, 7,000 FEET LONG, AT AN ALTITUDE OF 11,000 FEET.

by direct recruiting of specially qualified personnel, the details of which were being worked out with the Adjutant General. Basic training was to be completed at Ft. Lewis and then the regiment, including the Mountain and Winter Warfare Board, would move to Pando. Plans for the four pack artillery battalions and the 4th Cavalry remained unchanged. There was enough special individual warm clothing and unit equipment on hand for mountain work in quantities large enough to meet the needs of a test force at Pando and of the 89th Division for the winter 1942-43. Organic snow motor vehicles were still in the first stages of development and test. In conclusion, the Commanding General, 89th Division, was to be charged with the responsibility of pushing the development and test of organization and equipment for mountain training operations.

On 21 April, the day after this memorandum had come out, Colonel Walker wrote Colonel Rolfe inclosing a copy of the memorandum, and explaining the details of the recruiting for expansion of the 87th Mountain Infantry. The plan was to comb the mountain regions (through the facilities of the National Ski Patrol System) for specially qualified personnel, which would be sent directly to Ft. Lewis from reception centers. Thus it would become necessary for Colonel Rolfe to conduct basic training, by echelon, as the personnel trickled in, the hard way from the training viewpoint, but worth it in view of the fine men to be secured quickly. The expansion to a regiment was to be made under a special table of organization for a mountain regiment which was then being processed. Colonel Walker concluded by stating that "it is highly desirable that you continue such training and test of equipment under summer conditions on Mt. Rainier as is possible with the elements of your command not needed to conduct basic training, or by rotating personnel."¹⁵ This last was never carried out under Colonel Rolfe, as explained earlier.

In acknowledging the receipt of the information memorandum, Colonel Rolfe expressed to Colonel Walker his apprehensions for the development of plans for the Mountain Troops.¹⁶

I can't quite understand the picture the 89th Division is to play in the game. Judging from Time Magazine, Clark believes a regular line triangular division can become a mountain division. It can, in part, provided they just give it heavy clothing and do not expect any special work such as moving on skis, snowshoes, or mountain climbing. This is special work and requires special training (ultraspecialized).

This uncertainty prevailed despite the fact that Capt. John L. Tappin from Colonel Walker's office had been out to visit the 87th on Mt. Rainier just a few days before. Throughout the growth of the mountain troops there was all too ample evidence of the lack of proper liaison between the men who were doing the planning and those who were in the field actually carrying out the work on the ground, or in the snow, as the case might be. Especially was this noticeable in the case of the Mountain and Winter Warfare Board on which a more detailed discussion will be found in a subsequent chapter.

At any rate, by May 1942 the preliminary tooling had been set up for the production of mountain troopers in large numbers, and it only remained to expand the 87th Mountain Infantry and wait for Pando to be completed. All during the summer months of 1942 Colonel Rolfe, now a full colonel, struggled with the numerous problems attendant on expanding his unit to a regiment. The job of selecting sites for the

15. Personal ltr of Col Walker to Col Rolfe, 21 Apr 42. 314.7/14 (Study No 24) (C).

16. (1) Personal ltr of Col Onslow S. Rolfe to Col Nelson M. Walker, 26 Apr 42. Ibid. (2) Rolfe memo. 314.7/53 (Study No 24)(C).

ski areas at Pando was given to an officer operating out of the Special Projects Branch, G-3, Army Ground Forces. Although all the investigating boards had stated the suitable ski areas abounded near the camp site, a check with the local Forest Service Ranger disclosed that only slopes with a northern exposure would have sufficient snow cover for skiing. This eliminated all the sagebrush slopes and left only those with a cover of spruce. The site chosen for the 7,000-foot ski lift was Cooper Hill on the Continental Divide, about four miles from Pando. It had good snow cover and consisted of both open slopes and timbered areas. As laid out, it had a beginners' slope, an intermediate slope, and an expert trail. The ski lift itself was built by Constam, noted Swiss engineer, with a potential capacity of about five hundred skiers an hour, using the T-bar system. Special one-story barracks to house about five hundred men were constructed here, plus a storage tank for water. It was planned to have the more advanced classes come here for several weeks of tactical ski training at a time. The facility was used more often, however, for regular downhill instruction.¹⁷

During the "tooling up" period in the summer of 1942, the National Ski Patrol System was as busy as ever. Colonel Walker had failed to get his plan of direct recruiting approved by higher headquarters, so Mr. Dole was asked to get out a new questionnaire, specifically stating that skiing experience was not necessary, and beamed towards a group of bona fide mountaineers rather than skiers. Actually, the number of skilled mountaineers in the United States could be counted in two figures, but Dole and his men did an excellent job, and produced beyond expectations. These men first took their basic training at replacement training centers, thus somewhat easing Colonel Rolfe's training problem. Coupled with this was a call for transfer through channels to the War Department. Priority was given to men in other branches of the service who possessed the necessary qualifications for the mountain troops. First gradually, then with a rush, the 87th Mountain Infantry filled up.

Plans for the new mountain division had meanwhile bogged down for a variety of reasons, chief of which was lack of specialized equipment. On 24 July 1942, Brig. Gen. F. L. Parks, Chief of Staff, AGF, stated the following in a memorandum to General Marshall:¹⁸

Memo WDGCT 320.2 Mt. Div. (3-27-42)WD G-3, April 9, 1942, Subject: Mountain Troops, does not provide for activation of all types of units

17. See notes made by Lt Col A. M. Cochran, G-3 AGF, formerly G-3 MTC, accompanying AGF M/S, GNGCT-22 to GNEIS, 19 Feb 48, sub: Revised Text, AGF Study No 24, WWII Series. 314.7/55 (Study No 24)(C).

In the opinion of one observer, the Cooper Hill site was badly chosen, "entirely elementary, good for instruction of novices only. . . . The engine driving this lift was second-hand, 12 years old, of insufficient horsepower. Results: long, slow ride resulting in chilling; loading held down to about 1/3 of estimated capacity." See memo (C) of Maj John L. Tappin, Special Projects Div, G-3, for CofS AGF, 17 Feb 43, sub: Oban during Visit to the MTC, Co Hale Colo, 4-12 Feb 43. 353.02. Copy in 314.7/53 (Study No 24)(C). In requesting funds, however, for the continued operation of the facility, the Commandant of the Mountain and Winter Warfare School and Training Center commented on its usefulness: "It is imperative that the school be afforded the use of this tow during our oversnow training period. The tow is not only essential for basic ski training but is located in an area which is ideal for Alpine Training and Maneuvers." See MWWTC ltr to CG, R&SC, 26 Jun 46, sub: Contract for Civilian Services and Equipment. GAG 480/200, Bndr 1 (1946). Copy in 314.7/36 (Study No 24)(C).

18. AGF Memo 320.2/267(7-22-42)GNGPS, for CofS USA (Attn ACofS G-3 WD), 24 Jul 42, sub: Modification of Troop Basis, 1942. 320.2.

which will be included in the mountain division. This condition will preclude effective test of organization, equipment, and tactics during the winter of 1943.

The Commanding General of the 89th Division has the dual mission of training a new triangular division and supervising the experimental development of mountain troops. The future status of the 89th Division is definite. The situation can be relieved by the measures recommended below. The proposed plan will facilitate the activation of a complete mountain division in early 1943.

Recommended: That changes be made in the 1942 Troop Basis to delete the 97th Division now scheduled for activation in December 1942. To fill up the 30th, 31st, 33d, and 38th Divisions with the men thus rendered excess, and to organize a Mountain Training Center at Camp Carson, Colorado, with 132 officers and 2,105 men.

This was the first time that such an organization as a Mountain Training Center had been mentioned in official correspondence, and it seemed a logical solution to the problem of collecting in one unit all the skilled personnel necessary to form a mountain division, previous to its activation. Similar training centers had been set up for the desert and amphibious troops. But the mountain troop question still puzzled certain high ranking Army officers. On 24 August 1942 Brig. Gen. I. H. Edwards, Assistant Chief of Staff, G-3, WDGS, wrote a memorandum to General McNair which expressed this uncertainty:¹⁹

The War Department is much concerned with the matter of training for mountain warfare. Our present program has been subject to delays and interruption with the result that we are not prepared to furnish promptly any troops trained for mountain operations.

In view of possible demand for mountain trained troops in the near future, recommendations are requested. . . . What place or places would be available and suitable for intensive mountain training in the near future, and would it be practicable to rotate units the size of a Regimental Combat Team in order to make use of existing special equipment? What should be substituted for Pack Artillery? Would transfer of personnel accustomed to mountains and cold weather conditions from existing units aid rapid training?

General McNair replied on 14 September 1942 that a Mountain Training Center had been set up at Camp Carson, Colo., on 3 September. The troops there were to be specially qualified for high-altitude mountain and snow operations, including many ski and mountain experts, whose value would be lost if used in tropical operations. The number of light divisions was limited by the availability of special clothing and equipment. It was most desirable to transfer skiers and mountaineers into this Mountain Training Center.

He concluded by recommending that "no action be taken to initiate specialized mountain and jungle organization and training unless strategic plans for employment of our troops show a positive need for such troops."²⁰

19. WD memo (WDGCT 353) for CG AGF (Attn Tng Div), 24 Aug 42, sub: Tng for Mt Warfare. 353(Mtn and Jungle Tng).

20. AGF memo 353/99(6-24-42)GNGCT, for CofS USA (Attn G-3), 14 Sep 42, sub: Tng for Mt and Jungle Warfare. Ibid.

So, on 7 August 1942, Colonel Rolfe received orders to report at once to Camp Carson, Colo., to activate and take command of the Mountain Training Center.²¹ His men gave him an impressive military farewell--he was honestly admired and respected by all of them, especially those in the 1st Battalion, veterans with him of the days of test and trial on Mt. Rainier. At Camp Carson, itself a new post whose ultimate destiny was still uncertain, Colonel Rolfe gathered around him the nucleus of a staff. For G-1 he chose Maj. Charles A. Peterson; G-2, Major Lafferty who had been with the mountain troops from the 15th Infantry days; G-3, Major Cochran; and G-4, Lt. Col. Robert Tillotson, who had been the Quartermaster representative on the Mountain and Winter Warfare Board. Lt. Col. Gordon E. Dawson was made Adjutant. Colonel Thomas from the Infantry School became Executive Officer for General Rolfe, recently promoted to the rank of Brigadier General.

Pando was progressing on schedule, despite labor trouble and excessive costs due to the high altitude and isolated working conditions--preview of the troubles that were to afflict the troops stationed there. But General Rolfe had been called to Camp Carson in August in order to have the "test force" all set up and ready to move in when the last carpenter had moved out. Slowly the pattern began to form. Pack artillery started to roll into Camp Carson on 16 October, complete with mules and muleskinners: the 98th, 99th, 601st, and 602d Field Artillery, under command of Col. David L. Ruffner. On 9 September the 110th Signal Company was activated, as were the 10th Medical Battalion and the 10th Quartermaster Battalion. Other outfits came in rapid succession: 126th Engineer Battalion, 4 September; 123d Ordnance Company, 15 September; Military Police Platoon, 14 September; the Antitank-Antiaircraft Company, 17 September; and Headquarters Company, Mountain Training Center, 17 September. The Mountain and Winter Warfare Board arrived on 2 October.²²

For six weeks, until mid-November, Colonel Rolfe drilled and trained his new command with but one aim in mind: to get them acclimated to higher altitudes. Camp Carson is located on a level plain fringing the Rockies at an elevation of about 6,000 feet. Daily the troops of his command, from staff officers to privates, would run a mile at a good clip to strengthen their lungs for the thinner air yet to come, up at Pando, where carpenters were already demanding double wages because of the effect of altitude on their systems. Daily the long pack trains of the mule artillery wound their slow-footed, plodding way up the canyons adjacent to camp, while the muleskinners walked carrying heavy rucksacks. Colonel Ruffner also experimented with carrying his 75's in jeeps with good success. Nightly the men and officers crowded the lecture halls to hear talks and see demonstrations on mountaineering, camping in snow, and on life in general in the high mountains. Calisthenics prescribed in FM 21-20 gave way to ski exercises specially designed to build up muscles used in skiing and mountain climbing. The Mountain Training Center, such of it as was at Camp Carson, was going to be ready.

And on 16 November Pando was ready--or ready enough. In a combination rail, truck, and private car convoy, the entire Mountain Training Center left Camp Carson and proceeded across the Continental Divide to Camp Hale, as Pando was now called, 158 miles away by road and 9,500 feet above sea level.²³

Survivors of the original Mountain Training Center will long remember that first winter at Camp Hale. All the many problems connected with moving into a nearly completed post were multiplied tenfold by climate and location. A light snow had fallen

21. WD ltr (R) to CO MTC, 26 Aug 42, sub: Mtn Trng Center. 320.2/6 (Mtn)(R).

22. History of MTC, compiled by G-2 Sec, MTC, June 1943. 314.7/37 (Study No 24)(C).

23. MTC Special Orders (SO) 56, Cp Carson, Colo, 10 Nov 43.

previous to the troops' arrival, hiding the trash, debris, and mud of a summer's work, but it turned the streets into a quagmire of slush, which concealed the nails that soon began to puncture G.I. tires. No theaters were completed, nor clubs for men or officers; there was no entertainment on the post whatsoever, and furthermore there was none off it, as Leadville was immediately placed off limits for military personnel by Colonel Rolfe. Week ends were restricted to twice a month, because of the transportation problem; at other times no one was allowed to leave the post for any but emergency reasons. The camp had no facilities for laundry and cleaning, no gasoline, restaurants, or even a guest house for officers' ladies. The much-talked-of housing project for noncommissioned officers' families, so strongly recommended by one of the boards, failed to materialize; the nearest sanctioned place was Glenwood Springs, seventy-two miles away, and the commissioned officers' families soon filled that up. Camp Hale became known as "Camp Hell" during the first grim weeks of occupation.

Then, little by little, things began to improve. The snowfall grew heavy enough for skiing, and regular training began, plus recreational skiing on Sundays. The 4th Cavalry arrived from Ft. Meade, S.D., and began finding out the difficulties of using horses in deep snow. On 26 November 1942 the 1st Battalion of the 86th Infantry was activated under command of Colonel Cook, former executive officer of the 87th. Hand-picked men from the ranks of the National Ski Association began to flow into its ranks--high school stars, college men, all young men of far-above-average abilities. Quickly an *esprit de corps* grew up in the 86th, much as had grown the year before in the 87th, from which the cadres had been drawn. As his executive officer Colonel Cook chose Maj. Henry J. Hampton, just back from Command and General Staff School, and a veteran of the 87th on Mt. Rainier. Both men learned their skiing the hard way, but they went through the course like any other men in the outfit, and soon were able to lead their men down any slope. What was more important, from actual experience, and some of it sad, they came to understand the skier's point of view and incorporated it into their training. Their men appreciated this, and their morale shot skyward. The 86th rapidly assumed the reputation of a "crack outfit."²⁴

On 5 December 1942, Colonel Rolfe was promoted to the rank of brigadier general. On 26 December 1942, the advance guard of the 1st and 2d Battalions of the 87th pulled into Camp Hale, just off the Hunter Liggett maneuvers, where they had acquitted themselves very creditably indeed, impressing numerous high-ranking observers with their uniform ability, officers and men alike, to carry heavy packs and negotiate rugged terrain for days on end without a complaint.²⁵ The long weeks of training on Mt. Rainier had paid dividends, though not exactly as had been expected. Practically all the expert skiers were immediately drafted for instructional purposes, and a ski school was set up consisting of over three hundred men and officers. The problem that General Rolfe had faced on Rainier of having to teach commissioned officers with noncommissioned instructors or even privates was automatically solved at Camp Hale. Many of the old 87th men had gone to Officer Candidate School and had been returned to the Mountain Training Center, at General Rolfe's request, as second lieutenants. These officers were now available for instructing officer classes, and others were put as supervisors in charge of noncommissioned officers. Cooper Hill and the four practice slopes with their rope tows soon were running eight hours a day, six days a week. Military ski qualification courses based on the previous year's findings were set up, and the result was entered on the man's service record.

24. Conversation of Hist Off with Lt Col John Hay of the 86th Inf, Jan 44.

25. WD ltr AG 353/77(Mtn)GNGCT to CG MTC, Cp Hale, Colo, 13 Jan 43, sub: Observation of Tests and Fld Exercises of Units of the MTC at Hunter-Liggett Military Reservation, Dec 1-18, incl. MTC 354.2.



DAVID L. RUFFNER, COL., USA



THE "JEEP ARTILLERY." PART OF A 75MM PACK HOWITZER LOADED INTO A JEEP, SUCCESSFULLY USED AT CAMP CARSON, SEPTEMBER 1942.



ONE OF THE MULES OF THE 10TH MOUNTAIN INFANTRY
BEING LOADED IN THE MOUNTAINS.



Thus did the Mountain Training Center get its start, among the snowdrifts and unfinished buildings of Pando. The problems were annoying but not insurmountable. One of the toughest was that of giving basic training to new men two miles above sea level in a Colorado winter. The dirt-floored, concrete-walled training halls, one to a battalion, included a 50-foot .22-caliber range for marksmanship training during winter weather.²⁶ These proved a great help, but there was no substitute for firing on the range, where driving snow numbed the hands and face, and practically obliterated the target. Time after time General Rolfe begged Army Ground Forces not to send him raw recruits, but there was no satisfactory way to stop them, and the men kept coming direct from induction centers.²⁷ This meant postponing their mountain training three months or else combining it with their basic training, neither of which was a good solution. Furthermore, the basic training had to be conducted in echelons, as the men trickled in. But it was done, and done well, as the records of the 86th later proved.

In January 1943 Colonel Cook left the 86th Infantry for duty in North Africa as mountain adviser, and Major Hampton assumed command. In May 1943 the 1st Battalion was expanded into an infantry regiment, with Colonel Thomas, formerly chief of staff of the Mountain Training Center in command.²⁸ Colonel Thomas took over the regiment in April 1943, leaving his post as chief of staff.

Other minor problems in connection with the new camp included the pall of soot which hung over the flat valley during the winter months. Belched into the still, subzero night air from a half thousand smokestacks, sheltered from the wind by high mountains on all sides, this chocolate smudge hung low over camp day and night, scattering soot particles on everything, and coating the men's lungs with its grit. Troopers began developing a rasping cough that had already been known among the constructors as the "Pando hack," a cough that shook the whole frame and left the trooper weak and water-eyed. Soldiers called it "Pando-monia." Added to this was the very thin air, necessitating heavier breathing than usual, plus the extreme dryness of what little air there was. A nasty sore throat condition soon developed that had the medical staff working overtime. Sick call was long, those first few months; but men gradually became accustomed to the conditions. It was discouraging, however, to watch the layers of soot darkening the snow, as train after train of heavy freight chugged its way through the camp, pulled and pushed by three giant, smoky locomotives. For Pando had one of the steepest grades in the country--4 percent--and no less than three huge engines were needed to boost the trains over the Continental Divide into Leadville.

The need for social outlet, as previously predicted by the VIII Corps Beard, soon loomed large on the trouble chart. Officers and men alike grumbled at the less restrictions; no one could leave the post during weekday evenings. Clubs and recreation centers were slow in building, and when completed they failed to offer much diversion. Many minor fixtures went unfinished or unrepaired for months at a time, despite repeated requests from the Mountain Training Center. Travelling radio and stage shows shunned Camp Hale, fearful of its high altitude. A request by the Mountain Training Center for their own Special Service officer was refused by Army Ground Forces.²⁹ Men were disappointed at not being allowed to wear any of their distinctive mountain clothing when on pass. Nevertheless, Camp Hale was established, and the mountain troops were on their way.

26. Memo (C) of Lt Col Avery M. Cochran for CG AGF Sec, 12 Feb 47, sub: Rpt on Hist Study No 24, the MTC, AGF 1946. 314.7/47 (Study No 24)(C).

27. Conversation of Hist Off with Lt Col Gordon Dawson, Jan 44.

28. MWW Sch & Tng Center ltr to CG AGF, 10 Mar 47, sub: Comments to Study No 24, "The MTC." 314.7/49 (Study No 24)(C).

29. MTC ltr to CG AGF, 25 Mar 43, and 1st ind, sub: Request for Sp Serv Off. 210.31 (Mtn).

CHAPTER III

MISSION, ORGANIZATION, AND ADMINISTRATION OF THE MOUNTAIN TRAINING CENTER

The ultimate objective of the Mountain Training Center was never made clear. All that Colonel Rolfe knew when he was called to Camp Carson in August 1942 was that a "test force" of specially trained mountain soldiers was to be established at Pando that winter, with his former regiment, the 87th Mountain Infantry, as the nucleus. This installation was known as the Mountain Training Center.¹

The Mountain Training Center based its training on its past on Mt. Rainier, on that of men in the outfit with mountaineering experience, and on the over-all war situation itself. If a casual observer had dropped in on Camp Hale during the winter of 1942-43, and asked the first trooper he met just what his training mission was, the answer would have been, "Learning how to fight in the mountains." If he had gone further and questioned the G-3 or the commanding general himself, he might have been given a more detailed statement, but the basic answer would not have changed. The broad generality of mission, was in one sense a handicap in the early phases of the Mountain Training Center. As General Rolfe put it, "We don't know whether we'll be sent to Norway, Russia, Burma, or the Italian Alps--and each area presents different problems that demand ultra-specialized training. It is physically impossible with the time and facilities on hand to train men for combat in all these areas. We'll have to go ahead on a compromise basis."²

All the infantry regiments were taught skiing, and a small percentage, mainly the weapons platoons, learned snowshoeing as well. The signal Company and 10 percent of the supporting units also got ski training. The rest got snowshoe instruction and practical experience in living in the snow, both above and below timber. The artillery worked their mules into the snow as far as they would go--belly depth was the deadline, and not an inch deeper--and then experimented with over-snow hauling methods on sledges and toboggans. Extensive tests were carried out by the G-3 Section and the Mountain and Winter Warfare Board on over-snow motor vehicles. Through it all ran the confusing counter-pattern of basic training in the midst of a highly specialized mountain fighting program.

One of the first things that had to be done by the G-3 was to modify a training directive of Army Ground Forces so that it could be used by mountain troops. Sent throughout the Army, this was supposed to be used by mountain troops as well as flatland soldiers. Maj. Jefferson J. Irwin of the Mountain Training Center G-3 Section worked long and hard to convert inclosures 1, 2, and 3 of this basic letter to mountain usage.³ For the Mountain Training Center as originally set up had the training mission of a corps. They even had the same training tests, and were in charge of the training of the troops, directly under Headquarters, Army Ground Forces, in Washington.⁴

1. Information memo (R) by Gen Clark, 20 Apr 42, sub: Mountain Troops. 320.2/1(Mt Trs)(R).

2. (1) Conversation of Gen Rolfe with Hist Off, Mar 43. (2) Rolfe memo. 314.7/53 (Study No 24)(C).

3. AGF ltr 353(52)Tng Dir-GWGCT, 19 Oct 42.

4. Conversation of Hist Off with Lt Col Gordon Dawson, Feb 44.



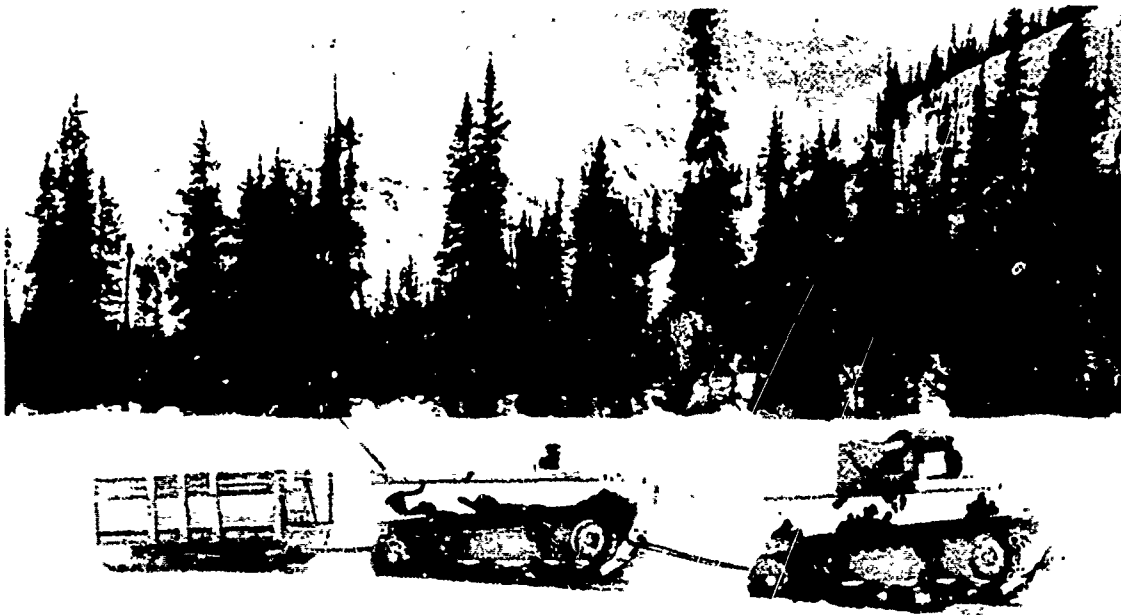
A T-28 TOWING A LOAD ON A TRAIL TRAVERSING A STEEP SLOPE.



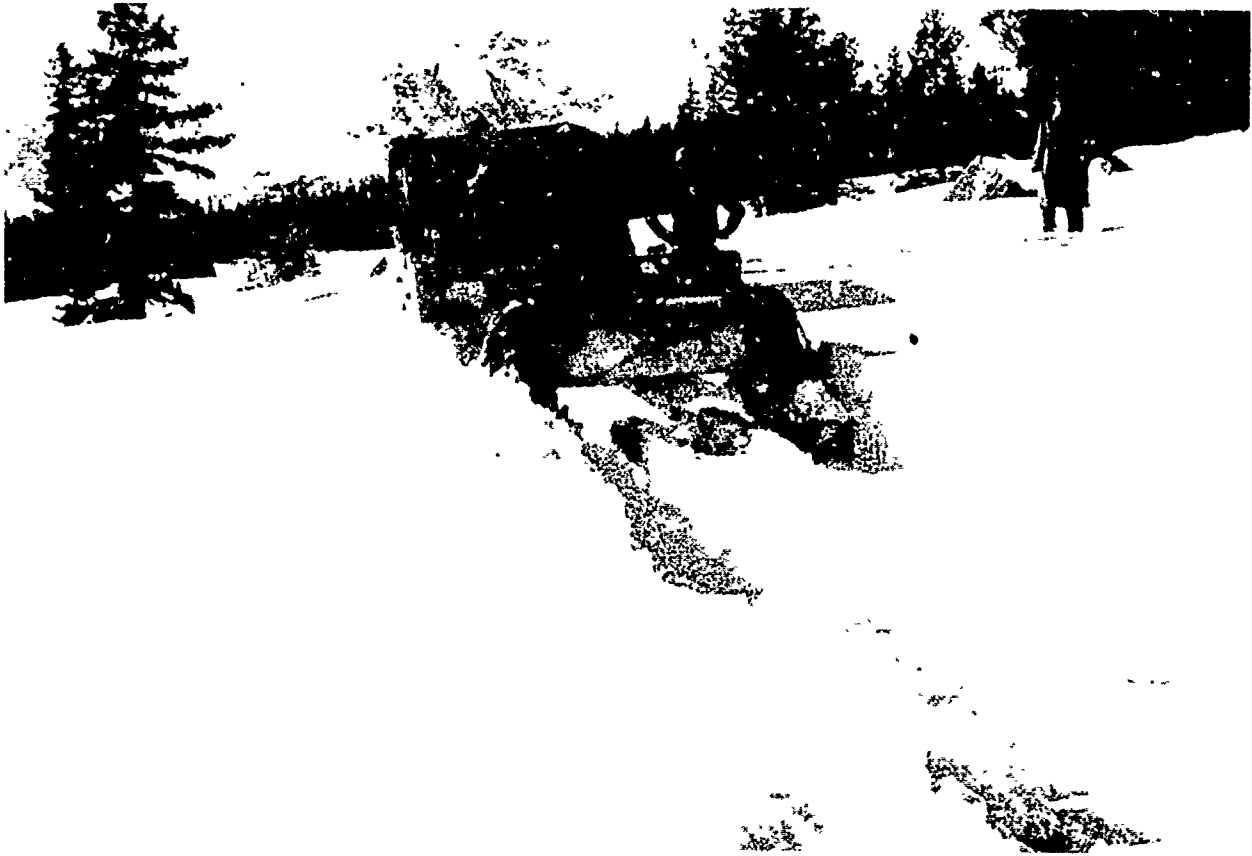
MEMBERS OF THE PACK ARTILLERY ON SNOWSHOES DRAGGING PART OF THE 75MM PACK HOWITZER ON A SLEDGE. SPECIAL HARNESES WERE DEVELOPED THROUGH SUCH TESTS.



THE ELIASON MOTOR TOBOGGAN TESTED ON MT. RAINIER. THOUGH SPEEDY ON PACKED SNOW, THIS MACHINE PROVED UNSATISFACTORY IN HEAVY POWDER. IT WAS LATER REPLACED BY THE M-28 AND THE M-29.



THE M-28 HITCHED IN TANDEM



THE M-... POWERING A 37MM GUN IN DEEP SNOW.

A staff was set up almost identical with that of a regular infantry division. Therein lay one great weakness. There were not enough men to go around in the MTC headquarters to carry out the dual job assigned them of supervising specialized mountain training and regular infantry training at the same time.

The success of the so-called test force under General Rolfe's command depended on its training. Because the number of experienced military personnel was limited, the positions of chief of the training section and that of executive of the Mountain and Winter Warfare Board were held by one officer, much of whose time and interest were devoted to experimentation with snow vehicles and other items of equipment. This officer had worked in Alaska with dog teams and snowshoes, but he was inexperienced in training large forces in mountain operations.⁵ No officer of the command had had any experience of that kind. In the opinion of observers sent out from Washington, an adequate program encompassing normal basic and unit training as well as special training in winter skills was not set up,⁶ a deficiency which became apparent during the field exercises held in February 1943.

Headquarters, AGF, required a test of a battalion in the field.⁷ General Rolfe selected for the purpose a battalion combat team comprising the Headquarters and Headquarters Company and the 2d Battalion of the 87th Mountain Infantry, supported by a battery of the 99th Field Artillery Battalion (75-mm How Pack), and by attached Medical, Quartermaster, Signal, Antitank-Antiaircraft, and Engineer units,⁸ and ordered a two-weeks field exercise. The test force was to take the field in the Homestake Mountain area, twelve miles from Camp Hale, at an elevation of over 11,000 feet. The tactical requirement was to hold a defensive position just below the peak of Homestake Mountain (13,500 feet), and repel raids by a platoon of enemy ski-troops against bivouac areas and lines of communication.⁹

The exercise was initiated on 4 February. It was midwinter in Colorado, and the troops moved into blizzard conditions with high winds, heavy snow, and the temperature at 10° below zero. On the first day's march in and up from the truckhead on the Leadville-Tennessee Pass Highway, a "continual procession of stragglers was returning to the rear."¹⁰ On the first day 25 percent of the troops became

5. Rolfe memo, incl 1.314.7/53 (Study No 24)(C).

6. (1) Memo of Maj Walter A. Wood for ACoFS G-4, AGF, 20 Feb 43, sub: Rpt on Exercises Conducted at MTC, Cp Hale, (C) Feb 1-12, 43. 353.02. Hereinafter referred to as "Wood memo." (2) Memo of Maj John L. Tappin for CofS, AGF, 17 Feb 43, sub: Obsns during Visit to the MTC, Cp Hale, Colo, Feb 4-12, 43. 353.02 (C). Hereinafter referred to as "Tappin memo." Copies of these two documents are filed in 314.7... (Study No 24)(C).

7. Rolfe memo. Ibid.

8. Wood memo, "General Situation."

9. Rolfe memo, incl 1.

10. Tappin memo, par 1, a (6).

casualties from frostbite, exhaustion, and sickness, which the observers present attributed in large part to fear of the unknown.¹¹ For the period of the exercise the medical officer of the Center reported 260 casualties from natural causes, or about 30 percent of the command.¹² The first day eliminated most of the inexperienced men, and once the effectives had established themselves in the bivouac area, "conditions improved rapidly."¹³ But in view of the incapacity of the force to cope with the elements, the tactical exercise was cancelled,¹⁴ and the remainder of the test, which lasted until 12 February, was devoted to perfecting methods of snow camping, reconnaissance, and "in general, learning to live and move under winter conditions."¹⁵ This permitted a test of training, clothing, equipment, and methods of supply which had been a primary object of the exercise. Tests of air supply and air reconnaissance were made.¹⁶ On 10 February the FA battery fired on the open slopes of Home-stake Mountain above timber "with great accuracy and effect," dislodging an avalanche "which would have destroyed any force passing or encamped beneath."¹⁷

The exercise was observed by two representatives of Army Ground Forces, Maj. John L. Tappin from G-3, and Maj. Walter A. Wood from G-4. Both officers were skiers, and both went through the exercise with the troops. They were accompanied by Mr. Minot Dole, Chairman, and Mr. John E. P. Morgan, War Department Consultant, of the National Ski Patrol System. In their reports they extended their observations to cover the basic problems of the whole experiment in mountain training as it was being conducted at Camp Hale. In explanation of the breakdowns in the field exercise they all emphasized the severity of the weather, the unreadiness of the troops for the test to which they were put, and the excessive loads they had to carry or drag.¹⁸ The AGF observers found the unreadiness to be due in part to the assignment to the Center of men not physically qualified for mountain training,¹⁹ and to the presence in the units used of recent recruits, new to the mountains, snow, and cold, "conditioned neither physically nor mentally for this rigorous service."²⁰ But the AGF

11. (1) Ibid., para 1, a (6) and (11). (2) Wood memo, "Obans," para a and f. (3) Ltr of Minot Dole to Col Ridgely Gaither, G-3 Sec, AGF (no date), sub: Obans made at Cp Hale, Colo, Feb 4-13, 1943, para 2 and 3 d. 314.7/47(C) (Study No 24). (4) Ltr of John Morgan to same (no date), sub: Visit to Cp Hale, Colo, Feb 4-12, 1943. Ibid. That fatigue and fear were chiefly responsible was verified by the fact that about two-thirds of the stragglers returned to duty the next day. Tappin memo, par 1, a (11).

12. Rpt of MTC Surgeon to CG MTC, 17 Feb 43, sub: Critique of Medical Services and Installations on Maneuvers. 354.2 (MTC). This figure is confirmed by Col Rolfe (see Rolfe memo).

13. Tappin memo, par 1 b.

14. Tappin memo, par 1; Dole memo, par 2.

15. Tappin memo, par c.

16. A full report on all these tests is in the Wood memo. (Aerial reconnaissance in Tappin memo, par 5. For the air supply tests see below, Chapter VIII).

17. Tappin memo, par 1 d.

18. Tappin memo, par 1 a (2); Wood memo, Obans, par 1 e; Dole memo, par 2; Morgan memo, par 3 c.

19. Tappin memo, par 2 d; Wood memo, "Obans" par a.

20. Tappin memo, par 1 a (4).

observers also reported serious deficiencies in the preparation even of the more experienced men for the ordeal to which they were subjected. They had not been sufficiently trained in cross-country skiing, snowshoeing, or snow camping.²¹ Their clothing and equipment were, in general, found to be satisfactory, but they had not been adequately trained to use them.²² Major Wood reported that about half of the men had been issued special items of equipment, including the mountain tent, the mountain stove, and in some cases the sleeping bag, for the first time the day before the exercise began.²³ About half of them had received no training in winter camping, and none of them were conditioned for camping in mountain snow, after sleeping in heated barracks at Camp Hale.²⁴

Officers then on duty at the Mountain Training Center have since pointed out extenuating circumstances, in addition to the inexperience previously mentioned. According to this testimony they 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 impracticable to make up a special task force composed only of the experienced troops. Yet it was necessary to conduct the exercise.²⁵

In his attempt at diagnosis at the time Major Tappin referred to the problem previously mentioned that almost all the ranking officers of the Center had to learn mountaineering in winter as they went, while experience in winter mountaineering was confined to the junior commissioned officers, the noncommissioned officers, and the ranks. Skill in military tactics and skill in mountaineering had not yet been effectively pooled. The effect on morale was bad. The skiers and experienced mountain men lost confidence in the training program when they saw their officers flounder in outdoor matters in which they were themselves skilled by long experience.²⁶

The officers immediately conferred with General Rolfe on local measures of correction, and Mr. Dole and Mr. Morgan both reported that General Rolfe understood the conditions and was disposed to welcome assistance in finding solutions. Obviously some of these were beyond his authority, as for example, his desire to admit only recruits who met special physical standards and to exercise control of the return to the Center of OCS graduates so as to increase the proportion of junior officers experienced in mountaineering.²⁷

General McNair's comments were contained in a letter to General Rolfe, dated 11 March, with which he forwarded the reports of the two AGF observers:²⁸

21. Wood memo, "Recommendations," par b.

22. Tappin memo, par 4 a; Wood memo, especially "Obsns," par a (1).

23. Wood memo, "Obsns," par 1 b.

24. Tappin, Wood, and Dole memos.

25. Rolfe memo, incl 1.

26. Tappin memo, par 8 d.

27. Tappin memo, par 3, reporting conference with Gen Rolfe while at Cp Hale.

28. AGF ltr 333.1(C)GNGDC to CG MTC, 11 Mar 43, sub: Inspection Trip. MTC file 353.02 (C). Copy in 314.7/53(Study No 24)(C).

1. Recent observations of activities of your command made by members of this headquarters are forwarded for your information and such action as you desire.

2. a. The winter training did not appear to be adequate to condition personnel for marching and maneuvering under conditions of extreme cold and adverse winter weather conditions.

b. Members of units did not appear to have had sufficient instruction in the use of special winter clothing and equipment to obtain the maximum value of their characteristics.

c. March discipline of units appeared slack. A high percentage of the personnel fell out due to sickness, fatigue, frostbite, and fear.

d. Men were overloaded to such an extent as to reduce mobility to a minimum and cause unnecessary fatigue and hardship.

e. In bivouac, uniformity of snow camping technique was lacking, indicating a lack of preliminary instruction.

f. Training programs indicated a lack of planning to provide frequent overnight exercises necessary to properly condition men for winter maneuvers of extended duration.

g. Morale seemed lower than should be expected due to an abnormally high mortality rate attributed to:

(1) Smoke pall.

(2) Altitude.

(3) Lack of recreational facilities.

(4) Lack of confidence in training program.

h. The large proportion of experienced woodsmen, mountaineers, guides and trappers in the enlisted and lower commissioned grades provides an excellent source of technical knowledge. This source should be used to the utmost in the development of instructional training technique which is founded on time-tested mountain and winter procedures.

i. Individual prejudice and theories appeared to have biased many decisions of the Mountain and Winter Warfare Board. Fair comparison had not been used in testing equipment and developing techniques.

j. Insufficient liaison existed between the Air Force unit conducting air supply tests and officers of your staff. The result was an incomplete understanding of mutual problems and limitations in supply by air.

k. Artillery firing conducted under difficult conditions was excellent.

3. It is recognized by this headquarters that your command has recently undergone a large expansion and that the entire project is in a continuous state of development and expansion. The comments in this letter are offered constructively. This headquarters stands ready to assist in remedial action of any matters beyond your control.

When General McNair dispatched this letter he had been informed by Major Tappin's report that General Rolfe intended to assign to full-time duty with the Mountain and Winter Warfare Board the officer who had been doing double duty as its executive and as G-3 of the Center, replacing him with a new G-3.²⁹ Three weeks before General McNair's letter was sent, General Rolfe had initiated action for authority to raise

²⁹ Tappin memo, par 11, a. On 24 February Gen McNair was informed that Gen Rolfe "has changed his G-3." Note (1) signed "Lantz," AGF M/S, 333.1(C)GWGDC, sub: Obans during Visit to MTC. Ibid.

the physical qualifications for mountain troops: it was not granted until 5 June.³⁰ Training in cross-country skiing, the importance of which had previously not been sufficiently recognized,³¹ was instituted, and Lt. Paul Townsend, a New England champion skier, was assigned as instructor.³² A study was made by G-4 of the articles that had to be carried in the individual soldier's pack with a view to eliminating as many as possible and cutting down the weight of those that were essential. Lectures and instructions on living outdoors in winter were given.

In May a reshuffling of officers was effected, followed in July by the institution of a new organization for training in mountain and winter warfare. Major Irwin succeeded Lt. Col. Avery Cochran as G-3 in May. Colonel Lafferty was given command of a battalion of the 86th Infantry, and Lt. Col. Edmund Cunningham succeeded him as G-2. Colonel Tillotson was shifted from G-4 to command of the 10th Quartermaster, and was replaced as G-4 by Lt. Col. Paul Burge.³³

On 26 June General McNair with a staff party made a visit of inspection, and was very favorably impressed. "The demonstration of training," he wrote, "was energetic, well-organized, practical, and excellent generally. Officers and enlisted men appeared to be in excellent physical condition."³⁴ General McNair was about to put into effect a reorganization of training for mountain warfare. On 15 July, a division--the 10th Light Division (Alpine)--composed (with few exceptions) of the units of the Mountain Training Center, was activated at Camp Hale. At the same time the 71st Light Division (Jungle) was activated at Camp Carson, and General Rolfe was made its Assistant Commander. The Mountain Training Center, greatly reduced in size, was placed under the temporary command of Col. David M. Fowler who had been its Chief of Staff. Brig. Gen. Lloyd E. Jones, recalled from Amchitka in the Aleutians, was made commanding general of the 10th Light Division, with Col. Frank L. Culin, who had commanded a regiment of the 7th Division at Attu, as his Assistant Commander. Colonel Ruffner, who had commanded all of the artillery of the Mountain Training Center, was designated as the Division Artillery Commander. General Jones used the entire staff of the Mountain Training Center, except Colonel Fowler, in corresponding positions in his division. He made Lt. Colonel Paul E. LaDus, whom he brought back with him from Amchitka his Chief of Staff.³⁵

A great deal of the trouble in early days of the Mountain Training Center lay in handling Tables of Organization. The Headquarters Table of Organization called for four captains, who as specialists in the fields of skiing, rock-climbing, dog management, and packing, were supposed to act as liaison officers and supervise the specialized forms of training. Actually, these posts were never filled; the

30. Ltr President of the Board, Hq 10th Med Bn (Mtn) to CG MTC, 17 Feb 43, sub: Qualification Rqts for Mtn Troops, forwarded to CG AGF by 1st ind, 18 Feb 43, and approved by CG AGF by 10th ind, 5 Jun 43. MTC file 201.6/360-GNGCT. Copy in 314.7/18 (Study No 24)(C)

31. Wood memo, "Recommendations," par b. Cf also Tappin memo, par 11 d.

32. Rolfe memo, incl 2.

33. MWW School and Training Center Ltr CG AGF, 10 Mar 47, sub: Comments to Study No 24, "The MTC," 314.7/49 (Study No 24)(C).

34. Ltr of Gen McNair to CG MTC, 12 Jul 43. sub: Visit to MTC, Cp Hale, 26 June. 353.02/185 (AGF).

35. See n 33 above.

specialists never arrived.³⁶ This meant more work for the already overburdened Mountain Training Center Headquarters. The Mountain and Winter Warfare Board had no definite Table of Organization. General Rolfe was President but had little time for this duty.³⁷

In the Infantry regiments, the 87th had a Mountain Table of Organization which was organically sound, and, in the opinion of G-3, 10th Light Division, it was far better than the later one for Mountain regiments.³⁸ It consisted of some 3,200 men and about 800 animals, and was logistically self-contained, with its own organic transport. The 86th had an ordinary "flatland" Infantry T/O, except for the fact that it had jeeps for transportation instead of 2½-ton trucks and weapons carriers. Its whole setup was somewhat that of an airborne outfit with mountain training. The 99th Norwegian Battalion (Separate) had the ordinary infantry T/O. Unfortunately, there was no chance to compare the various T/O's in action, for none of the three regiments ever had combined training as a unit.

The 10th Cavalry Reconnaissance Troop, which came to Camp Hale from Ft. Meade, S.D., proved to be disappointing. Its men were to be the crack soldiers of the whole Mountain Training Center--skilled alike in horsemanship, skiing, and rock climbing. Instead, they were sent from Fort Meade because of their knowledge of horses, and horses alone. They showed little interest in learning how to ski and in trying to master rock climbing. They were unsuited for training as a mountain reconnaissance troop.

Lieutenant Borden, who had conducted extensive experiments in the Olympic mountains with his Intelligence and Reconnaissance platoons from the 87th in the year before, drew up a thoughtful and well-considered T/O for the Mountain Reconnaissance Troop and submitted it to General Rolfe in April 1943. Shortly thereafter, however, the reconnaissance troop was dropped from the Mountain Division T/O entirely.³⁹

Another handicap to progress was the lack of any Table of Equipment for the snow vehicles. These tractor-type vehicles had been developed by various automotive firms since the Mt. Ranier days in 1942, and were essential to the supply problem in deep snow. Yet no provision was made for them in the T/E's. Colonel Cochran drew up and submitted to General Rolfe a proposed T/O&E for Headquarters and Headquarters Supply Company for a Mountain Battalion, using dog sleds, snow vehicles, and figuring on the dehydrated Mountain Ration as his unit for weight. As he pointed out, the Field Manual 101-10 was practically blank as far as the Mountain Division was concerned. The supply problem for deep snow continued to remain unsolved as far as a written T/E for vehicles was concerned.⁴⁰

As early as 1 January 1943, General Rolfe submitted a proposed T/O&E for a Mountain Division to Headquarters, Army Ground Forces, based on "a year's experience with Mountain Troops and as a result of tests conducted." Briefly, the emphasis was

36. Conversation of Hist Off with Col Irvin, G-3, 10th Light Div, Feb 44.

37. Ibid.

38. Ibid.

39. Rolfe memo. 314.7/53 (Study No 24)(C).

40. Conversation of Hist Off with Lt Col Paul Lafferty and with Mr Stebor, civilian expert of Studebaker Corp, Dec 43.

placed on flexibility, with small units operating independently--something that foreign mountain troops had long ago learned by experience. He wanted the infantry division to consist of three regiments of two battalions each, similar to the Italian and German set-up. Both animals and one-fourth ton trucks were contemplated, with each jeep carrying the load of three mules. In cold climates and snow-covered terrain, snow mobiles were to be substituted for animals and trucks. There were to be three squads of twelve men each in a rifle platoon, and eight men in the weapons squad. The 81 mm mortar was abolished in favor of the 60 mm, thus giving more mobility to the rifle company. In general, the number of riding animals was reduced, because of the proved inefficiency of horses in mountainous country. Men and officers were to walk more and ride less. The artillery also had its animals reduced almost by half, from 803 to 550 per battalion. The reconnaissance troop was to be equipped with jeeps, and no horses at all. This was because "close reconnaissance is performed by pack infantry reconnaissance platoons."⁴¹

This proposed T/O was subsequently adopted by Army Ground Forces in April 1943, with certain changes, and put into effect as a Light Division T/O on 15 July 1943, when the Mountain Training Center became the 10th Light Division.⁴² Of interest is the fact that the reconnaissance troop, on which perhaps the most research of all had been done to secure the proper T/O, was omitted from the divisional troops entirely.

Another matter that complicated the mission of the Mountain Training Center was the designation of certain units as an Alpine Combat Team in April 1943. Plans for the invasion of the Aleutians were under way, and the 87th Mountain Infantry was picked as the nucleus of this combat team because of its advanced state of training. Other units were to include the 601st Field Artillery Battalion, detachments from the 126th Engineers, the 10th Quartermaster Battalion, the 10th Medical Battalion, the 40th Ambulance Battalion, and the 110th Signal Company. Pack transport was to be provided by a provisional Pack Company of the 87th Mountain Infantry, under T/O 10-118.⁴³

This meant that the formation of a mountain division from the Mountain Training Center would be far more difficult, since these units, which represented the core of the whole setup, would not be available. Plans for training were rearranged to meet this new turn of events. Then, on 12 June 1943, a new directive was issued by Army Ground Forces.

This called for the redesignation of the Alpine Combat Team as a Combat Team, Mountain Training Center. It was still to consist of the 87th Mountain Infantry and the 601st Field Artillery Battalion, but the supporting units were changed. They were to come from units not stationed at Camp Hale under the Mountain Training Center, and included the 680th Medical Collecting Company, the 1st Clearing Platoon of the 669th Medical Clearing Company, the 229th Engineer Pack Company, the 389th Quartermaster Truck Company, and a detachment of the 133d Signal Company.⁴⁴ Shortly thereafter, these units were combined to form Tactical Group 87 and participated in the attack on Kiska on 15 August 1943.⁴⁵

41. MTC ltr to CG AGF, 1 Jan 43, sub: Proposed Table of Organization (T/O) Mt Div. AG 320.3 MTC.

42. AGF ltr 322 (8 Jul 43) to CG's, Second and Third Armies, MTC, AA Comd, 10 Jul 43, sub: Constitution and Reasgmt of Units. 322, 10th Light Div, Cp Hale, Colo.

43. AGF ltr 320.2/1-GNYSA, 20 Apr 43, sub: Org of Alpine Combat Team.

44. AGF ltr (R) 320.2/12(MTC)-GNGCT, to CG MTC, 12 Jun 43, sub: Org of Combat Team, MTC.

45. Tab 50, Rpt of Col Roy V. Rickard, 21 Sep 43, sub: Occupation of Kiska, in AGF Dissemination Branch G-2.

CHAPTER IV

PERSONNEL PROBLEMS

The original cadre for the Mountain Training Center, as might be expected, came partly from the 87th Mountain Infantry, veterans of a year at Ft. Lewis and Mt. Rainier. They supplied the men to staff the headquarters--clerks, typists, and the like. But by far the great majority of the troops who were to do mountain fighting came from the 31st (Dixie) Division at Leesville, La.; others came from the 33d Division at Camp Forrest, Tenn., and the 30th at Memphis, Tenn.¹

The reason was this. At the time the Mountain Training Center was made up on paper, the 30th, 31st, and 33d Divisions were short of certain units and were being temporarily used as replacement pools to furnish cadres. The Mountain Training Center needed cadres just then. It was unfortunate that these particular divisions happened to father the first full-scale Mountain Troops. For example, in the 110th Signal Company, over half the men had eventually to be transferred because they could not take the cold climate, high altitude, and the rugged mountain life.

If ever an outfit should have had the highest type of man both mentally and physically, it was the Mountain Training Center. War Department Circular 206 specifically stated that "source units will select enlisted men for these cadres who are suited for rigorous service in the mountains." Yet the cadres for the various special troops were entirely unsuited to the rigors of mountain living. A weeding out process began as soon as they reached Camp Hale and went on continuously, with the result that many training days were lost.² A rigid set of standards for the Mountain Troops at the outset would have saved countless days of reshuffling and re-sorting.

The work of the National Ski Patrol System continued unabated during this time except for various periods when it was suspended by War Department orders because current quotas had been filled. For example, recruiting was suspended during the summer of 1942 while the 87th Mountain Infantry was expanding into a regiment at Ft. Lewis. Then on 27 August 1942, just previous to the activation of the Mountain Training Center at Camp Carson, Army Ground Forces sent a directive to all replacement training centers stating that a survey would be made of each recruit's background. If any man had the following civilian experience, he was to be sent at once to the Mountain Training Center: mountaineer, north woodsman, trapper, lumberjack, skier, packer, geologist, horseshoer, hunting guide, geographer, saddler and harness maker, teamster, stabler, axeman, prospector, hard-rock miner, and timber cruiser.³ The emphasis was away from skiing, which had always been regarded with distrust by higher headquarters as a "crazy sport." Now the emphasis was more on the "rugged outdoor type." After four months of this, with mounting complaints from the Mountain Training Center about the inferior quality of its new recruits, the Army Ground Forces changed its policy. The 1st Battalion of the 86th Infantry had just been activated. Here was a chance for a good test of the skiers.

On 29 December 1942, the Army Ground Forces telephoned the offices of Minot Dole and asked the assistance of the National Ski Patrol System in procuring two

1. WD Cir 206, Sec II. Incl I, 26 Jun 42, sub: Activation of MTC. 320.2/5 (Mtn) (R).

2. This statement and others on the personnel problems at the MTC are based on the author's observations and experience at Camp Hale.

3. AGF ltr 200.31/3(Mtn)GNGCT to TAG, 27 Aug 42, sub: Pers for Asgmt to Mt Units from RTCs.

thousand men with winter and mountain experience. They were to be recruited in ninety days. The NSPS went to work. Questionnaires poured out of its New York office to section leaders all over the country, who distributed them to all local members and saw to it that local newspapers printed the details at length. Patrolmen made speeches at countless local gatherings. Soon the tide was flowing the other way; the filled-out mountain troop applications were coming back into the NSPS office. Those approved were passed on through cleared channels into The Adjutant General's Office in Washington and thence to the applicant's future reception center. Approved applicants were in Camp Hale in ten days from the time they first filled out their applications.

All these men were excellent mountain troop material. The 86th Infantry grew almost entirely from National Ski Patrol System candidates, and their excellent record in the Army speaks for itself.⁴ Not only were these men skilled in the ways of skiing and the mountains, which in itself cut down the training time by one-half, but they were smart, keen, enthusiastic in a job they had picked out for themselves. The highest morale in Camp Hale was that found in the 86th Infantry.

Deserving of study in this connection is an intelligence rating of the various units comprising the Mountain Training Center during the winter of 1943. The scores of the Army General Classification Test, measuring ability to learn, are used as a basis for comparison.

Class	Grade	National ⁵ Average	86th Inf ⁶	Average of 11 Divisions ⁷ (19 Oct 42)	10th Cav ⁸ Recon Trp
I	130 up	9.5	13	5.3	1
II	129-110	27.3	51	24.3	22
III	109-90	30.5	28	33.1	36
IV&V	89 down	32.7	5.5	37.3	38

Two observations will make clearer the implications of the contrasts presented in this table. To qualify for officer candidate school an enlisted man needed an AGCT score of 110 or higher. It will be seen that 64 percent of the entire 86th Infantry, or almost two-thirds, were potential officer material, and only 6 percent were below the medium intelligence level of the entire army. The contrast with the average of the eleven divisions is even more striking.

4. Conversation of Hist Off with Lt Col Gordon Dawson, Feb 44.

5. E. Donald Sisson, "Measuring Minds," The Army Information Digest, Vol II (1947), No 2, p 45. These percentages are based on scores made by all men processed through reception centers before July 1944 (more than 8 million cases). Because the boundary line between Classes IV and V was lowered in July 1942 from 70 to 60, these groups are combined here.

6. MTC ltr 201.6 GNYSAs, to CG AGF, 27 Apr 43, sub: AGCT Grade Distribution. 201.6 (Mtn) GNAGS.

7. Studies in the History of Army Ground Forces, No 5, The Procurement of Enlisted Personnel for the AGF: The Problem of Quality, p 8.

8. MTC ltr 201.6 GNYSAs, to CG AGF 27 Apr 43, sub: AGCT Grade Distribution. 201.6 (Mtn) GNAGS.

Despite the difficulties in procuring Infantry soldiers of high quality,⁹ and despite their lack of inducements, the Mountain Training Center obtained through the National Ski Patrol System an exceptional group of men. Two out of every three were potential officers, and the third man a potential noncommissioned officer. The War Department gave every encouragement to Mr. Dole and his associates, and cut all red tape to the minimum.

The contrast between the results obtained by this method and those obtained by the normal means available to Army Ground Forces in 1942 is made strikingly clear by a comparison of the Classification scores of the 86th Infantry with those of the 10th Cavalry Reconnaissance Troop (Column 4) and similar units, drawn chiefly from the 31st Division. The Signal, Engineers, Quartermaster, and Pack Artillery all had their heaviest percentage in the III and IV Groups, and the 99th Infantry Battalion showed its largest score in Group IV.¹⁰

Difficulties did occasionally arise, however, in the administrative procedure. A prospective fighting mountaineer would be sent into the South. Telegrams and phone calls then ensued in and out of Washington. Sometimes the matter was straightened out, but only after much delay and the expenditure of valuable time by high government officials. There were periods, too, as in the summer of 1942, when all recruiting for the mountain troops was suspended, and many civilians who wanted to enlist--men who would have made excellent mountain troopers--chose instead to accept commissions in the Navy or in the Air Force, or merely to await induction into the flatland army.

Turning recruiting on and off like a spigot had many ill effects, for the Mountain Troops had never been widely known or understood among the civilian populace. All kinds of rumors kept spreading: "The ranks are filled." "It is useless to try." "You have to be a crack skier." Many valuable men were lost to the mountain troops this way. Others found that their local Army recruiting officer had never heard of the Mountain Training Center, much less of Camp Hale; still others, already in the Army, hopefully filed their applications for transfer to Camp Hale, then saw them languish for months in the "HOLD" baskets on the desks of company commanders.

Clearing up this trouble was Mr. Dole's chief aim during the busy winter of 1943, and, as usual, his persistence and application succeeded. In March of 1943 the War Department issued an official directive to the effect that enlisted men who came to reception centers with letters from the National Ski Association requesting assignment to the Mountain Training Center were to be sent to Camp Hale without further reference to the Adjutant General's Office.¹¹ A retired Army general told Mr. Dole that "in all his forty-five years he had never seen the like of it. As far as I could tell it resulted from the fact that the NSPS had played square, asked no favors, and produced."¹²

9. See Studies in the History of Army Ground Forces, No 5, Procurement of Enlisted Personnel for the AGF, especially Sec 3, "Disadvantages of the Ground Arms in the Period of Growth."

10. MTC ltr 201.6 GNYSA to CG AGF, 27 Apr 43, sub: AGCT Grade Distribution. 201.6 (Mtn)GNAGG.

11. TWX ((AG 220.3) 7 Apr 43), TAG to CGs all Service Commands, 7 Apr 43. 314.7/35 (Study No. 24) (C).

12. American Ski Annual, 1944, p 54.

Again in June 1943, with the redesignation of the Mountain Training Center as the 10th Light Division only a few weeks away and two new regiments about to need men, Dole was once more given the now-familiar request for two thousand qualified men for the mountain troops. This was a tough assignment; men with mountain experience are not numerous, and the last recruiting drive had just about scraped the bottom of the barrel. But now the experience of the past was to prove a valuable help. Now also the National Ski Patrol felt justified in asking a few favors, and they were granted. Army public relations officers obtained news releases from the National Ski Patrol System. A thousand copies of the Saturday Evening Post cover featuring a ski trooper, were bought and used as recruiting posters; Lowell Thomas, CBS, and NBC made spot announcements; the Office of War Information cleared releases, and the Office of Price Administration granted additional gasoline to National Ski Patrol System men, such as Herb Ruprecht who dressed up a dummy as a mountain trooper, stuck him in a jeep, and drove it around before 150,000 civilians in the Chicago Fourth of July parade. The same thing was done in Salt Lake City by Willis Petersen. From the Quartermaster depot of Col. L. O. Grice in Ogden came fifteen complete sets of mountain uniforms for window displays all over the nation. Once again the War Department got its men.

There were other private organizations that gave substantial help. The American Alpine Club, and more particularly, its secretary, Henry Hall of Cambridge, was active in suggesting skilled climbers. Mr. John C. Case, president of this club, gave General McNair training suggestions which were acknowledged to be helpful¹³ Membership in this club, however, was comparatively small, and many of its members were over the age limit for the Army.

The United States Forest Service, through Bob Monahan, in Washington cooperated by securing the enlistment of rangers, forest guards, timber cruisers, and other recruits whose background could contribute directly to the mountain troop program. The National Park Service contributed its share of men, and many nationally famous rangers, geologists, guides, trappers, and hunters were among the rank and file at Camp Hale.

Recruiting was also stimulated by various motion picture companies who sent photographers to Camp Hale during the winter to make newreels and "shorts" of the mountain troops in action for these troopers had caught the imagination of the public as few other branches of the service had. The average American citizen seemed more interested in the "ski troops," as they were popularly but inaccurately called, than was the War Department. Despite sympathetic public interest, actual details concerning the mountain troops were little known.

This lack of publicity had attended the mountain troops from their inception at Ft. Lewis, where the 87th Mountain Infantry was activated and where it spent its first winter, training on Mt. Rainier. Their training area, a mere 5,000 feet in altitude might as well have been 5,000 miles up, so far as any publicity was concerned. Not a single line concerning the mountain troops or their activity was permitted in the national press for several months after war was declared. All over the United States men of military age were signing up. The Navy and the Air Forces were competing in skim off the cream, offering commissions bountifully. Meanwhile the mountain troops, in quiet oblivion, took what was left.

Scarcely a word of their activities leaked out through official channels to the thousands of skilled men anxious to join but unable to obtain the requisite information. Mr. Dole in New York did his best to spread his questionnaire around where

13. See personal ltr of Mr. John C. Case to General McNair, 16 June 43, and General McNair's reply, 7 July 43. 314.7/20 (Study No. 24) (C).

they would be most effective.¹⁴ Repeated requests to Washington for news finally brought the statement that the mountain troops were training under the Western Defense Command, and all official utterances would have to come from that tightly secretive source. This meant, literally, that nothing would be released, because of this Command's policy in regarding the entire West Coast as a war zone, subject to all restrictions and censorship. The only exception to this strict rule came late in the spring of 1942 when a small party of newsmen and photographers from Seattle visited Mt. Rainier camp on a carefully conducted tour. Little news reached the great metropolitan newspapers of the East, however, until late in the fall of 1942, when the Mountain Training Center was activated at Camp Carson, Colo.

Here, away from the restrictions of the war zone, there was at last a chance to send out some information on the rapidly growing mountain troops. A public relations officer was instructed to prepare news releases to all the major newspapers in the snow and mountain belt of the United States, stressing the rugged training and the need in the Mountain Troops for men with definite mountain experience. These releases were given publicity as fast as they were received. Requests for more and more stories, pictures, and feature articles were addressed to the Camp Carson Relations Office. Radio programs emanated from the newly established Camp Hale, and visitors from the press and screen came in numbers to the now famous Pando, 10,000 feet up in the Rockies.

The most ambitious and far-reaching publicity was a full-length technicolor film by Warner Brothers, photographed at Camp Hale during five busy weeks in the winter of 1943. Released under the title, "Mountain Fighters" it attracted many good recruits to the ranks. In an effort to tap the youth of the country at its sources, the War Department permitted motion pictures of the Mt. Rainier training phase to be shown throughout the United States to groups of young men who might be potential mountain troopers--ski clubs, schools, colleges, the National Geographic Society. From coast to coast, more than seventy-five thousand persons saw these films during 1943, and many of them immediately filled out the NSPS application blanks which were distributed after each performance. Bit by bit, then, the public began to discover the facts and figures concerning the mountain troops--what they were doing and how to join them. Again the recruiting lists mounted.

Contrary to widespread public opinion, however, the ranks of the mountain troops were not entirely composed of volunteers. True, many of the world's experts in skiing and mountaineering had volunteered--men like Walter Prager and Peter Gabriel, for example, both crack Swiss skiers and mountain men. Prager had won very nearly every major ski event in Europe, and more recently had been the coaching genius behind Dartmouth's great ski teams. Gabriel, while an excellent skier, was best known for his guiding skill on ascents of practically every major peak in the Alps. Before joining the Army, he had been one of the leading ski instructors in New England. A complete list of former champions who joined the mountain troops would read like a roster of the Olympic Winter Games--Torger Tokle, Gordon Wren, Friedl Pfeiffer, Toni Matt, Paul Petzoldt, veteran of mighty "K-2" in the Himalayas, Herbert Schneider, Dave Brewer, conquerer of Shiprock, Luigi Foeger. There were also representatives of America's great skiing families--a Bradley, a Meservey, a Nunnemacher, and a McLane, Bob Livermore, John Litchfield, and Percy Rideout. There were also young men recently out of school--Cram, Crooks, Knowlton, Argiewicz, and a host of others, equally specialized in the skills of snow, ice, and rock.

14. Copies of Nat'l Ski Assn Bulletins are filed in 314.7/34 (Study No 24) (C).

But these men, numerous and imposing as the list would imply, were the exception, not the general rule; they made up only about 20 percent of the entire outfit.¹⁵ The bulk of the personnel, as stated earlier in this chapter, were transferred through regular Army channels. Some came without any desire or qualification on their part--men from the South, from the plains of Kansas and Nebraska, and, in one instance, from Mexico. All these men had to be taught the fundamentals of mountaineering by the experts who had volunteered through the National Ski Patrol System. Many of these neophytes did not measure up to the rugged standards required of the mountain troops and had to be transferred after a short while, the time and effort spent on them being in great measure wasted. Many were found to be unadaptable to the high altitude; others disliked the cold and snow and ice. To them, Camp Hale was little better than a concentration camp. Others caught the enthusiasm spread by the volunteers and took to their new life with zest.

So it was a curious mixture that made up the Mountain Troops. There was no middle group. Men either loved the life of a mountain trooper and strove hard to perfect themselves in its difficult skills, or hated the entire setup violently and took no interest in the training whatsoever. The latter would point out, vehemently, that they hadn't asked to be mountain troopers and they directed all their talents towards effecting a change to some more pleasant and less arduous assignment. Major Tappin's report on the February 1943 maneuvers made this point:¹⁶

Many enlisted men have been received who are physically unqualified for this type of service. . . . The need for personnel with certain physical qualifications should be recognized and plans originated to secure this type. . . . Recent recruits, new to the mountains, snow and cold . . . were conditioned neither mentally nor physically for this rigorous service. As a result, they were being taught to hate it.

To understand this misallocation of personnel, ignorance of the problems involved on the part of the officers in higher headquarters must be taken into account. The mountain troops were so new that few responsible persons in the top brackets realized the highly specialized personnel required and the training involved. An additional fault was the lack of any physical standard specifically required for the mountain troops, in spite of persistent requests for such by General Rolfe. As a result, anyone who could pass the regular Army induction physical tests was likely to find himself routed to the mountain troops.¹⁷ Moreover, when the official directive went down through channels to all Army units authorizing the "green light" on transfer of men to the Mountain Regiments, many a unit commander leaped at the opportunity to rid his command of the "eightballs," and considered their going good procedure and definite good riddance. It was a not uncommon Army practice, but it impeded the healthy growth of the struggling Mountain Troops.

There was a distinct shortage of one particular type of personnel--skilled rock-climbers and glacier experts. At one time, in the spring of 1943, there were not more than twenty men in the entire complement at Hale who could qualify as instructors in these fields. This tiny nucleus was the cadre, as it were, the instructors of another slightly larger group who in turn could be expanded as a true instruction staff, under the direct supervision of the few experts. But the

15. Conversation of Hist Off with Lt Col Gordon Dawson, Feb 44.

16. Memo of Maj Tappin, G-3 AGF Sp Projects Br, for CofS AGF 17 Feb 43, sub: Observations during Visit to MTC, 4-12 Feb 43. 353.02 (C).

17. Ltr 10th Med Bn, Cp Hale, Colo, to CG MTC, 17 Feb 43, sub: Qualification Requirements for Mtn Trs, and 10 inds. AG 201.6/360-GNGCT. See also Chap XIV, below.

shortage continued. Paradoxically the mountain troops lacked mountaineers. There were comparatively few civilian mountaineers in the entire United States. Some of these, while still superb in their field, were above the age requirements of the Army; others had been snapped up by different branches of the service early in national mobilization, since most mountaineers have wide experience in many fields. Despite the heroic efforts of the National Ski Patrol System, when the War Department finally began recruiting these experts, the well was almost dry.

An effort was made to secure the nation's few remaining mountain climbing experts under a "Junior Officers Plan." On 20 April 1942 Colonel Rooks wrote as follows to AGF Personnel Division.¹⁸

Practical knowledge of alpine technique in our nation is confined to a very few individual sportsmen. It appears imperative that those skilled and experience mountain climbers be drawn to the test regiment as Junior Officers to the extent practicable. Some of these individuals have already been lost to the Army by commission in the Navy and Air Corps.

This plan seemed a good one to General Clark and was subsequently approved by General McNair. A form letter was prepared for distribution to various organizations asking that their members be notified of the Army's plan to recruit mountaineering experts as junior officers with the mountain troops. Under this setup, recommended men would be given three months of basic training, sent to an officer candidate school in Infantry or Field Artillery, provided they passed the necessary physical and mental requirements, and on being commissioned as second lieutenants, sent to units of the Mountain Troops. Those under thirty would go with combat units; those over thirty would remain in this country as specialized mountain instructors. The original quota of fifty men was raised by Army Ground Forces to an unlimited number, and the following organizations were suggested as a potential reservoir: The American Alpine Club, the National Ski Association, the Forestry Service, the National Park Service, the National Geographic Society, and the American Geographical Society.¹⁹ Form letters went out to these organizations, and names of qualified men began coming into Army Ground Forces in small dribbles. Results were disappointing, however; men who volunteered on this basis would often become sidetracked or lost in the maze of army administrative channels. Actually so many new officers came into Camp Hale from other sources that the Mountain Training Center was soon far overstrength, and the plan was cancelled in April 1943.

There were other personnel problems. The high altitude and severe climate of Camp Hale made a period of acclimatization imperative, lasting as long as six weeks in some cases. Many men were physically unadaptable no matter how long they were kept at an altitude of 9,000 to 10,000 feet. Also, there was no strict adherence to this acclimatization regime. Newly-arrived recruits were forced to unload heavy crates from box cars, to shovel a couple of tons of coal, a day or so after their arrival at the nearly two-mile-high camp. Even as late as the summer of 1943, a battalion of the 85th Infantry moved out to a three-week bivouac in the area of Gold Park (9,000 feet). Many of the men had been bank clerks and white-collar workers in New York City the week before. Three of these men went to the hospital at the end of the bivouac period and were given medical discharges from the Army.²⁰

18. Memo of Tng Div AGF for Pers Div AGF, 4 Apr 42. sub: Offs for Sp Type Mt Div. 320.2 (Mtn).

19. Memo (C) for CofS AGF, attn G-1, 29 May 42, sub: Junior Offs for Mt Units. 341/21 (R).

20. Conversation of Hist Off with Lt Col Gordon Dawson, Jul 43.



A PRIVATE INSTRUCTING AN OFFICER IN THE CORRECT WAY OF
USING WAX ON SKIS AT MT. RAINIER, FEBRUARY 1942.

One of the major problems, and one that remained unsolved, was the difficulty of getting ratings and promotions for the ski and mountaineering instructors. General Rolfe recognized this as early as 1942, during the ski training on Mt. Rainier, where field officers were being taught day after day by privates.²¹ Yet nothing was done in Washington to remedy the situation despite repeated attempts by General Rolfe. On 9 October 1942 a letter went out to Washington from the Mountain Training Center, requesting an allotment of ratings for climbing and skiing guides in mountain units. Army Ground Forces returned it with the query as to whether the ratings could be given to men brought in especially for this purpose, or to privates already in the Table of Organization. Seven months and five indorsements later, during which it was explained that world-famous experts were already in the ranks of the Mountain Training Center, serving as instructors and guides in the rank of privates, Army Ground Forces let the whole matter drop with a happy sigh on 29 April 1943, on the grounds that matters should wait till the Tables of Organization for the 10th Light Division were published, when "further consideration of appropriate grades is indicated."²² But the activation of the 10th Light Division three months later failed to solve the problem.

So throughout the winter, spring, and summer of 1943, privates first class, who formerly made instruction in skiing and mountaineering their life work--men with world-wide reputations and making salaries--continued to teach enlisted men and officers the intricate fundamentals of skiing in the military manner, of negotiating severe and dangerous rock and pitches, wearing only a narrow white band of adhesive tape on their jackets and parkas to show for their skill and experience. Washington did not seem to recognize the fact that a man who had devoted his life to becoming a skilled instructor in mountaineering and snowcraft was as much entitled to a technician's rating as was the company cook or the company typist. There was not one of these men who would not have made excellent platoon sergeants or higher. Many did beg to be relieved of the thankless task of instructing in order to win line promotions in their companies. But they were needed too much out on the slopes, on the school cliffs. And out there they remained, while their less gifted but far more fortunate comrades ranked them steadily by doing less important jobs, but jobs which had definite status on the established and inflexible Tables of Organization.

Because of a feeling that justice had not been done to men who had eagerly volunteered for an outfit badly in need of them, morale dropped. Men who had come in full of enthusiasm gradually became embittered and soured by a system that punished those it should have rewarded. These men did not expect an easy life --a Sun Valley vacation in the Army. There were a few of these so-called "Sunday skiers" who joined up for a holiday, but they were soon dropped by the wayside. The men of the mountain troops who volunteered through the National Ski Patrol System were real skiers and real mountaineers, with years of experience behind them, ready and willing to take all the physical hardships that necessarily form part of the daily routine in the life of a mountain trooper. All they ever asked was a fair chance to advance with the line soldier.

21. (1) Interview of Hist Off with Gen Rolfe, 7 Jan 44. 314.7/28 (Study No 24) (C). (2) Rolfe memo. 314.7/52 (Study No 24) (C).

22. MTC ltr to CG AGF, 9 Oct 42, sub: Request for Alt of Ratings for Climbing and Skiing Guides in Mt Units. 320.2 (Mtn).

There were other sides to the picture, of course. The men (those who had volunteered) keenly enjoyed just being in the mountains, being able to go off on ski jaunts and mountain climbs into the back country on Sundays and week ends. They liked the equipment, which, with some exceptions to be discussed later, was of an exceptionally high quality. They liked their fellow-soldiers, many of whom they had known in prewar days, and an unusual comradeship grew up among the volunteers. But as the winter of 1943 drew to its close, the opinion became more pronounced among volunteers and transfers alike that someone in Washington had blundered. For the general morale, and in turn the state of training, was far below expectations. And this was mainly traceable to a policy which had been slow to recognize the need for trained personnel, and which, when it had secured them, proceeded to penalize the very men who were helping the mountain troops to grow. The personnel problem was still unsolved.

CHAPTER V

GENERAL TRAINING POLICIES

In general, the training policies of the Mountain Training Center were those of the Army Ground Forces, implemented and modified to suit the special requirements of the mountain troops. No specific directive on mountain training was issued from the Army Ground Forces, and it was left largely to MTC Headquarters Staff to formulate their own training policy.

Because of their specialized nature the Mountain Troops ran across several instances where AGF directives were inapplicable to the Mountain Training Center program. For example, an exercise in higher altitude and deeper snow took three or four times as long to complete as on the flatlands. Basic training, with attendant problems of acclimatization and constant interference by cold weather, was much more complicated. A recruit had to be taught far more before he could function in the field. AGF directives were made for standard equipment, not for the special gear of the Mountain Troops. Much was predicated on motors which were not part of the MTC organic setup. Little terrain was available close to the camp for small or large unit training. An average of three hours daily was consumed in going to and from training areas. While this was overcome in part by camping out, it could not be done by unacclimatized men. AGF directives did not provide for skiing, mountaineering, cold weather camping, care of clothing, maintenance of advance equipment in extreme cold, or allied winter operations. Furthermore their directives were predicated upon the assumption that a unit would receive all its men at one time for training. Actually, the recruits kept dribbling into Camp Ha¹ at the rate of from three men to one hundred men a day, with from a week to three years military experience.¹

On 2 January 1943 the MTC headquarters issued a directive on training to the commanding officers of all its units, outlining the basic winter and mountain training program.² Briefly, it consisted of the following: forty half-day periods of ski instruction, ranging from nomenclature, drill on level snow, uphill technique, cross-country work, and the various downhill phases to and including the stem Christiania, so that "the beginner will be taught all technique of skis needed to enable him to travel quickly and safely over rugged snow-covered terrain with a military load." Each of the forty periods was to include a forty-five-minute cross-country run, during which instruction in this technique was to be emphasized.

At the end of each week the students were to be graded and the classes readjusted. Rucksacks weighing 10 pounds were to be worn during the first ten classes, 20 pounds to the next ten classes, 30 pounds to the third ten, and 40 pounds plus the rifle to the last ten classes. This training was designated for members of the Pack Artillery, the Quartermaster Battalion, the Signal Corps, Antitank and Anti-aircraft, Ordnance, Military Police, Headquarters and Staff, Mountain Training Center, the 87th Mountain Infantry, the 99th Infantry Battalion, and the 1st Battalion (Reinf) of the 86th Infantry. There was to be a military ski test for all students at the conclusion of the courses. Snowshoe training, consisting of six two-hour periods, was to be given to all troops in the Mountain Training Center.

1. "One of the difficulties experienced heretofore," wrote Gen McNair on 7 July 1943, "is that such men [experienced mountaineers] trickle in so slowly that the training progress of units is retarded seriously." Personal ltr of Gen McNair to Mr John C. Case, 7 Jul 43. AGF 353/104(Mtn). Copy also in 314.7/20 'Study No. 24)(C).

2. MTC rpt, 2 Jan 43, sub: Basic Winter Mt Tng Program. AG 353 MTC.

Despite the lack of glacier ice anywhere in the vicinity of Camp Hale, plans were laid for an ice-climbing school, to be conducted on the artificial glacier built by the engineers in Lower Resolution Creek Valley. Logs were cut and stacked on a steep slope to simulate crevasses and seracs, and then water poured constantly over them until a frozen, man-made ice cliff would result. Only a few men of the 87th actually received the training, because the "glacier," having been built on a south slope, soon melted from the direct rays of the sun. The training schedule had called for instruction to be given to platoons from the Infantry, the Engineers, and the Signal Corps, in the use of ropes, ice-axes, ice-pitons, and crampons.³ Twenty two-hour periods were to be devoted to this teaching, but actually, as explained above, this excellent program was never thoroughly carried out. Later in March the north slope of Resolution Creek valley was similarly "glaciated" with more success by the Engineers, and this area was used, in conjunction with the 87th rock climbing school, until mid-May.⁴

In addition, all members of the Mountain Training Center were to be trained in the individual preparation of the Mountain ration. This highly specialized, dehydrated item required intelligent use in its preparation.

All units were to conduct training with the various types of mountain tents, spending a total of twenty-four nights out in them, besides a total of four nights out with a brush camp and an open fire, and two nights above timberline with a snow shelter and a mountain stove.

Freighting the supplies over the snow was to be practiced by the necessary personnel of all units, with eighty-four hours allotted to work with the toboggans, and ten hours only to be the operation of snow motor vehicles. Engineer companies were to be trained in the installation and operation of all types of tramways issued.

Finally, during the over-night bivouacs and the cross-country marches, the subjects to be emphasized were trail hygiene, march technique, avalanche precautions, and bivouacking in the snow.

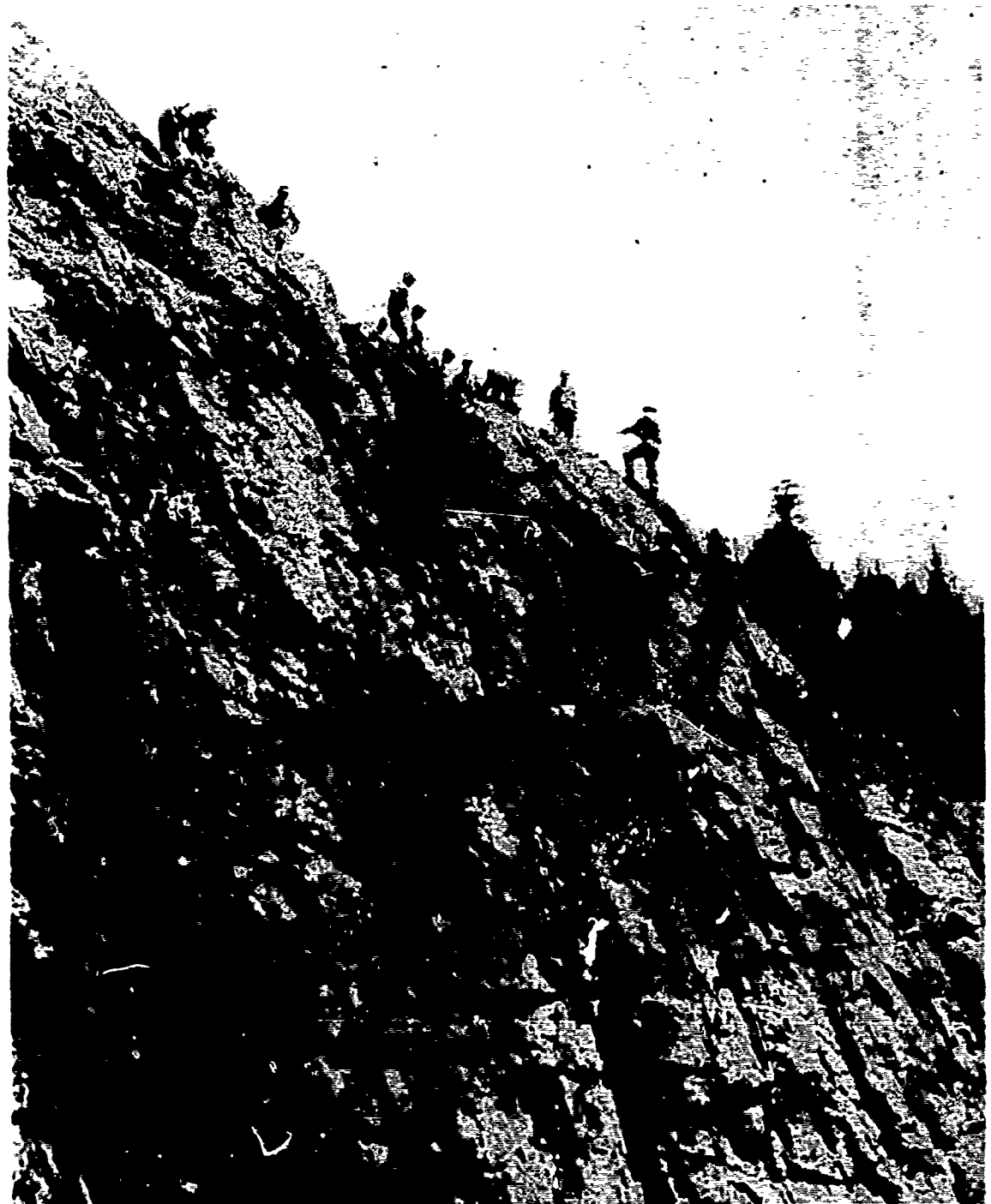
On 27 January 1943 and again on 12 February, MTC Headquarters wrote to Army Ground Forces in Washington giving their reasons for modification of the AGF training directive effective 1 November 1942. General Rolfe had seen where it could not be made applicable to mountain training, and after much work and research, he and Major Irwin of G-3 drew up modifications of inclosures 1, 2, and 3 to the aforementioned directive.⁵ These included lengthening the individual training program from 13 to 17 weeks, because of the acclimatization period, the 160 hours of skiing, and the time devoted to rock-climbing instruction, cold-weather camping, and the care of animals. On inclosures 2 and 3 there was to be no modification of time. Cold weather and difficult terrain operations were to proceed concurrently with the unit schedule. Some adaptation to mountain Tables of Basic Allowances would have to be made. Regimental combat team exercises were to be modified to employ animal instead of motor transportation when necessary.⁵

3. Ibid.

4. Conversation of Hist Off with Lt Col J. J. Irwin, Feb 44.

5. MTC Rpt, 2 Jan 43, sub: Basic Winter Mt Tng Program. AG 353 (MTC).

6. MTC ltr to OG AGF, 27 Jan 43, sub: Recommendations for 353/52 (Tng Dir)(10-19-42)GNGCT. AG 353 (TC).



THE ROCK CLIMBING SCHOOL AT CAMP HALE
TAUGHT THE FUNDAMENTALS OF MOUNTAINEERING

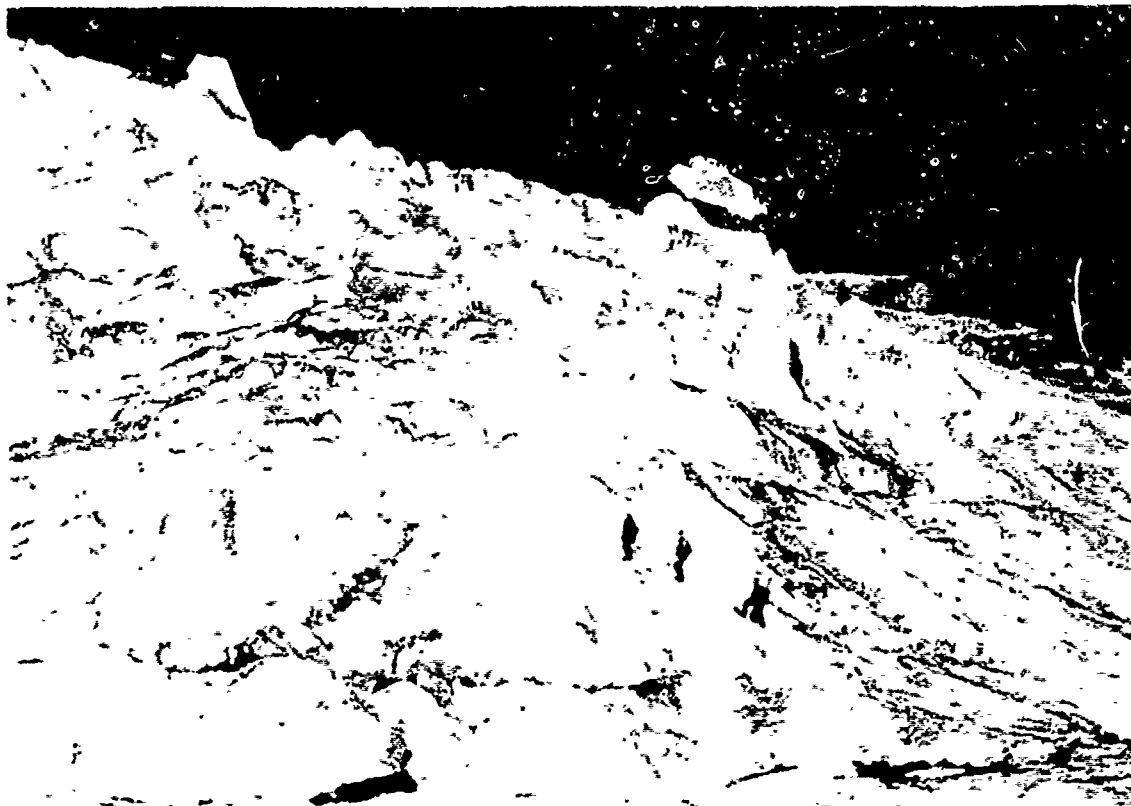




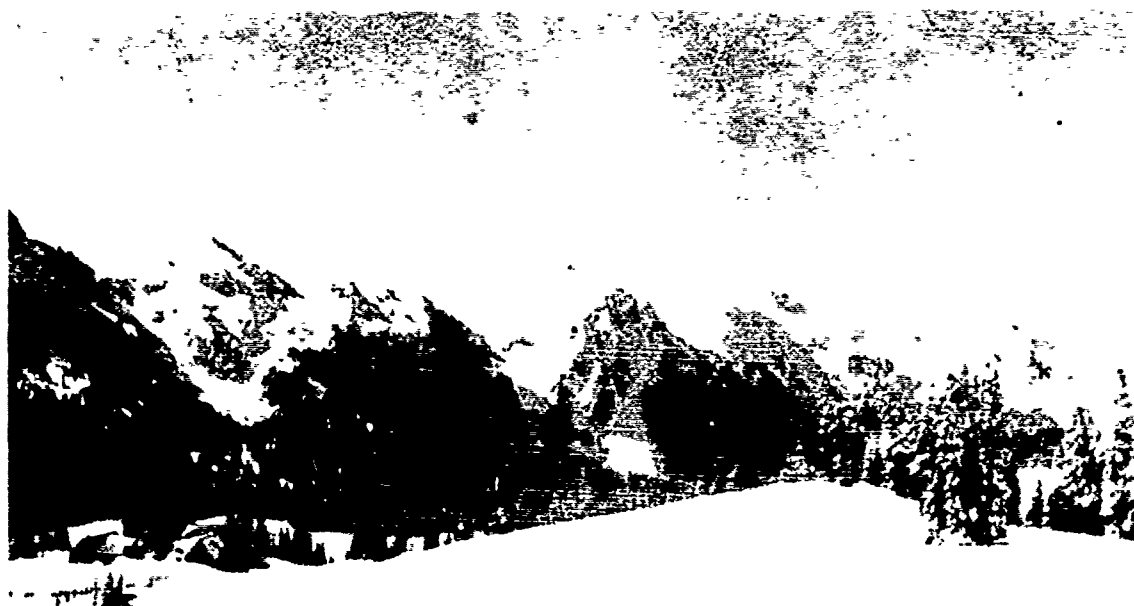
TROOPERS GOING THROUGH THE MOUNTAIN OBSTACLE COURSE



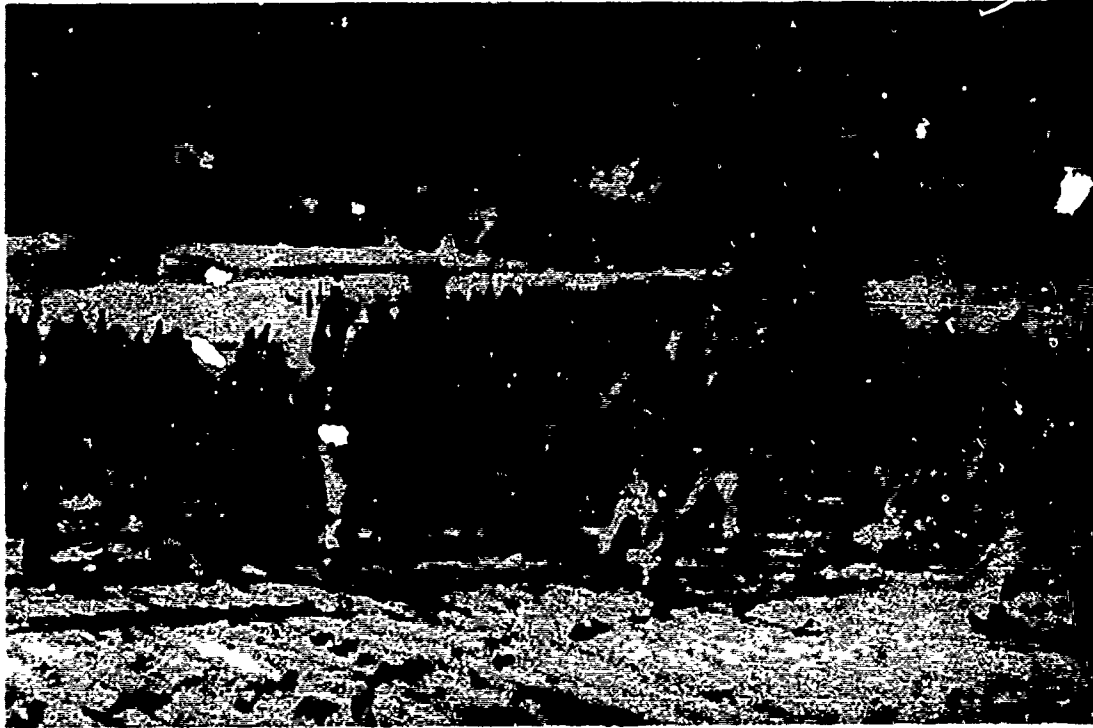
EXCHANGING LASH ROPES WHILE LEARNING TO LASH MULE LOADS
AT THE PACKING SCHOOL, FORT LEWIS. JULY 1942



A PATROL OF MOUNTAIN TROOPERS CLIMBING THE ICE FALLS ON
NISQUALLY GLACIER, MT. RAINIER



MOUNTAIN TROOPERS IN THE TATOOSH RANGE NEAR FORT LEWIS



MOUNTAIN TROOPERS PRACTICING SKI MANEUVERS NEAR FORT LEWIS



COLONEL ROLFE GIVING ORDERS DURING MANEUVERS ON MT. RAINIER. APRIL 1942

In general, the training of the Mountain Division, as stated by General Rolfe, was to be in conformity with that of the regular Infantry Division, with special adaption to mountain terrain and winter conditions. Specialized training in skiing, snowshoeing, mountain climbing, and the like was to be carried on concurrently with other training.

As the seasons changed, the nature of the training changed with them. When the warm Colorado sun had melted the snow from Cooper Hill by the end of April, rock-climbing classes were set up on the hundred-foot cliffs at the east end of camp. These were ideally suited for the training, and as many as a hundred men at a time could be taught the fundamentals of elementary rock scaling, use of basic hand-and-foot holds, rope work, belaying, use of pitons, and rappelling. A school was organized under Lieutenant Patterson, and later, Captain Woodward, with members of the 87th Infantry and the reorganized 10th Cavalry Reconnaissance Troop as instructors. Training consisted of a six-day period, two days of which were spent on the rebuilt artificial glacier. At the end of this time the men took a thorough practical test and those who qualified were certified as Military Mountaineers. All the MTC staff officers were required to take the course, at the rate of an afternoon each week. Approximately fifteen men from each company of the 87th Infantry, and the entire 10th Medical Battalion were trained during the spring. Then, as it became apparent that more space was needed, in August, the school was moved down to the cliffs along Homestake Creek, about three miles north of the camp where a battalion at a time of the 10th Light Division, successor to the Mountain Training Center, was trained for a total period of nine weeks. After much debate and delay on the subject, the results of the Military Mountaineering tests were entered in the men's Service Records, following the precedent set in the case of the Military Ski Qualification tests.⁷

An ice-climbing school was also held on Mt. Rainier during September 1943 for about 150 officers and enlisted men of the three infantry regiments. Members of the 10th Reconnaissance Troop and the Mountain Training Group were instructors.

Supervision of training was difficult to start with because of the difficulty of travel. It would have kept the entire G-3 staff busy full time just making the rounds of the various peaks and valleys. The ski instruction was left more or less to the few officers of the Division Ski School, and it was not well carried out. In many instances the prescribed number of men from units other than Infantry would simply fail to appear for ski instruction. The instructor would dutifully report the absentees, but nothing more would be done about it. The various regimental and battalion commanders apparently considered skiing and mountaineering of secondary importance to the regular training, and the efficiency of the special training classes suffered thereby. A lesson was learned from that winter's experience, however. When the 10th Light Division was organized, General Jones made it very clear to the regimental commanders that they were directly responsible for the attendance and supervision of their skiing and mountaineering classes.⁸ Absenteeism dropped to zero.

Special training was also conducted along experimental lines with dogs, which the men whimsically termed the "K-9" detachment. Ranging in breeds from Belgium Shepherd to Alsatian, these dogs were trained in an intensive course at Front Royal, Va., along with the men who were to handle them. Some of these dogs were schooled to be messengers, in which case two men were allotted to one dog. This dog learned strict obedience to each of his two handlers, and learned to recognize their scent over bare rocks and in deep snow. He would then shuttle back and forth between

7. This account of training procedures is based on the author's experience and observation at Camp Hale.

8. Col Irvin, in conversation with Hist off, Feb 44.



AN "ATTACK DOG" LUNGING AT THE PADDED ARM OF HIS INSTRUCTOR



PUTTING A MESSAGE ON THE COLLAR OF A MESSENGER DOG. CAMP HALE



EXPERIMENTING WITH DOG TEAMS AT CAMP HALE. THE USE OF SLED DOGS FOR MILITARY OPERATIONS PROVED UNADVISABLE

these two men, carrying messages. Others were taught to be sentry dogs, obeying but one man as the master. These dogs were savage and were trained to leap at the throat of any person who approached other than that master. The messenger dogs were used with great success in the tactical problems of the 85th, 86th, and 87th Mountain Infantry Regiments. This particular type of dog could make speeds up to thirty miles an hour over packed trails, and even in deep snow they moved faster than a man. In the February tactical exercises the 87th Mountain Infantry, these dogs proved that they could travel over unfamiliar terrain, day or night, at the rate of three-fourths of a mile in six minutes.

A third type used by the Mountain Training Center was the sled dog, a breed of husky from Alaska. Camp Hale was fortunate in having among its personnel several men from Admiral Byrd's Arctic expeditions, and they experimented with these dog teams under the direction of the Executive Officer of the Mountain and Winter Warfare Board. After several months' experimentation with some dog teams from Wonalancet, N.H., and Rimini, Mont., it was concluded that the use of sled dogs for military operations was not advisable, for they could operate only over packed trails and were not available in sufficient numbers to supply an Army unit of any tactical size.⁹ Bestor Robinson had voiced his opinion two years earlier in his report of equipment. (See Chapter I.) The messenger and sentry dogs were rejected also as being uneconomical of personnel, fifty men being needed to care for twenty dogs. Major Irvin drew up plans for a proposed dog company Table of Organization, to be attached to the 10th Light Division, but it was disapproved by the Army Ground Forces and the matter was dropped.¹⁰

On 27 October 1942, only two months after the activation of the Mountain Training Center, it was requested that Army Ground Forces allot Special Field Exercise funds in connection with the specialized nature of mountain training. An allotment of \$15,000 was granted him for this purpose on 2 November. Some of the contemplated uses for this money were as follows:¹¹

1. Constructing an artificial glacier.
2. Preparing a rock-climbing instruction area.
3. Targets (fall) for ski patrols.
4. .22-caliber rifles and ammunition for firing 75-mm pack indicators indoors.
5. Purchase of materials for constructing log shelters on mountain peaks, for training ski patrols in defense of a mountain line, Swiss method.

The glacier and rock-climbing areas were constructed, but fall targets and log shelters for ski patrols never materialized. They would have contributed greatly to the combat training of the ski-equipped units.

One of the unique features that developed out of the training under the Mountain Training Center was a Mountain Obstacle Course, which combined all the features of the regular obstacle course plus the more advanced elements of mountaineering. It was moderately difficult, the main trouble being the high altitude at which it was run--nearly 10,000 feet. Men who had passed the regular Mountaineering Course were required to run this for the record, at least once, and most of the Headquarters staff went through it at various times. The artificial glacier, already described

9. Rolfe memo. 314.7/53 (Study No. 24) (C).

10. Conservation of Hist Off with Col Irvin. Feb 44.

11. MTC ltr to CG AGF, 27 Oct 42, sub: Request for SFE Funds for MTC.
AG 120 MTC.

in detail, was another special training device which worked out fairly well. Its chief drawback was that water had been poured on top of the snow base, and consequently the entire mass did not freeze to an even depth. But it served well, though on a limited scale, for cutting ice steps, driving ice pitons, using ice axes and ropes, and similar exercises.

CHAPTER VI

SPECIAL TRAINING MISSIONS

Almost from their inception the United States mountain troops were called upon for a variety of special training missions in various parts of the world. As early as 15 April 1942 a detail of five enlisted men and two officers, Captain Lafferty and Lieutenant Woodward, left the 87th Mountain Infantry at Mt. Rainier for Sun Valley where they acted in some winter training films produced under the direction of Mr. Roland of Metro-Goldwyn-Mayer. Written in collaboration with Maj. Beator Robinson of the Winter Equipment Section of the Quartermaster General's Office in Washington, seven films were made on the following subjects: "Ski Safety," "Snow Camping above Timberline," "Snow Camping in Timber," "Ski First Aid," "Ski Mountaineering," "Ski Equipment," and "Ski Sled." Because of bad weather and poor snow conditions at that late date, filming lasted till mid-June, after which time the Mountain Troopers went to Hollywood for the interior scenes. Captain Lafferty remained in Hollywood until mid-August to supervise the cutting and editing of the films, which were released about a year later.

Because of the mild climate on the lower slope of Mt. Rainier, where temperatures rarely fell to zero, it was impossible during the winter of 1942 to test adequately the many items of winter equipment to the satisfaction of the Quartermaster General's Office in Washington. Accordingly, on 13 May 1942, an expedition of eight men left Paradise Lodge on Mt. Rainier for a two weeks' trip to the summit of the 14,408 foot peak, never before successfully climbed at that time of year, when, because of rotting snow and ice, crevasse conditions are at their worst. The mission of this group was to test winter equipment under extreme conditions of temperature and altitude. The personnel were carefully selected and given complete physical examinations previous to the trip.

Led by Captain Jackman of the Mountain and Winter Warfare Board, the party included Lieutenant Townsend, second-in-command; Lieutenant Jay, Meteorologist and Photographer; Sgt. Ralph Weise, first aid man; Cpl. Peter Gabriel; whose years of experience as an Alpine guide proved invaluable; Cpl. Charles Bradley, radio operator; Cpl. Eldon Metzger, a veteran mountaineer; and Pvt. Paul Estes.

A large assortment of dehydrated foods, experimental sleeping bags, stoves, footwear, other types of winter clothing, and tents were carried on the trip, so much duffel, indeed, that it was necessary to use about fifty men from one of the companies of the 87th as porters to back-pack the equipment up to the base camp at 10,000 feet. Even so, each of the eight men in the expedition carried loads of 85 pounds.

At base camp, the porters left them. From here, the party reconnoitered routes to the summit for five days before proceeding higher, packing their loads in shifts to the high camp at about 13,000 feet. From here, the successful assault on the summit was made. Bad weather forced their return to their tent camp after a few hours, during which time a blizzard set in, obscuring their tracks. Their trail markers, short willow wands, were blown away, and the expedition could well have ended disastrously had it not been for Corporal Gabriel's superb guidance. A few more days were spent at the 10,000-foot base camp, concluding the tests, and the party returned to Paradise Lodge 25 May 1942. The resulting mass of notes was later incorporated in Captain Jackman's interesting and extremely valuable report to Washington.¹

1. Ltr 87th Mt Inf Regt, Ft Lewis, Wash to CG AGF, 20 Jun 42, sub: Rpt of Mt Rainier Test Expedition. 400.112/471.

The trip was not without hazard. There was always the danger of avalanches, and twice the party had narrow escapes from hidden crevasses. Ropes, ice-axes, and crampons were used continuously above 10,000 feet, while skis were employed below that level. The effects of extreme altitude were noticeable on both men and equipment; individuals would become drowsy and lose energy, and the mountain stoves failed to function properly above 10,000 feet. These gave off dangerous monoxide fumes, poisoning the men who did cooking inside their tents. This deadly gas very nearly defeated the expedition. A radio consultation with a doctor at the base cleared the matter up in time.

Among the major lessons learned from the trip were the following: At altitudes over 10,000 feet, and in zero weather or colder, men need more sugar to keep warm and energetic. Each man was consuming three-quarters of a pound a day at the summit. The tent, ski, sectional, designed for one, two, or four men and held together with zippers, proved entirely unsatisfactory, despite the fact that it had been accepted as standard issue by the Army. It was crowded, it frosted up badly on the inside, and worst of all, the zippers stuck or broke and were extremely difficult to handle with bare hands. Air mattresses were an essential item to protect the body from the cold snow above timberline. Cooking times were doubled because of the necessity of melting snow for water--in the case of powder snow, time was trebled--this added to the total fuel consumption to be reckoned in terms of weight carried.

Pack boards were found to be the answer for carrying loads in excess of 50 pounds, and surprisingly enough, contrary to popular opinion, it was found possible to ski with heavy loads on them if the weight was properly distributed low on the back. Canvas gaiters proved most unsatisfactory, icing up so as to be useless. Three-foot willow wands painted a bright orange, meant the difference between life and death as trail markers above timberline. It was found that these should be placed at a maximum of 120 feet apart. The food on the whole was excellent, and later became the standard mountain ration. Tea was favored over coffee, and cocoa was the most popular of all.²

As was the case with many of the reports of the Mountain and Winter Warfare Board, Captain Jackman's report became sidetracked in Washington, and only a very few of his carefully considered recommendations were used. Colonel Rolfe wrote a personal letter of commendation to each member of this expedition upon its conclusion. The letter, dated 25 May 1942, was as follows:³

As a member of the Mt. Rainier Expedition, I wish to commend you for your part in this military mission, thereby contributing to the success of a military party of eight men who reached the summit of Mt. Rainier, elevation 14,408 feet, never before done at this time of year.

Your ability to carry on at high altitudes and under adverse conditions for a period of two weeks is a credit to the United States Army and the 87th Mountain Regiment. Examples of this nature build up an "Esprit de Corps" of any unit and a standard to which all others hope to attain.

Immediately following the Mt. Rainier trip, a call came in from Washington for Captain Jackman and Corporal Gabriel to report to Alaska for another expedition on a larger scale. The Air Forces and the Quartermaster Corps were jointly sponsoring a test expedition to the summit of Mt. McKinley, highest peak in North America.

2. For details see Capt Jackman's report cited in note 1.

3. Pers ltr of Col Rolfe to Lt John Jay and others, sub: Commendation. Pers file, Col Rolfe.

The Air Forces wanted tests on emergency equipment for fliers in frigid areas, and tests on dropping supplies by air under winter conditions. The Quartermaster Corps was still trying to perfect its arctic clothing and equipment. Time, as always, was fast running out. The tests had to be concluded in time to place the orders with the manufacturers for the next winter's issue. Mt. McKinley in Alaska, 20,200 feet high, offered the best possible arctic and alpine conditions in midsummer.

Colonel Grice of the Quartermaster Corps, asked the assistance of the American Alpine Club, and a large party was quickly organized, led by Lt. Col. Frank G. Marchman, Quartermaster Corps, with Capt. Robert H. Bates as second-in-command.

The final selection comprised a fine blend of experienced army men and trained mountaineers. From the American Alpine Club, in addition to Captain Bates, came Major Wood, veteran mountaineer and a member of the American Geographical Society, Sterling B. Hendricks, Terris Moore, and Einar Nilsson. From the Army Air Forces came Bradford Washburn of many years' experience in Alaska's mountains, Capt. Harold Lund, Lt. Paul Hanson, Sgt. William Muser, and Pvt. William Goddard. Army Ground Forces sent Captain Jackman and Corporal Gabriel. Capt. Jack Bollarud represented the Medical Corps, Lt. Waldo Elmer the Signal Corps, and Colonel Marchman and Captain Bates the Quartermaster Corps. Capt. E. R. Gibson of the Royal Canadian Army, an experienced mountaineer, and Fl. Lt. Peter Webb of the Royal Canadian Air Force, completed the party.

The main group, preceded by Wood and Washburn, left Fairbanks 15 June 1942 and proceeded slowly up the forbidding slopes of Mt. McKinley, using the Karstens Ridge route. Through a combination of ground and air reconnaissance, areas were reconnoitered to determine what items could best be tested where. At the Middle Test Area, ten thousand feet high, the party split up into smaller units for testing purposes. Every type of terrain and weather was available for this, from marshy muskeg at the base, to the higher levels where the wind-packed powder snow was found to maintain an even temperature of minus 17 degrees. The Air Force was hampered by lack of available planes because of the Japanese invasion of the Aleutians shortly after the expedition started, but managed to parachute in many supplies, thus easing the load carried on each man's back.

To quote from Captain Bates himself:⁴

In separate groups we tested equipment up the southwest fork of the Muldrow Glacier, and up and down the main part of the glacier. Rain, hail, snow, as well as the wind, provided sufficient variety. . . . Men let themselves be soaked to the skin to prove the value of water repellant materials, and at other times shivered to learn the minimum temperatures at which climbing boots, sleeping bags and other items could be used. At one period, two of us, to our great disgust, were unable to walk for five days, so energetically had we tested some special boots. But the skinned feet definitely served their purpose, for information was relayed by radio to Washington that changed the design of the boots and saved many men this winter from equally painful feet.

The Middle Test Area taught the members a great deal about the strong and weak points of their sleds, snowshoes, skis, ropes, ice-axes, stoves, and similar gear, but it was necessary to go to the High Test Area to get the extreme cold necessary for testing the tents, sleeping bags, and special clothing. A high camp was established at 17,800 feet on the Harper Glacier by Washburn and Nilsson, where the nightly temperature, even in July, averaged minus 22 degrees. On 22 July 1942 the summit was reached by Moore, Bates, Washburn, and Nilsson, and again on the next

4. American Alpine Club Journal, 1943, p 7.

day by Hendricks, Jackson, and Webb. It was the first ascent of North America's highest peak since 1932.

Back at the base camp a few days later, each man wrote up a detailed report of the items of equipment tested by him, and the whole was condensed into a complete summary which was flown back to Washington along with samples of items which had shown strain or wear, or failure of material and design. The results were incorporated into the equipment changes for the following winter.⁵

Meanwhile, back at Ft. Lewis, another project was under way. An urgent need had arisen for the quick development of an over-snow vehicle that was light enough to traverse deep snow, powerful enough to transport men and draw cargo sleds, and small enough to be carried in a transport plane. Studebaker Corporation volunteered to tackle the job, and in six months had produced a unique tank-like machine that seemed to be the answer. It had to be tested, however, and there was no time to wait for winter snows. The Columbia Ice fields in the Canadian Rockies held powder snow all the year round, but they had always been regarded as inaccessible to vehicles. The 87th Mountain Infantry supplied a detail of men to build a road up onto this ice field and supervise the testing of these vehicles during the summer of 1942.

The whole expedition numbered about fifty men and three officers. Colonel Tillotson, S-4 of the 87th Mountain Infantry, was in charge, with Maj. Louis Malow as Medical Officer. For his Executive Officer he chose Lieutenant Townsend, just returned from the eight-man Mt. Rainier expedition. Red tape was cut to a minimum. Studebaker underwrote all expenses, provided all the equipment, and the Army Ground Forces secured all the necessary priorities. In a few days the mountain troopers had set up a base camp at the snout of the Saskatchewan Glacier, and were building a road onto the glacier ice from a point where the new Jasper Highway ended.⁶

The Canadians had said that it could not be done, but within two weeks, with the aid of bulldozers, dynamite, sweat, and ingenuity, the detail from the 87th had constructed a road 8 miles long across crevasses, and streams and up glare ice to an advance camp in the powder snow area high on the ice field. Six-by-six G.I. trucks with chains on all their wheels were soon roaring up the glacier ice with supplies, and the tests were carried out for several months, resulting in the evolution of the Cargo Carrier T-15, later redesignated as M-28 and its successor, the M-29. Great credit should go to Colonel Tillotson and Lieutenant Townsend and their men from the 87th, not only for a difficult job well done, but for exemplary conduct which has instilled in the Canadians a lasting admiration for the fine character of the United States mountain troops. How well they worked is evidenced by the following letter from Brig. Gen. Raymond G. Moses, G-4 WDGS, to Colonel Rolfe:⁷

The detachment of the 87th Mountain Infantry Regiment which you sent to Canada to operate the camp and to assist the Studebaker Corporation in testing snow equipment was perhaps the finest group of soldiers it has ever been my pleasure to work with. According to Colonel Tillotson's statement, this was not a selected group; if this is the case, then you are indeed to be congratulated on the state of the regiment which you developed.

5. Ibid, p 8.

6. Conversation of Hist Off with Maj Paul Townsend, MTC, Sep 43.

7. Personal ltr of Brig Gen R. G. Moses, G-4 WD to Col Rolfe, 31 Dec 42.
370.22 MTC.

Colonel Tillotson did an excellent job in arranging the very complicated preliminaries with the Office of Scientific Research and Development, the Studebaker Corporation, and the Canadian authorities. He established and maintained one of the most attractive camps I have ever visited. He conducted his affairs in such a way that great credit was reflected on your troops and on American operations in general.

I want especially also to commend Lt. Townsend who took charge when Col. Tillotson left. In spite of his youth and lack of previous experience, I know of no one who could have done the job better than he in continuing and closing out the camp. He is a very attractive young soldier; I would be delighted to have him in my command if I had the right sort of job for him. . . .

During the summer of 1942, also, an experiment in the use of horses in mountainous terrain was conducted in the Olympic Mountains in Washington. Lieutenant Borden, in command of the Intelligence and Reconnaissance Platoon, led his men on horses on a two weeks' trip over very rough ground in the Olympic National Forest. The results proved conclusively that the animals were far more a liability than an asset. They had to be led up the rocky trails over half the time, and were unable to negotiate the fallen trees, windfalls, and boulders that blocked their path. Their large bulk gave them an easy silhouette, hard to conceal and practically impossible to camouflage above timberline. Furthermore, trips had to be planned with a view to camping within range of grazing areas for the animals, otherwise excessive loads of forage had to be carried. Lieutenant Borden's report concluded:⁸

In general, it would seem that mountain reconnaissance could be better accomplished without the use of horses. In the Olympics, where the ground is rough and slopes are steep, and densely wooded, better travelling time and much greater mobility could have been gained by seasoned foot troops. The horses required more time for care and feeding; they were almost completely trailbound (vulnerable in combat); they made a problem of supply which would not have existed with foot troops; and bivouac areas had to be selected which would give them water, grazing, and room for picketing.

In August 1942 another detail of about thirty men and two officers from the 87th Mountain Infantry was sent to Aspen, Colo., to work with the Corps of Engineers on the construction of aerial tramways and suspension bridges for use in the mountains. Commanded by Lt. Robert McMahon, with Lt. Ralph Lafferty as second-in-command, these men set up tents in an alpine meadow, elevation 10,000 feet, near the ghost town of Ashcroft. They brought mules with them to pack supplies. For three months these men worked with Major Roebeling of the Engineers, experimenting on various types of bridges and aerial tramways in mountainous terrain. It was proved that ordinary mountain infantry, with a little assistance from the engineering experts, could erect and maintain simple bridges and cableways of the type needed for supply in the mountains. At the conclusion of the tests in November 1942, the Aspen Detachment of the 87th Mountain Infantry attempted to march on foot with their mules across the 45 miles of alpine terrain that lay between them and the newly-built Camp Hale. The entire town of 700 souls, plus a brass band, sent them off to a gala start, but the troops had not reckoned with the great amounts of snow that had fallen on the passes of the 14,000-foot Williams Mountains. One day out of Aspen, they encountered drifts 30 feet high, and a snow cornice that effectively blocked the way. Men on skis could cross it, but it was impassable for the mules. Lieutenant McMahon gave orders to return to Aspen, and the men reluctantly turned about,

8. 87th Mt Inf Regt ltr to CO 87th Mt Inf Regt, 9 Oct 42, sub: Rpt of Reconnaissance (Rcn) Det. to Olympic Mountains. 353 (Mtn).

...reaching to Camp Hale by truck the next day. Once again it was clearly demonstrated that animals in the mountains can be more of a liability than an asset.⁹

In October 1942 ten officers and sixteen enlisted men were ordered from Ft. Lewis to report to Camp Edwards, Mass., as mountaineering instructors. From there they were sent to Lincoln, N.H., where for two weeks, under the direction of Lt. G. H. Stanley, they trained a group of one hundred officers and noncommissioned officers of the 26th Division in the fundamentals of assault rock climbing and elementary mountaineering. The trainees had received their regular military training, but this mountain work was entirely new to them, and they took to it enthusiastically. Another hundred men and officers were trained the following two weeks, after which time they all went back to Camp Edwards, and the two hundred newly-trained men taught the rest of the Division, under the supervision of the instructors from Ft. Lewis. As training aids, they erected and used wooden climbing walls similar to those used by the 87th at Ft. Lewis. After two weeks of this instruction, cold weather prevented any more outside work. The mountain troop instructors then turned to the subject of winter warfare and gave a series of lectures, using samples of clothing and equipment to demonstrate their points. No actual field instruction was given however. On 15 November 1942 the instructors were ordered to Camp McCoy, Wis., to train the 2d Division in winter warfare.¹⁰

At Camp McCoy, Lieutenant Stanley's group was augmented by about twenty more officers and eighty enlisted men from the Mountain Troops, under the command of Captain Wikner. Here they split up into smaller groups and dispersed to various old CCC Camps in the upper part of Wisconsin and Michigan for individual and small unit training in skiing, snowshoeing, and winter camping. After six weeks of this, the groups reassembled at Camp McCoy for division maneuvers in the deep snow and bitter cold of Wisconsin. On the whole, the training the men had received proved most satisfactory. Despite the fact that practically the entire 2d Division was composed of Texans who had seldom seen snow, the men learned rapidly and well. Captain Wikner had wisely concentrated on cross-country skiing only. In six weeks' time they were able to ski 20 miles a day with heavy packs on their backs, and to sleep out many nights in 30-below-zero temperatures without suffering undue ill effects. The "weasels," as the T-15's developed by Studebaker were called, proved most useful in this maneuver, where they were used by the hundreds. Their great enemy was stumps, hidden under the surface of the snow, which occasionally ripped the bellies and tore the tracks from these sturdy little vehicles. But for general over-snow travel, the "weasels" left the jeeps and trucks far behind.

The plan of using the mountain troops as instructor teams for regular line outfits seemed to be gaining favor with the War Department. In February 1943, another team was sent to Buena Vista, Va., to train other divisions in assault climbing. For two months this work was carried out, and carried out well, as their students' combat performance later testified. Major Jackman, assigned to the Special Projects Branch of G-3, AGF, Washington, supervised this training, as he also did the 2d Division winter training at Camp McCoy.¹¹

Then, in June 1943, came the call that every mountain trooper had been waiting for. The 87th Mountain Infantry was alerted and sent to a port of embarkation. For a month they practiced amphibious training at Fort Ord, Calif., then sailed for the Aleutians, and ultimately, Kiska. As the world knows, they missed the Japanese by a few hours, but their mountaineering skill stood them in good stead on the steep and

9. Conversation of Hist Off with Lt Col J. J. Irwin, Feb 44.

10. Conversation of Hist Off with Lt Glen Stanley, MTG, Dec 43.

11. Conversation of Hist Off with Lt Col Paul Lafferty, MTG, Feb 44.

forbidding terrain of that island, and they earned high praise from the Commanding Officer of Combat Team 87.¹² The Commanding Officer of the 3d Battalion 86th Infantry accompanied the troops as an official observer and sent a report back to Washington.¹³ Their work done on Kiska, the 87th returned to the States in October, all the qualified ski instructors going to Camp Hale, and the remainder to Camp Carson, Colo.¹⁴

Meanwhile, the Dominion of Canada was feeling the need for Mountain Troops to defend its rugged western coast-line. At the suggestion of Mr. Case, President of the American Alpine Club, General McNair ordered two observers from the Mountain Training Center to attend a three weeks' course in Military Mountaineering. The area chosen was the Little Yoho Valley in British Columbia. From a line infantry outfit of the Canadian Army, the Prince of Wales Rangers, 150 men and officers were chosen for the experiment. The instructors were civilian members of the American and Canadian Alpine Clubs, all expert climbers, but not all skilled instructors. Lieutenant Bradley and Captain Jay of the Mountain Training Center were sent as the American Army observers.¹⁵ It was their opinion that the experiment was a step forward for the Canadian Army, but that the use of civilian instructors was not desirable for many reasons. Similar training was being conducted by the United States Mountain Troops on a more efficient scale with Army instructors at Camp Hale and elsewhere.

The Virginia Rock Climbing School had proved so successful in the spring of 1943 that another detail was sent from Camp Hale to the West Virginia Maneuver Area at Elkins, W.Va., in July 1943, to teach assault climbing on a larger scale. Thirty-two men and three officers of the 10th Reconnaissance Troop (Mechanized), under the command of Lt. Hazel E. Link, set up a full-scale, high angle rock and assault climbing school at Seneca Rocks, near the Shenandoah National Park in West Virginia. An average of 180 men and officers went through the courses every two weeks on the sheer and crumbling faces of these crags. Six men and an instructor constituted a class, and each four or five classes were under a supervisor. Schedules called for everything from easy basic rock scrambling to extreme tension work with pitons. Particular stress was laid on the rigging and use of assault ropes and pulleys. Each group made two tactical night climbs on strange rock, and as a conclusion, put on a full-scale assault demonstration before ranking War Department officers.

Among the lessons learned from this school, were the following: Fairly large groups of pre-toughened men can be taught high-angle rock work safely and efficiently in a regularly organized school. Nylon ropes are the best all-round lines for military scaling. Nailed mountain boots of special design are not necessary for this sort of work, the regular issue G.I. cord-soled shoes being entirely satisfactory. Instructors should not be kept on this type of detail for longer than three months without relief; severe mental and physical strain becomes evident after such time.

12. "The facility with which the 2d Battalion, 87th Mountain Infantry Regiment negotiated the difficult terrain proved beyond a doubt the value of specially qualified personnel for operations in steep rough terrain." Tab 50, Rpt by Col Roy V. Rickard, "Occupation of Kiska." AGF G-2 Dissemination Div. (Rpt dated 29 Aug 43.)

13. Tab 50, Rpt of Lt Col A. M. Cochran, "Occupation of Kiska," 13 Sep 43. In AGF G-2 Dissemination Div.

14. Movement Orders 402, 14 Dec 43; 394, 9 Dec 43; 388, 3 Dec 43; S O, 18 Dec 43, Ft Lawton Staging Area Hq. 87th Mt Inf files.

15. Copies of Capt Jay's and Lt Bradley's reports are deposited in 314.7/22 (Study No 24) (C).

In October 1943, details were sent to Pine Camp, N.Y.,¹⁶ and Camp McCoy, Wis., to give winter warfare instruction. The Italian campaign was under way at this time, and mountain troops were badly needed. Twenty officers were flown to Italy from Camp Hale to give instruction in mountaineering on the spot, along with Italian Alpini.¹⁷ And five officers plus ten enlisted men were sent as far as Syria, in November 1943, on an undisclosed mission of mountain warfare for the British.¹⁸ The mountain troops of the United States were gradually putting their training to use.

16. (1) SO 11, Hq Sp Trs, Cp Hale, Colo., 6 Nov 43. 220.3, 210.3. (2) SO 2, 15th Hq Sp Trs, Cp Hale, Colo, 27 Oct 43. Ibid.

17. SO 241, MTC, Cp Hale, Colo, 22 Oct 43. Ibid.

18. SO 42, 15th Hq Sp Trs, Cp Hale, Colo, 14 Dec 43. Ibid.

CHAPTER VII

DEVELOPMENT OF MOUNTAIN AND WINTER TACTICS

Ever since their earliest beginning, the Mountain Troops were concerned primarily with training. Tactics were necessarily relegated to a very minor role awaiting the day when the troops would reach a state of training that would qualify them for special mountain and winter operations.

Certain fundamentals in tactics do exist, and have been used by foreign mountain troops for many years. Basically they can be reduced to the following: Seize and hold the ridges and you command the valleys in between. Strike with speed and deception at the enemy's lines of communication and supply. Prevent him from taking the passes. These are the cardinal missions of any body of mountain troops.

The Mountain Training Center did not develop any tactics of its own. For its unit and combined problems, the standard flatland infantry tactics were used, converted to mountain use. This conversion did not always prove successful, but there was no mountain manual to follow. FM 31-15, "Operations in Snow and Extreme Cold," the nearest thing to a mountain manual, gave little help. No attempt was made to write a manual of tactics along these lines. As General Rolfe put it, "We've got to learn to walk before we can run." Training had to come first, and it proved such a large problem that no time nor room was left for its military successor, tactics. Mountain troop officers were sent to the Infantry School at Ft. Benning, Ga., and to the Command and General Staff School at Ft. Leavenworth, Kans. Although there was little emphasis on special operations (in mountain, jungle, or desert), the basic principles learned, when applied to mountain and winter warfare, were equally sound but were more difficult of execution. The unit proficiency tests up to and including the battalion were based on the assumption that friendly forces held the ridges with the result that the actual troops maneuvered in the lower parts of the valleys. This was done because of time and space factors. All commanders and troops of the Mountain Training Center were cognizant of the fact that "he who holds the ridges is the master of all below."¹

Avalanches are a potent weapon. Ten thousand Italian mountain troops were wiped out in one battle alone during the last war by a German-instigated snow slide, and 40 percent of the mountain troop casualties in World War I were due to avalanches alone. The Pack Artillery of the Mountain Training Center brought down a tremendous avalanche from the side of Homestake Peak during the winter of 1943 with a few well-placed shells. A mountain lake at the base of the cliffs was all but obliterated by its terrific force, demonstrating what would have been the fate of any enemy caught in its path. But the Infantry, whose mortars are ideally suited to this particular type of mountain warfare, failed to exploit it.

Furthermore, little training was given in the recognition of potential avalanche slopes, and none at all in the technique of rescuing avalanche victims. Major Wood, an expert mountaineer and leader of two expeditions into Alaska for the American Geographical Society, commented briefly on this lack of training in his report on the February 1943 maneuvers at Camp Hale:²

1 MWV Sch & Tng Center ltr to CG AGF, 10 Mar 47, sub: Comments to Study No 24, "The MTC." 314.7/49 (Study No 24)(C).

2. Memo (C) of Maj Walter A. Wood, Jr, for G-4 AGF, 20 Feb 43, sub: Rpt on Exercises Conducted at MTC, Cp Hale, 1-12 Feb 43. 353.02 (C).

Training must include a knowledge of objective dangers of terrain. An example is afforded by the action of men in setting out to retrieve parachuted loads which had grounded on a potentially dangerous snow slope. These men were recalled at this observer's request. Two days later the avalanche was easily brought down by artillery fire. To have permitted retrieving the loads might have cost the lives of all concerned.

Winter camouflage was for a time neglected. While the equipment had been whitened to blend with the snow, including experimental canvas covers and white-washing of rifles, camouflage discipline could have been improved. Ski tracks are one of the easiest of man's signs to spot from the air. It is sometimes possible to keep concealed in timber or in the shadows of ridges. However, the tactical situation may require movement of units in multiple columns where concealment of tracks might be impossible. The same principles apply to snow vehicle tracks which leave unmistakable imprints for the high-altitude observer, be he on the ridges or in a plane. In defensive positions concealment of tracks is impracticable, elaborate means of deception may be employed. The use of white clothing and equipment to blend with the snow has its advantages when the unit is operating in timber country. Whether it is more important to have white to blend with the snow or olive drab to blend with the trees is a moot question. A study of the photographs on pages and will illustrate the point. The building of warming fires by troops is a decision for the commander, who must decide whether the troops are in more danger of freezing than from artillery or aerial bombardment.³

Because of training requirements and changes in personnel, training in night fighting was limited to the ski trooper during the first winter. This required completion of individual training and some tactical instruction. The troops had not reached that stage, and it was difficult enough to train these men to ski and maneuver by daylight. Yet it is at night that the ghostly white camouflage is most effective, and the silent motion of skis on soft snow most valuable in its element of surprise. The Finns are masters of this night technique, and the Russians also learned it--through hard experience. Night-time likewise has always proved the best period for travel over dangerous snow and glacier ice; the trooper finds his footing firm and safe at night when the terrain is frozen hard, and the danger of rock and snow avalanche is at a minimum. The assault climbing schools in Virginia and in West Virginia gave adequate practice to the troops bound for Italy, but the Mountain Training Center at Camp Hale continued to train for the most part by daylight. The tactics of mountain and winter warfare continued to be subordinated to training.

3. MWW Sch & Tng Ctr ltr to CG AGF, 10 Mar 47 sub: Comments to Study No 24, "The MIC." 314.7/49 (Study No 24)(C).

CHAPTER VIII

AIR-GROUND TRAINING AND TESTS

From the start, the problem of air support and air-ground coordination for mountain troops was a difficult one, and the problem remained far from solved. Indeed, in nearly all the few cases where attempts were made, the results were so unsatisfactory that those in charge soon dropped it.

Basically, air supply of mountain units is an important factor because of the difficult terrain and the independent missions of the mountain troops, which necessitate their operating as small isolated units for days at a time. Despite the snow machines, despite the mules, eventually all supplies reach a point where they have to be back-packed by the men themselves if they are to reach their destination. The mountain troops do not have any Table of Organization for porters, as do many of the foreign armies. This means that great parts of the combat troops have to be used as porters, and this in turn decreases their fighting power. Supply by air would seem to be the answer.

Experiments of this kind have been very sketchy and none too satisfactory. The 1st Filipino Regiment has been successfully supplied by air during the Hunter-Liggett maneuvers of 1942; but it was in the lower Coast Range of California. In the February 1943 maneuvers at Camp Hale, supply of ground units was effected by two CG-4 transports of the 50th Wing, 1st Troop Carrier Command. Three missions were flown from a base at Peterson Field, Colorado Springs. The first mission involved re-supply of a battalion with rations, ammunition, skis, and rifles. Thirty-two delivery units were dropped and sixteen were recovered within 24 hours. Ten grounded on a potentially dangerous slope and were never retrieved. The second mission was performed to replace loads not recovered in the first. Although flying conditions were difficult, all loads were grounded within 100 yards of the recovery party. The third mission was made as a test of the possibility of delivery without parachutes of representative equipment in deep snow.

Some mountain rations, .30-caliber ammunition, water cans, and collapsible skis were dropped with standard 24-foot rayon parachutes, blue, red, yellow, and green in color. Some of these chutes were caught in wind currents and landed on inaccessible avalanche slopes, later being covered with slides. The majority were recovered. Items which were dropped free, that is, without parachutes, were mountain rations, 5-gallon gasoline containers, field telephones, wire, rucksacks, snowshoes, and skis. These were dropped into 5 feet of snow at 110 miles per hour. A few of the skis suffered broken tips, but on the whole, the soft snow provided excellent cushioning, and over 90 percent of the articles recovered were in satisfactory condition. Lack of mutual understanding by air and ground units of each other's problems, together with inclement weather, prevented more extensive air-supply operations.¹

In another experiment, two miles of wire were laid by air from an L-1 in two minutes. A CG-4 glider, carrying a T-15 and driver with two mechanics was successfully flown from Colorado Springs and cut loose over Turquoise Lake, where it effected a safe landing at 95 miles per hour on a packed runway covered by five inches of newly fallen snow. Despite repeated requests from Camp Hale, however, no more

1. Wood memo (C). 314.7/53 (Study No 24)(C).

experiments of this kind were conducted because glider crews and towing planes were lacking at Peterson Field.²

Throughout the experiments, technical difficulty of radio operation in mountainous terrain limited the effectiveness of communications between air and ground. The reports of the fourteen men and officers of the Air Force indicate that the Homestake Lake area was most difficult because of the high mountains rising on all sides with a 70-mile-an-hour wind blowing at the summit. The second area was more open and, with a wind velocity of only 15 miles, was easier to handle. This part of the experiment proved quite successful.³

The effectiveness of the experiments was also hampered, as pointed out by Major Tappin and Major Wood, because of poor liaison between the Air Forces and the Mountain Troops. "Lack of mutual understanding by air and ground units of each other's problems together with inclement weather prevented more extensive air supply operations," commented Major Wood, and in his recommendations he urged the necessity for closer cooperation between air and ground in matters of air supply. The exercises, according to his report, "demonstrated a failure on the part of both air and ground officers to understand the necessity for a thorough realization of each other's problem."⁴

Signal panels were used on one day only, and then just in the form of an arrow. No attempt was made to use the Air-Ground Liaison panel codes. No attempt was made to use pyrotechnics for unit or aircraft identification, or for indicating a dropping point. Lights were not used for ground-air intercommunication. Captain Fletcher of the Air Forces concluded that supply and resupply of the mountain troops by air in the winter was practicable, with the following limitations: visibility should not be less than two miles; ceilings should be high enough for safe navigation in valleys and passes; weather should be clear, with wind velocities not greater than moderate to light. He strongly recommended that "effective liaison be established between the ground units and the supporting units; that the study of supply by gliders be continued so that problems arising may be solved before operating in the face of the enemy; that ground forces be familiar with the use of air support, especially in the operation of the Troop Carrier Command." He further urged that "communications and signal operations cannot be over-emphasized, and the location and identification of ground units be given intensive study by the troop carrier command. A system should be established whereby aircraft can deliver to a particular unit its immediate needs. Such a system would prevent delivering supplies already on hand, or the delivery of too few badly needed supplies."⁵

2. MTC ltr to CG Peterson Field, Colo, 27 May 43, sub: Glider for MTC, and 1st ind. MTC file 353.2.

3. Ltr Sedalia Army Air Field, Warrensburg, Mo, to CG Second Air Spt Cmd, Colorado Springs, Colo, 10 Mar 43, sub: Tr Carrier Cmd Aircraft Opns in MTC Maneuvers. MTC file 452.

4. Wood memo, "Performance of Supply Mission," par d (1); "Recommendations," par g. See also Tappin memo, par 6 c: "Major Ford E. Williams, Commanding the 2d Provisional Mountain Training Squadron, 2d Air Support Command, was a most cooperative officer, with much experience in the mountains, being a native of Colorado. Major Williams reported difficulty in obtaining from the G-3 necessary information concerning the exercise in order to coordinate his aircraft."

5. Ltr Sedalia Army Air Field, Warrensburg, Mo, to CG Second Air Spt Cmd, Colorado Springs, Colo, 10 Mar 43, sub: Tr Carrier Cmd Aircraft Opns in MTC Maneuvers. MTC file 452.

It was evident that the limitations on flying in the mountains made adequate air supply impossible except in the fairest weather, a condition that does not in winter occur more than one-fourth of the time. General Rolfe tried to set up an airborne supply platoon in the Quartermaster Battalion, but on 12 March 1943 Army Ground Forces informed him that the formation of special units for the purposes of supply by air was not favorably considered.⁶ It looked as if the mountain trooper would have to get along with what he could carry on his already burdened back for some time to come.

6. Rolfe memo. 314.7/53 (Study No 24)(C).

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6. Rolfe memo. 314.7/53 (Study No 24)(C).

they tutored about one hundred men in the lore of rock mountaineering. Many of these men were already qualified climbers, but others were not, and all received the same course in order to insure a uniform teaching standard. These men then split up into smaller groups and began to handle the steady flow of recruits that came mainly from the 86th Infantry, the 126th Engineers, and the 10th Medical Battalion. The 87th had its own rock climbing school, training the greater number of its men before they left for oversea duty in June. The MTC Climbing School lasted five full days for each class. During the summer of 1943 about one thousand men were run through the courses and had a statement to that effect entered in their service records. Headquarters staff officers were trained in a familiarization course which included four half days.

One of the shortcomings of this training was the lack of actual practice in the field to supplement the concentrated class teaching. Men would go through the course in a week's time then let the newly-acquired skills lie idle, in both brain and muscle. Some forgot as quickly as they learned. All would have benefited from several weeks' maneuvers in the mountains where they could have utilized their mountaineer training in actual practice. But the demands upon the units for continual basic training made it difficult to have extended training in the high mountains. However, the 86th Infantry established bivouacs near timberline for a week at a time over an extended period, and conducted their unit problems along the ridges.

Other schools of a unique nature essential to the Mountain Troops were held. The G-3 conducted a series of night lectures on the use of winter equipment such as the rucksack, the mountain tent, and snowshoes. This instruction in the use of specialized equipment, succeeded as well as could be expected in an indoor class. It was obvious, however, that experience in the field was the real answer.

A school for the drivers of the T-15, or "weasel," was conducted by civilian experts from the Studebaker Corporation in the winter of 1943. The course was repeated during the winter of 1944 for the M-29, successor to the T-15. This covered the maintenance, repair, and operation of the vehicle and proved to be most valuable, for only men who were certified from this course were allowed to operate the machines, and this cut down the number of mechanical failures appreciably.³

The G-3 Section and the Mountain and Winter Warfare Board conducted a trail-breaking and over-snow freighting school in the Homestake Peak area, to teach men this necessary part of winter warfare. It lasted two weeks and was under the direction of Corporal Wilson, a veteran snowshoer. Approximately 160 men from the various infantry regiments were trained in the art of lashing loads on toboggans, the proper use of snowshoes for trail-breaking, and related phases of this work. Perhaps the only fault of this school lay with the toboggan itself, which proved unsatisfactory as a means of drawing loads. Reports from the 87th and elsewhere indicated that in deep snow and on steep grades it was more practicable to break the loads up and carry them on a man's back.⁴ In addition, the men with polar experience favored the use of sledges over toboggans, and these were used more extensively and more successfully in the later months. Other minor schools included a two-week course in fire fighting, conducted for a group of company officers by the District Forest Ranger in the spring of 1943. It included practical demonstrations in the field of the latest methods and equipment. The Artillery particularly benefited from these classes, for their shells were constantly a menace to the tinder-dry national forests.⁵

3. Conversation of Hist Off with Mr Stebor, Studebaker civilian representative, Dec 43.

4. Interview of Col. O. S. Rolfe 12 Dec 47 with AGF Hist Off.

5. Annex 1 to MTC Daily Bulletin 90, 15 Apr 43. MTC 352.2.









The Engineers ran a short course in mines, demolitions, and booby traps, consisting of two evening lectures, followed by a half-day lecture and demonstration in the field. Not unique to the Mountain Troops, this course was deemed vital by Washington in view of the increased use of these insidious weapons by our enemies. It was well run, and men soon became booby-trap conscious.⁶

The G-2 Section ran a month's course in the interpretation of aerial photographs for about sixty officers and men of the Intelligence Sections which covered the very latest developments in aerial photography interpretation, including vectographs, using the special footlocker of equipment supplied by the Military Intelligence Center at Camp Ritchie, Md.⁷ The regiments also held their own intelligence schools on a small scale, giving instruction on some of the more obvious Intelligence matters, such as the uniforms and equipment and the customs of enemy countries. This instruction was sometimes misdirected; the 87th Mountain Infantry, for example, spent months in their intelligence groups, studying the German Army and language, then were sent to fight the Japanese.⁸

Back at Ft. Lewis in the summer of 1942, Colonel Rolfe set up an equestration school for the officers of the 87th Infantry, consisting of two hours a week in the drill ring, conducted by Capt. Wendell Poulson, formerly of the 115th Cavalry. At that time it was planned to have all officers mounted. This school was satisfactory for teaching the fundamentals of military posture and gait, and even included jumps about 2 feet high. It concluded with a graduation exercise through thick forest trails at high speed.⁹

There were also troop schools of the kind to be found in an infantry division: a school on "Combined Arms and Services," and the "Artillery-Infantry Team," conducted nightly for officers by various numbers of the related branches. In addition, the regiments conducted their own troop schools for junior officers, stressing the fundamentals of small unit troop leading. All these night schools had one big drawback, especially in the case of the junior officers of the line outfits. A full day's work in the mountains had usually so exhausted the men that they were unable to pay close attention during the evening hours, and they very often fell asleep from sheer exhaustion, despite their conscientious efforts to stay awake. As a result, the Mountain Training Center gradually dropped most of its night schools, with the exception of the 86th Infantry, and concentrated on classes during duty hours only. The rise in morale and efficiency testified to the wisdom of this move.¹⁰

6. MTC Tng Memo 35, 4 May 43, sub: Demolition Tng. Ibid.

7. MTC Tng Memo 38, 17 May 43, sub: Aerial Photograph Interpretation. Ibid.

8. Conversation of Hist Off with Staff Off, 10th Light Div, Feb 44.

9. Interview of Hist Off with Capt Woodward, MTC, 10 Jan 44. 314.7 Hist file.

10. Interview with Col O. S. Rolfe by AGF Hist Off, 12 Dec 47.



CHAPTER I

TRAINING LITERATURE, FILMS, AND TRAINING AIDS

One of the many handicaps to the training of mountain troops was from the very start the almost complete lack of training literature on the subject. Outside of FM 31-15, "Operations in Snow and Extreme Cold," the shelf of military manuals was practically bare of anything dealing with mountain warfare. Bare also were the files of training films, film strips, film bulletins, and training aids in general. For over a century and a half the United States Army had been engaged in flatland fighting. Its General Staff was tropic-minded from years of training in Panama, Hawaii, and the Philippines. The enlargement of training to include mountain fighting came abruptly.

Files were available, however, on the activities of certain foreign mountain troops, both allied and enemy. These were utilized. As mentioned in Chapter I, one of the first steps taken by the Quartermaster General's Office in Washington in 1941 was to enlist the services of Adams Carter, a ski-mountaineer of international fame. Retaining his civilian status, Carter began writing military translations of all the pertinent documents about mountain warfare that were available. There was a quantity of material.

During the long years of peace, the War Department had accumulated through its military attaches and other sources, a mass of reports on the mountain troops of Germany, Italy, France, Switzerland, Norway, Finland, Sweden, and Russia. Some of this information, as was pointed out in Chapter I, proved of little use to the United States because it dealt with entirely different types of terrain and transportation problems. But a great deal of it proved most valuable, especially on the individual equipment, technique, and training of the mountain trooper. Carter's translations were sent to the key participants in this new movement in the United States Army.

One of the directives given to the Mountain and Winter Warfare Board in its activation order of 15 November 1941 was that "the Board should formulate, develop, and recommend changes in mountain and winter warfare doctrine and training literature as now prescribed in the various field manuals.¹ During its three months' stay on Mt. Rainier from 13 February to 28 May 1942, the Board attempted to gather material for a mountain and winter warfare manual but was handicapped by lack of personnel. Sufficient data were collected for a chapter on ski training.

Most of the data for this future Mountain Troop manual were derived from two publications. One of them, Manual of Ski Mountaineering,² was prepared under the auspices of the National Ski Association of America and under the direction of its editorial committee, which consisted of Lewis F. Clark, Alex Hildebrand, Dr. Joel Hildebrand, Richard M. Leonard, Einar Nilsson, and Bestor Robinson, who subsequently gave invaluable aid in assembling correct mountain clothing and equipment for the Army. Included within its 135 pages were chapters on body warmth, equipment, wax and skins, water, food and cooking, technique of travel, camp sites, shelter, camping, snow formation and avalanches, compass and map, first aid, transportation of the injured, and the ski-mountaineering test and its interpretation. This last chapter, as Mr. Robinson said in the preface, was written partly "to create as a national military asset a personnel reservoir of skiers competent to travel and live on the snow. It is easier to train a skier to be a soldier than to train a soldier to be a skier."

1. WD memo, 15 Nov 41, sub: Constitution of 87th Mt Inf Reg and Activation of 1st Bn; Reinf. 320.2.

2. Published by the Univ of Calif Press, 1942.

A few months later, in the spring of 1942, the American Alpine Club put out its Handbook of American Mountaineering, written by Kenneth A. Henderson with the assistance of Terris Moore.³ Concentrating strictly on the mountaineering phase, the editor announced that "with Europe out of, it was the first handbook to deal specifically with American mountains and American conditions. Because of the need for speed in the original production of this work to assist the United States Army in its plans for the training of Mountain Troops, the preparation was largely the work of a single individual." Others who assisted in its preparation were Dr. Charles S. Houston on medical affairs, Walter A. Wood, Jr., on map reading and the use of the compass, Thomas D. Cabot on horse packing, and Salvatore Pagliuca on mountain weather. A well-written, comprehensive book of 240 pages with many helpful sketches, it included discussions of rock terrain, ice and snow terrain, dangers and rescues, camping, cooking, equipment, personal hygiene, map reading and the use of the compass, mountain weather, sledging, horse packing, use of the airplane, photography in the mountains, communications, and the mountains of the Western Hemisphere.

From these books, and from the rough notes and data that were compiled during the winter of 1942 on Mt. Rainier, the G-3 of the Mountain Training Center began working on the final manual during the fall of 1942 at Camp Carson and Camp Hale. Pvts. Stuart Dole and David Brower spent several months working on this project under the supervision of Captain Woodward. They succeeded in compiling for submission to Headquarters, Army Ground Forces, chapters on organizational equipment, mountain rations, mountain marches, avalanches, military skiing, first aid in the mountains, transportation of casualties in mountain country, mountain medicine, mountain weather, and aneroid barometer. These subjects were deemed most important at the time; others were left for a later date. The list of proposed chapters has not been completed.

The state of affairs attending the preparation of the manual is indicated by the fact that when several proposed chapters were sent in to Headquarters, Army Ground Forces, for approval in September 1942, a letter came back asking who had authorized the Mountain Training Center to write them in the first place. On 26 September 1942, Army Ground Forces wrote: "Information is requested regarding the organization and nature of the directive by which the Mountain and Winter Warfare Board is preparing a manual. There is no record of such a directive having been issued by this headquarters."⁴

Somewhat taken aback, the Mountain Training Center searched its files and replied by indorsement that their directive had its origin in a War Department letter of 15 November 1941, AG 320.2 (4-10-41)MR-M-C. This was the original directive setting up the Mountain and Winter Warfare Board, as the Mountain Training Center pointed out.⁵ Army Ground Forces said no more on the subject, and work on the manual was resumed.

During the winter of 1943, Lt. Montgomery Atwater took over the job of putting the manuals into shape, and worked revising several chapters. In June 1943 Lieutenant Atwater left for Kiska with the 87th Mountain Infantry and the work was turned over to the new Mountain and Winter Warfare Board, concurrent with the dissolution of the Mountain Training Center and the activation of the 10th Light Division. At that time, only two chapters had been officially approved by Army Ground Forces. After that date nothing more was done, with the exception of some further work on

3. Published by Houghton Mifflin, Cambridge, Mass.

4. AGF ltr 461/1 GNRQT/17126(Mtn) to CO MTC, 26 Sep 42, sub: Manual on Mt and Winter Warfare.

5. Ibid.

the aneroid barometer chapter by the Mountain and Winter Warfare Board. Nothing more came out of Washington on the subject. After three years of experiment and development, the mountain troops were still operating without an officially sanctioned field manual. The manuals that were developed for its use continued to lie untouched in various files.⁶

As the result of practical experience in the field, several changes were recommended by the Mountain Training Center for FM 31-15, "Operations in Snow and Extreme Cold." On 23 September 1942 Colonel Rolfe submitted a list of recommended revisions for this manual. In a letter to Army Ground Forces, the following suggestion was made:⁷

It is believed that the manual should be rewritten to cover the conditions in the many possible theatres of war that must now be considered. . . . A manual written to cover dog sledding on the ice pack in Norton Sound is going to be misleading as a guide to dog sledding in the Mountains of the Yukon. The Eskimo snow-house technique is useless to the Indian inhabiting woods where only powder snow can be found. . . . Appendix maps should be included to show areas where a particular technique is most effective.

A suggested outline was enclosed, which listed the various techniques of clothing, marches, transportation, and camping for the northern woods, northern plains, tundra, mountains below timberline, alpine terrain, and arctic.

A brief summary of the suggested revisions and changes included the following: Mukluks should never be worn till the temperature drops below zero, and men should stand on sticks when warming their feet by the fire to prevent wetting the footgear. The Indian moccasin is superior to the Eskimo mukluk for snowshoeing. Pyramidal tents are too heavy for the use of highly mobile troops without heavy transportation. Whistles should be made of plastic; bugle mouthpieces must be carried in the pocket to keep them warm. When living in the open, the beard around the mouth should be kept short with clippers. The whisk-broom is a valuable article for removing snow from clothing and equipment. Before going to bed in a temporary shelter heated by a fire, the door of the shelter should be opened for a sufficient time to cool off the shelter. This is necessary as a person getting into a sleeping bag in a warm room will sweat and dampen the sleeping bag. Even in the severest cold the nose and mouth of the sleeper should be uncovered to prevent suffocation. The hands or feet should never be dipped in gasoline or kerosene, as the temperature of the liquid may be far below zero, and will result in instant freezing of the parts immersed. Travel should not be attempted in a blizzard or when the temperature is below 40 degrees. A fire can be made on deep snow by placing a mat of green logs on the snow for the fire to rest on. Gasoline stoves should never be left burning while the occupants of the tent rest as they may fall asleep and die from carbon monoxide poisoning. When moving a hot stove with the ski mittens, a little snow placed in the palm of the glove before grasping the hot object will prevent the leather from being burned. Dog teams need to have the trail broken for them in soft snow, preferably by a man on snowshoes a day ahead of time, thus allowing the trail to harden over-night. Toboggan bottoms should be waxed to prevent icing. Leather binding should not be oiled, but waxed instead. Snow placed over a hole in the ice will keep the hole from freezing solidly shut during the night. Muzzle covers should be kept on all rifles until in the immediate presence of the enemy.

6. Conversation of Hist Off with Lt Col J. J. Irvin, Feb 44.

7. AGF ltr 461(FM 31-15)-GMRQT/16608 to CO MTC Cp Carson, Colo, 16 Sep 42, and 1st ind, sub: FM 31-15. MTC 461.

These recommendations were based on practical experience and were submitted to Army Ground Forces in an effort to bring the manual up to date.

The use of mountain equipment and cold weather clothes was not restricted to the Mountain Training Center, and it became necessary for some sort of manual to be issued on this subject in order to prevent illness and casualties, and damage to the equipment when used by untrained troops. Many cases of frostbitten hands and feet, damaged tents, sleeping bags, and other special equipment were reported from the Aleutians, where the men had not been properly instructed in the use and care of special winter clothing. To remedy this situation, the Office of the Quartermaster General in Washington put out two training circulars on the care and use of cold-weather clothing, listed as Training Circulars Nos. 36 and 37, 19 March 1943. Well illustrated and well written, the latter included sections on basic principles, body clothing, footwear, handwear, headgear, and instruction.

Training Circular No. 36 covered mountain and cold weather equipment. It included sections on skiing equipment, snowshoes, the mountain ice ax, climbing equipment, sleeping equipment, cooking equipment and food bags, packing equipment, and miscellaneous equipment. This was another excellent pamphlet containing information gathered from the many test expeditions of the previous three years, plus the knowledge of several experienced mountaineers and skiers in the Office of the Quartermaster General.

On 20 May 1943 the Mountain and Winter Warfare Board submitted a list of suggestions to the Special Forces Section of the Quartermaster General in Washington regarding a proposed manual on cold weather operations. Many of the ideas submitted stemmed from Lt. Col. Bestor Robinson. They included lashing the rifle stock firmly against the body to prevent injuries when falling on skis; carrying skis with bottoms upward to avoid aerial observation when carrying white skis "shouldered" over bare ground areas, training "traffic scouts" to precede the ski columns and serve as guides at obstacles to indicate several routes that could be used simultaneously. To reduce column lengths, which are abnormally extended when men are mounted on skis, it was recommended breaking them up into several shorter columns, moving on parallel routes, with radio communication when practicable, and a prescribed assembly area.⁸

The subject of training films has already been partially covered, but a brief review may be given here. In the spring of 1941, when the reports from the various experimental ski patrols had come to Army Ground Forces in Washington, it became apparent that in order to train a larger ski force the next winter, it would be necessary to have an adequate training film on military skiing. The date was late; winter snows were fast melting all over the United States. Only in a few scattered mountain areas was there sufficient snow and suitable terrain to produce such a film. One of these areas was Sun Valley ski resort, located high in the Sawtooth Mountains near Ketchum, Idaho. Here, during the month of May 1941, Lieutenant Woodward and a selected group of eight enlisted men from the 15th Infantry Ski Patrol at Ft. Lewis worked on the production "Basic Principles of Skiing." Otto Lang, Austrian ski instructor, acted as technical advisor; the filming was done by a professional crew from 20th-Century-Fox studios in Hollywood. The film stressed the lessons learned in that first winter: safe skiing, controlled turns, balance while carrying a pack, meticulous care of equipment, rapid first-aid measures. Released in the winter of 1942, as No. 11-168, it proved to be one of the most valuable films that has ever been made for the Mountain Troops.⁹

8. M&W Bd ltr to QMG, Sp Forces Sec, Wash, DC, 20 May 43, sub: Suggestions for Manual of Cold Weather Opns. MTC 461.

9. Interview with Col. O. S. Rolfe by AGF Hist Off, 12 Dec 47.

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9. Interview with Col. O. S. Rolfe by AGF Hist Off, 12 Dec 47.

As the months passed on snowy Mt. Rainier, and the 1st Battalion of the 87th Mountain Infantry carried on its experimental training, the need arose for further films on subjects such as ski safety, ski mountaineering, and the use of mountain equipment. Scripts on these subjects were prepared in Washington in the Office of the Quartermaster General, under the close supervision of Bestor Robinson, who had now been commissioned a major. Sun Valley was again chosen as the site, and Lieutenant Woodward was again placed in charge of about ten enlisted men from the 87th, all excellent skiers. Later Captain Lafferty joined the group and acted as Liaison Officer, working with Mr. Roland of Metro-Goldwyn-Mayer. The complete list of films made during this three-month period was as follows: No. 7-677, "Ski Equipment"; No. 7-678, "Snow Camping above Timberline"; No. 7-679, "Snow Camping in Timber"; No. 7-680, "Ski Safety"; No. 7-681, "Ski Safety--First Aid and Emergency Repair of Equipment"; No. 7-682, "Ski Sled"; No. 7-683, "Ski Mountaineering."

Other films included the training film on "Mountain Climbing, Rock and Ice" mentioned in Chapter I, and several commercial "shorts," most ambitious of which was the Warner Brothers' technicolor production, "Mountain Fighters," mentioned in Chapter III.

Among the valuable training aids, and certainly one of the most extraordinary, was the Mountain Obstacle Course on the cliffs at the east edge of Camp Hale. Classes were held daily on the 100-foot cliffs, culminating in a test run over this alpine obstacle course. Other aids included the 7,000-foot-long T-bar ski lift at Cooper Hill, four 500-foot rope ski tows, the dirt-floored, heated training hall for field training during inclement weather.¹⁰

Routine training aids included three bayonet courses, three grenade courts, two gas chambers, one rifle range, three machine gun ranges, three antiaircraft ranges, one pistol range, one landscape target range.¹¹ The bayonet targets were poorly constructed, rapidly deteriorated in the severe weather, and lay idle and useless after the first few months. One of the ski slopes, "A" slope, served by a rope tow, was placed directly behind the rifle range, so that it was never possible to use it while firing was being conducted on the range. Again, a great deal of delay and trouble resulted from powering the 7,000-foot Constam lift on Cooper Hill with an undersized, second-hand motor. As a result, the lift's capacity was less than it should have been.¹² These were some of the troubles encountered in the use of training aids in the Mountain Training Center.

10. Ibid.

11. Memo of Maj A. M. Cochran, Sp Tng Sec, Tng Div, AGF, for CG AGF Jun 42, sub: Rpt of Inspection Trip to Pando, Colo, and Recommendations for Tng Aid Construction for the Mt Div. MTC 353.012.

12. Conversation of Hist Off with Lt Col J. J. Irvin, Feb 44.

CHAPTER XI

MOUNTAIN AND WINTER WARFARE BOARD AND DEVELOPMENT OF EQUIPMENT

The activities of the Mountain and Winter Warfare Board were so inextricably tied up with the development of equipment that this chapter will be devoted to both, despite the fact that the Board existed both before and after the Mountain Training Center.

As pointed out in Chapter I, mountain and winter warfare demands many types of specialized equipment, most of which were unknown to the United States Army in 1940. Items such as mountain boots, climbing ropes, pitons, piton hammers, crampons, and ice axes, were needed for summer mountain work. Winter-time called for skis, snowshoes, mohair climbers, ski trousers, ski boots, parkas, goggles, rucksacks, sleeping bags, tents and the like. At all seasons the mountain trooper needed rations of a dehydrated nature. All these items were available in small quantities and of a quality of civilian sports use, but few of them could be adapted to military needs without substantial changes and improvements. Producing them in mass volume was another problem that then had to be solved.

It was to take care of these initial equipment problems, and to assist the Army in getting started, that the Equipment Committee of the National Ski Association was formed. None knew better than they that a mountaineer's very life depended on his having the proper equipment at the proper time-- and a mountain soldier who died from exposure, or from injuries due to a fall, was just as much a casualty as one killed by the enemy. Accordingly, the Equipment Committee, headed by the energetic Bestor Robinson, went to work with vigor. The results achieved have already been described in some detail in Chapter I. Suffice to say that much credit is due these volunteer workers for the rapid advance by the American Army into a military field which they had heretofore left practically unexplored. Whatever may have been wrong with the personnel or the training, the standards set by the mountain and winter equipment have with but few exceptions been consistently high. In the opinion of army experts, no other army in the world was as well equipped for mountain warfare as the Mountain Troops of the United States.¹

With the establishment of the 1st Battalion, 87th Mountain Infantry, at Ft. Lewis on 15 November 1941, came a directive from Washington activating a Mountain and Winter Warfare Board, whose purpose was to "test" and develop mountain and winter equipment, formulate, develop and recommend changes in mountain and winter warfare doctrines," and write a manual on mountain equipment and tactics. ²

The President of the Board was Colonel Rolfe, who was also Commanding Officer of the 1st Battalion, 87th Mountain Infantry. Major Tillotson was a supervising officer in charge of Quartermaster material; Captain Jackman was Test Officer; Lieutenant Jay was Photographer and Meteorologist, and Private McKee was Clerk and Recorder.

The Board as set up was too small to operate efficiently. Colonel Rolfe was far too busy with his command duties to do much more than glance over the reports prepared for his signature by Captain Jackman. Lieutenant Jay was occupied with taking pictures of the experiments as well as making weather observations three

1. Interview of Hist Off with Capt John Woodward, MFG, 10 Jan 44.

2. WD ltr AG 520.2 (11-10-41) MF-M-C, 15 Nov 41, sub: Constitution of 87th Inf Mt Bn and Activation of 1st Bn (Reinf). 520.2/33 Inf.

times daily. Major Tillotson spent a great deal of time shuttling about the country obtaining supplies. The result was that Captain Jackman and Private McKee were working up to eighteen hours a day, seven days a week, trying to get their tests done and reports written in time.

One great disadvantage of the directive setting up the old Mountain and Winter Warfare Board was the lack of any authority for the Board to conduct its own tests and improvise its own expedients directly in the field. All it could do was test those items that were sent to it from the technical services. Experimentation and improvisation by Board members was frowned upon.

On 30 January 1943 Colonel Rolfe wrote to Col. Alan W. Jones of Operations and Training Division, War Department G-3:³

The directive of 15 November 1941 which creates the MWNB does not give the President discretionary authority to direct the alterations of items of equipment for experimental purposes. For example, the present rucksack was designed by a civilian with no thought of the ammunition carried in the back pouches of the belt. The gas mask was designed to be worn with the infantry pack. When worn with the rucksack it is forced farther forward than was intended. Jackman believes that he can redesign the belt, rucksack and gas mask carrier to form a suitable combination but I hesitate to authorize him to make the necessary alterations until I have authority to do so.

Such authority for discretionary powers vested in the Board to alter, purchase, have made, or hire the necessary goods and services where I can get them would be very helpful. If I wait to obtain these things through the regular channels there is a loss of valuable time and efficiency.

This was not authorized. Much valuable research was left undone because of a policy that relegated the Board to the subsidiary role of tester, rather than originator. Yet it was the Board which was in closest contact with the troops and had the fullest understanding of their problems.

Despite this limitation, some improvisation did take place. During the summer of 1942, Major Fletcher, a veteran of many years with pack mules in Panama, began experimenting in an effort to improve the Army's methods of loading the animals, which to him seemed deplorably inefficient. Until then, four chests of ammunition and one gun, dismounted, were all that could be carried by one mule. Under Major Fletcher's guidance, a new system was devised whereby eight ammunition chests could be carried on a single mule, and, in addition, the machine gun was installed in a mounted position, ready for instant action. This was a tremendous improvement, and reduced by half the number of animals necessary for transport. Great credit is due Major Fletcher for this invention and also his improved method of packing mortar ammunition. As was the case with so many similar improvements, these became lost in channels in Washington, and have never been officially adopted, but they served the 87th Mountain Infantry Regiment well, and would be of great value to any mountain unit.

Because of the insufficiently trained personnel allotted to the Board itself, Captain Jackman was forced to "farm out" many of the experiments to units of the 1st Battalion, and rely on their verbal and written reports for conclusions, a not too satisfactory procedure. Lack of dark-room facilities on Mt. Rainier or even at Ft. Lewis, made it necessary for films to be sent to Washington, D.C., for development, a process which required four to six weeks for the finished pictures to be returned. As a result, the reports were either late or unaccompanied by the necessary

3. Rolfe memo 314.7/53 (Study No. 24) (C).

photographs, or both. Partly because of this slow transmission of test reports, and partly because of the skepticism with which the reports were viewed when they did arrive in Washington, the Board's progress was discouragingly slow.

The items tested by the Board during the first three months on Mt. Rainier included ski wax, climbers, innersoles, radios, over-snow motor toboggans, incendiary candles, and similar items which various small manufacturers sent in to them for test in the hope of landing a contract. Also tested were the more important items--the clothing the mountain trooper wore and the equipment that he carried on his back--these were tested and worn by the soldiers, although the reports of the tests were not written up until May and June.⁴

John L. Tappin from Army Ground Forces came out to Mt. Rainier in early April 1942 and surveyed the situation, along with Major Robinson of the Office of the Quartermaster General. His subsequent report to Colonel Walker on 12 April 1942 stated:⁵

. . . crucial items are not being tested by the Mountain and Winter Warfare Board. They have to be secured through depots, and long delays result. None of the following items have yet been tested: Skis, ridgetop versus flat, laminated, folding, different dimensions; Poles, laminated, metal; Ski Caps; Binding, safety; Snowshoes, quick use, bearpaw; Sleeping Bags; Tents, lightweight; Stoves, lightweight; Evacuation Equipment.

As a result, the Office of the Quartermaster General began speeding up the transmission of essential test items to the Board, and plans were laid for a "test expedition" to the very summit of Mt. Rainier in order to "obtain the rigorous climatic conditions for a proper test." This trip has already been described in detail in Chapter VI. Many tests were carried out during this two-week trip, and much valuable information learned. But the report was again held up by lack of photographic facilities, and its data largely nullified in the skeptical Washington atmosphere. If it advocated that a certain item be dropped as unsatisfactory or that another item be approved as standard without changes, very often the exact opposite action would be taken in Washington.⁶

For example, the Board conducted extensive tests of three types of skis during the Rainier Test Expedition, under the direction of Lieutenant Townsend and Corporal Gabriel, two recognized experts in that field. The Northland ski was found to be excellent and was recommended for standard issue. Yet the following winter the new Northland ski model had been so changed by specifications set up in the Office of Quartermaster General that it was practically useless, and even dangerous, so stiff and heavy was its manufacture.⁷

The Rainier Test Expedition also had ample opportunity to test the Tent, Ski, Sectional, developed by the Office of Quartermaster General, and found it unsatisfactory on many counts. It was too small, its zippers failed to function properly in cold weather, it was too heavy, and it frosted up badly inside. Yet 40,000 of

4. Interview of AGF Hist Off with Col Rolfe, 12 Dec 47.

5. Memo of Capt J. L. Tappin, for Col Nelson M. Walker 13 Apr 42, sub: Progress Rpt of MWVB, Ft Lewis, Wash. 334.

6. Conversation of Hist Off with Maj Paul Townsend, MITG, Sep 43.

7. Ibid.

these tents were manufactured before the production was finally stopped late in the spring of 1942, after other unfavorable reports besides the Board's had begun to pour into Washington.⁸

Also as a result of the eight-man test expedition to the summit of Mt. Rainier, the Board advocated that the canvas gaiters be eliminated because they iced up badly; that the ski cap remain unchanged as being most satisfactory; and that cocoa be included in the rations because of its nourishment, popularity, and easy preparation. Yet the next year saw gaiters back on the list, an inferior model compared with the previous year; and the ski cap was radically altered to a most unserviceable design.

These were a few of the troubles that beset the Board in its early days. Part of the fault lay in the fact that Colonel Rolfe was not only President of the Board but was in command of troops. In his own words,⁹

higher authority objected that I as President of the Mountain and Winter Warfare Board, would often make a one-man decision. What could I do? On the Board I only had a recorder, a tester, and a photographer. I had to make one-man decisions and write a lot of opinions myself. But Washington always claimed that the only way to run a board was to sit around a table and reach a 3-2 decision like the other service boards. I guess they didn't like my arbitrary rule. . . . Many of the officers who reviewed our experiments had been at some time mountaineers on their own, had made some valuable experiments of their own, and therefore felt that they were experts in placing their opinions against tests by thousands of troops. . . . Colonel Anderson, the present board president, has the right idea. He got out a directive which exempts the head of the board from tactical command of troops. My conclusion is that it is impossible to conduct tests adequately and attempt to command troops at the same time.

The work of the Board tapered off immediately following the return of the troops from Mt. Rainier in June 1942, and it remained less active until September 1942, when it moved to Camp Carson, Colo., and was attached to the Mountain Training Center, later moving to Camp Hale in November 1942. Colonel Cochran was made Executive Director, in addition to his regular duties as G-3 of the Mountain Training Center. Most of the test work during the winter of 1942-43 at Camp Hale was concerned with over-snow motor vehicles. The Studebaker vehicle, known as the T-15 or "Weasel," proved the most successful and its successor, the Studebaker M-29, is now the standard over-snow vehicle for the U.S. Army.^{9a}

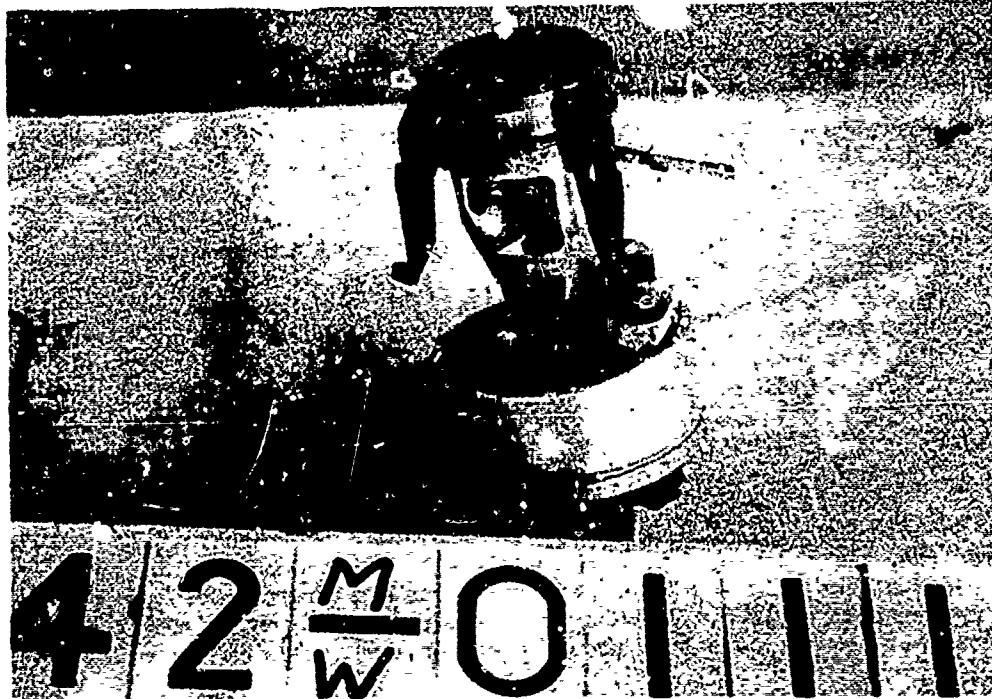
Other experiments were carried on with sledges, toboggans, sleds, and dog teams, resulting in the finding that sledges were easier to pull than toboggans, as all the Polar expeditions had discovered many years before, and that dog teams were unsuitable for mountain-troop use in high altitudes.¹⁰

8. Interview of Hist Off with Capt John Woodward, 10 Jan 44. 314.7 Hist file.

9. Interview of Hist Off with Brig Gen Onslow Rolfe, 7 Jan 44. 314.7/28 (Study No. 24)(C).

9a. See AGF Study No. 34, The Role of AGF in the Development of Equipment. Chap IX.

10. Interview of Hist Of with 10th Light Div Staff Off, 15 Feb 44. MTC 334/1.



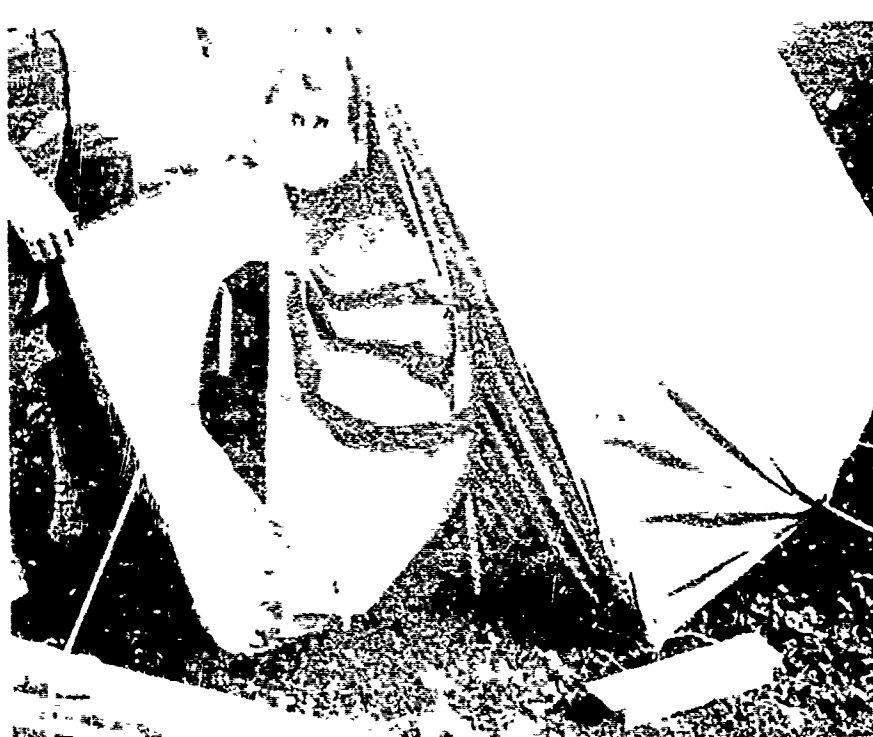
THE MOUNTAIN STOVE, WEIGHING ONE POUND, SHOWN FOLDED UP FOR PACKING.



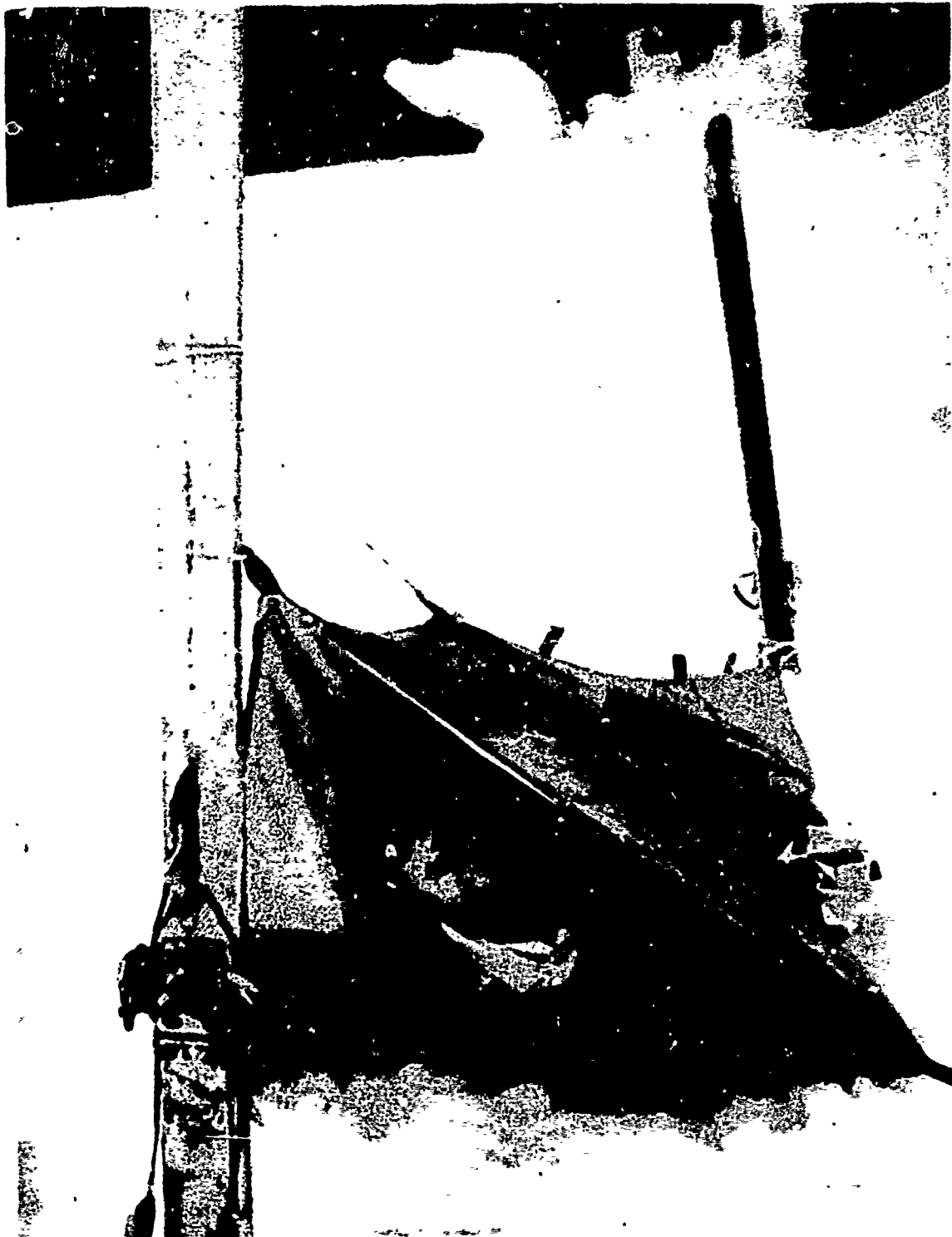
RUCKSACK, SPECIALLY DESIGNED FOR SKIING



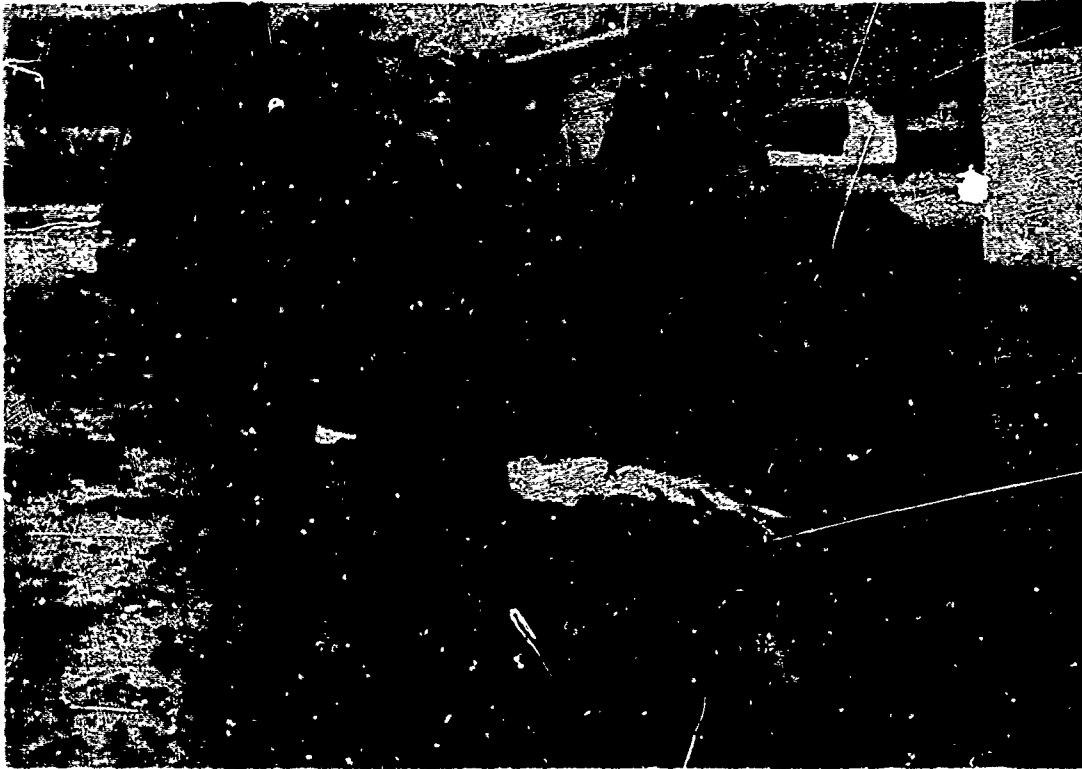
EXPERIMENTAL TENT BEING USED ON MT. AINTE-- THE TENT IN THE FOREGROUND--
 THE TENT, THE, MOUNTAIN, THE, MOUNTAIN--WAS LATER ABANDONED IN FAVOR
 OF THE TENT, THE, MOUNTAIN



THE TENT, THE, MOUNTAIN, THE, MOUNTAIN, WEIGHING ABOUT 15 POUNDS
 WOULD, WITH, THE, MOUNTAIN, IS POSSIBLE (A.D. AND WHITE),
 THE, MOUNTAIN, THE, MOUNTAIN



COLONEL ROLFE TRIED OUT THE ONE-MAN TENT, SKI,
SECTIONAL, AT MT. RAINIER. APRIL 1942.



THE 4.2 MORTAR WAS ADAPTED TO MULE PACKING



DISPLAY SHOWING OLD AND NEW METHODS OF CARRYING MACHINE GUN AND AMMUNITION ON MULE. THE NEW METHOD RESULTED IN EASIER HANDLING OF GUN AND A 100 PERCENT INCREASE IN AMMUNITION FOR EACH MULE



OLD METHOD: FOUR CHESTS AND ONE GUN, DISMOUNTED



NEW METHOD: EIGHT CHESTS AND ONE GUN, MOUNTED

It became evident that the findings of the Mountain and Winter Warfare Board were lacking in judiciousness. Major Wood, visiting Camp Hale as an AGF observer, pointed out in his report of 20 February 1943:¹¹

The present bias towards one type of equipment to the exclusion of others must be eliminated. No single item will perform the task for which it is designed better than another under all conditions. Flexibility must rule. Cases in point are as follows:

- (1) Orders issued cancelling suggested test of relative merits of hauling loads on skis versus snowshoes.
- (2) Relative value of toboggans versus sleds.
- (3) Mechanized transportation versus pack animals.

The ski-versus-snowshoe test was cancelled by the Mountain and Winter Warfare Board. During the tests of equipment by the Board, because of limited staff personnel, certain items were unfortunately favored over others. General McNair covered this in his letter to General Rolfe on 11 March 1943: "Individual prejudice and theories appeared to have biased many decisions of the Mountain and Winter Warfare Board. Fair comparison had not been used in testing equipment and developing techniques."¹²

On 1 May 1943, the Mountain and Winter Warfare Board was directly under Army Ground Forces with Colonel Anderson, formerly of the Field Artillery Board, in charge. Sections were set up for Signal Artillery, Infantry, and the like, and the personnel of the Board was expanded considerably. A full-time photographer and a dark room were included.¹³

From then on, the progress of the Board improved noticeably. Colonel Anderson insisted that a follow-through be made on all reports, and the time-lag so evident in the early days of the Board was soon eliminated. Practically all testing was done by the Board members themselves, and the entire Board voted on each item up for discussion. The days of the "one-man decisions" were over. With the expanded personnel, work was done quickly, and reports with photographs developed on the spot soon began flowing back to Washington promptly and efficiently.

One of the most important tests conducted by the new Board was the adaptation of the 4.2 chemical mortar for mule transportation. The hangers were built by board members right at Camp Hale, tests were made, and reports with photographs were submitted to Army Ground Forces, where they were approved. The Chemical Warfare Service immediately adopted as standard not only the hangers but the Board regulations pertaining to the service of the piece for inclusion in the field manuals. This weapon has a very potent projectile and is ideally suited to the use of mountain troops, now that the transportation problem has been solved.¹⁴

11. Wood memo. 314.7/53 (Study No. 24)(C). Hale 1-12 Feb 43.

12. AGF ltr (C) to CG MTC, 11 Mar 43, sub: Inspection Trip. 353.02.

13. (1) AGF ltr (R) 334/1(Mtn & Winter Warfare Bd)-GNGCT(11-10-42) 1 May 43, sub: Establishment of Mt and Winter Warfare Bd. 334/1. (2) Rolfe memo. 314.7/53 (Study No. 24)(C).

14. AGF ltr (R) 334/1 (MWWB)GNGCT(11-10-42), 1 May 43, sub: Estab of Mt and Winter Warfare Bd. 334/1.

Another Board development was a hanger for packing the .50-caliber machine gun and mount on Phillips cargo pack saddle. Still another was the development of loading charts for an entire light division. These charts showed exactly where each item of equipment should be placed when going into the field, and covered all means of transportation--mule, cart, sled--right on down the line.¹⁵

Other Board developments included the plywood packboard, replacing the heavier and bulkier Yukon packboard of wood and canvas, wire laying unit, man packed, and an outside cooking cavalry pack. This last item was based on modifications of a liquid fluid burner invented by a Warrant Officer Bundy, working on the principle of a blow torch. Another development for which partial credit was due the Board was the cacaolet, a Stokes litter for evacuation of casualties in the mountains. Adapters were made for attachment to the Phillips saddle for mule transportation.

Another important test was to develop dry batteries for radio sets that would work in low temperatures, 10 to 30 degrees below zero. Other tests dealt with skis for over-snow transportation of light artillery, using data from Russian reports as an aid.¹⁶

What proved to be one of the most important items tested by the Board was the mountain ski boot with rubber-created sole. For three years the Army had been trying to cut down on the vast amount of equipment that was necessary for a mountain trooper in battle. Footwear had always been a problem; ski boots without climbing nails proved unsatisfactory for mountain climbing, and mountain boots with climbing nails could not be successfully used for skiing. The nails balled up with damp snow, damaged the binding, and froze the wearer's feet. So two sets of heavy boots had to go into the mountain trooper's already bulging pack. Then the Office of the Quartermaster General heard of an Italian boot with created rubber soles. There was only one pair available in the United States, but they secured it, and had copies made which were sent to the Board for test. These boots were tested for nearly a year under Board supervision, in every kind of terrain and weather. The results were sensational. Not only was the new boot comfortable for hiking, but it was an excellent climbing boot and a good ski boot as well. Its rubber-created sole afforded fine traction on rock, snow, grass, mud, and even to a degree on ice. Furthermore, it proved to be the warmest boot yet developed for skiing.¹⁷

Throughout their development, the mountain troops struggled continuously against a major enemy--overweight. For when the chips were down, when vehicles and animals could go no farther, every item of equipment and food had to be carried into battle on the back of the trooper himself, and sometimes it looked as if that back would break.

Major Wood had the following interesting comments to make in this connection: "Numerous cases of exhaustion (collapse and vomiting) occurred during the first three days of the exercises. . . . The pack must be lightened. A soldier carrying 83 pounds will be in no condition to go into combat after even a short march with such a load."¹⁸

15. Interview of Hist Off with Col Anderson, MTC, 4 Jan 44. 314.7/27 (Study No. 24)(C).

16. Ibid.

17. Interview of Hist Off with Capt John Woodward, MTG, 10 Jan 44. 314.7/29 (Study No. 24)(C).

18. Wood memo 314.7/53 (Study No. 24)(C).

An actual typical load, as tabulated by Major Wood, was surely excessive. It consisted of the following:¹⁹

	Lbs.	Oz.
2 pair Adapters	1	2
2 set Food Bags (4)		8
1 Bag, Sleeping	12	11
1 set, Band, Contraction		5
1 Bayonet	1	8
1 pair Mukluks	1	
1 Brush, Mtn		4
1 Canteen	2	10
1 Climbers	1	
1 Container, Fuel, filled	1	4
1 Cup		9
1 Drawers, Wool	1	
3 Handkerchiefs		3
1 Insole, Felt, Pr		2
1 Laces, Boot, Ski		1
1 Mittens, Wool		5
1 Mittens, Over, White		4
1 Pad, Insulating	2	6
1 Pad, Snowshoe, Pr.		6
1 Rifle, M1	9	
1 Shirt, Knit		9
1 Snowshoes, Emergency, Pr.	2	14
1 Spoon		1
2 Prs, Socks, Artic	1	
2 Prs, Socks, Light Wool		4
1 Pr. Socks, Wool, Ski		5
1/2 Stove, Mountain	1	8
1/2 Tent, Mountain	6	3
1 Kit, Ski, Emergency		7
1 Toilet Articles		4
1 Tool, Entrenching	2	10
1 Trousers, Ski, White	1	8
1 Undershirt, Wool		9
1 Rucksack	6	
4 Rations	12	
1 Mess Kit	1	
1 First Aid Kit		2
3 Wax, Ski		6
1 Box, Match		2
1 Wristlets		2
1 Knife, Ski		4
1 Goggles		2
Ammunition and Belt	9	8
TOTAL	84 Lbs.	4 Oz.

As Time Magazine succinctly put it, "No other troops tote so much."²⁰

19. Ibid.

20. Time, 24 Aug 42, p 60.

The Office of Quartermaster General was well aware of this. Through their efforts and research, sleeping bags were reduced from 12 to 9 pounds, stoves from 7 pounds to 1 pound. Tentage remained heavy because of the waterproof material used. Thirteen pounds for a two-man tent was too much weight. Men left them behind; they preferred to build lean-to's or snow-caves on the spot, or just unroll their sleeping bags on the ground. Nylon was scarce because of the need for parachutes; balloon cloth was equally unavailable. If the waterproofing had been eliminated, several pounds could have been dropped off, and the tents would not have frosted up with condensed moisture on the inside. The Board recommended several times that this be done, but it was unable to convince the Office of the Quartermaster General. The tents continued to be the most serious weight problem in the mountain trooper's rucksack.²¹

Among the high-quality items developed for the troops were nylon climbing ropes, lighter than manila and twice as strong; dark goggles specially treated to cut out the ultra-violet rays at high altitudes; the one-pound gasoline stove already mentioned; dehydrated rations of powdered soups, cheese, vegetables, and concentrated meats, averaging 2-1/2 pounds per man per day; mountain jacket with a hood, large pockets, and an auxiliary knapsack built into a pouch in back; and various types of wind-proof outer clothing worn over an inner pile warmer than fur.

In summing it up, the development of the mountain trooper's equipment on the whole has been one of the most encouraging phases of the program. That it could have been better there is little doubt; the old Mountain and Winter Warfare Board suffered from lack of sufficient personnel and equipment, as well as from a skeptical attitude in Washington. What was needed most of all was a liaison officer from the Office of Quartermaster General working full time with the Board, and sending reports in directly by telephone and telegraph, not by slow mail through clogged channels. Then the process of getting information from the field back to the research laboratory would have been speeded up considerably.

21. Conversation of Hist Off with Lt Charles Bradley, MIG, Aug 43.

CHAPTER XII

LIAISON

From the start, the troops of the Mountain Training Center suffered from lack of adequate liaison. The reasons underlying this situation were several. One partial cause lay in the fact that mountaineering and skiing were something entirely foreign to the United States Army. The General Staff Corps in Washington listed no officers with experience in this field. The project had been given impetus by a civilian, Minot Dole. Consequently, there was apparently little interest in maintaining liaison between Army Ground Forces and the Mountain Training Center.

Another basic handicap to effective liaison resulted from the fact that all the specialized talent, all the technical skill and experience, was in the ranks. In 1941 the highest ranking officer in the United States Army with real mountaineering background was a captain, and by far the majority of world-famous experts in this field were either privates or civilians. Few of the staff officers of field grade or higher in Washington professed to know much about skiing and mountaineering. Little wonder that liaison between Army Ground Forces and the Mountain Training Center was limited to a few visits by Minot Dole, Major Tappin, Colonel Robinson, and Major Wood. General McNair did not visit the Mountain Training Center until 26 June 1943. He inspected the portable tramway of the Engineers, the Rock Climbing School, the 99th Infantry Battalion, the 1st Battalion of the 86th Infantry, and the 609th Field Artillery Battalion. His report was highly laudatory of all the units visited, with the sole exception of the 99th Infantry Battalion, which was not satisfactory in several aspects of its platoon proficiency tests. The report concluded by stating that steps were being taken to obtain tall personnel for the pack artillery.¹ Shortly thereafter, the Mountain Training Center was reactivated as the 10th Light Division.

The Air Forces set up an Arctic Training School at Mt. Evans, Colo., in 1943 to teach its fliers how to survive or make landings in the Arctic wilderness. They borrowed some Mountain Training Center men and officers to assist with the program. A few of these men were later transferred to the Air Forces, but others whom the Air Forces requested were refused by General Rolfe as being "not available."²

Of the foreign nations with whom the Mountain Training Center dealt, Norway, Chile, and England head the list. Colonel Dahl and Colonel Steneseen of the Norwegian Army, both spent several months with the mountain troops as observers, and lectured to the troops on their own experiences in the war in Norway. Colonel Dahl was in command of the troops that were the last to leave Narvik, and Colonel Steneseen was an experienced mountaineer.

On 2 April 1942 General Marshall sent a memorandum to the Deputy Chief of Staff, asking if Norwegian ski instructors could be of help to the Army. He stated that while in London, Ambassador Biddle had come to see him, bringing the senior Norwegian officer in England, who had offered the services of several crack Norwegian ski instructors then teaching British troops in Iceland. A query to the Commanding General of the Iceland Base Command on 9 May brought the information that the United States Army which was stationed in Iceland had taken over all Norwegian ski instructors for their own use, and none were available for use in the United

1. AGF ltr 353.02/185(AGF)(12 Jul 43)GNGCT to CG MTC, Cp Hale, Colo, 12 Jul 43, Visit to MTC, Cp Hale, 26 Jun. 314.7/21 (Study No. 24)(C).

2. Interview Hist Off with 10th Light Div Staff Off, Aug 43.

States.³ Other Norwegian visitors to Camp Hale included Col. Otto Møenther-Kass, and Lt. Col. V. Ebbesen, both of whom came in the spring of 1943. Another visitor was Dr. Vilhjalmur Stefansson, famous Arctic explorer, who gave freely of his time and knowledge during the winter of 1943, showing how to build snow houses, and emergency shelters.



DR. VILHJALMUR STEFANSSON DEMONSTRATING THE CORRECT WAY OF BUILDING AN IGLOO AT CAMP HALE

It was natural that Chile--a country ribbed with mountains nearly twice as high as our own, including Aconagua, a 23,000-foot giant--should send several officers to observe the Mountain Training Center. Gen. Oscar Fuentes and two other officers from the Chilean Army inspected Camp Hale on 15 October 1943. Negotiations were also initiated by the Chilean Embassy to allow a Captain Silva-Godoy to attend "Mountain Warfare School" at Camp Hale, following the example set by other Chilean officers who were attending the Infantry School at Ft. Benning, Ga., and the Armored Force School at Ft. Knox, Ky. Unfortunately, no such "Mountain Warfare School" existed at Camp Hale; the Mountain Training Center wrote back on 19 March 1943 that they would be glad to receive Captain Silva-Godoy as an observer, but he would only be able to attend the regular divisional schools which were being conducted there with emphasis on mountainous terrain.⁴

From England came Brig. P. D. W. Dunn and two other officers to Camp Hale in February 1943. They observed the maneuvers of the 37th Mountain Infantry, and Brigadier Dunn wrote a most interesting and valuable pamphlet on his conception of the

3. Memo of Gen Marshall for CDofS, 2 Apr 42. 381 War Plans WDGSA.

4. 3d ind on MTC ltr 310.2/5-GNYGA, to CG AGF, 19 Mar 43, sub: Asgmt of Off of Chilean Army to High Mt Tr Units. 335.11/15 (Chile).

proper use of mountain troops in modern war, copies of which were distributed to the staff of the Mountain Training Center by General Rolfe.⁵

A certain amount of liaison was also maintained between the Mountain and Winter Warfare Board and its equivalent in the British Army, the Mountain and Snow Warfare Command. On 8 August 1942, Army Ground Forces directed the Mountain and Winter Warfare Board to exchange copies of its monthly progress reports with the British.⁶ The "Barclay mission," a group of British officers who visited Camp Hale in October 1943, in connection with training Scottish mountain troops, stated emphatically that better liaison was needed between American and British mountain units.⁷ From England also came a group of about sixty enlisted men and officers in November 1943 to attend a three weeks' course in the operation and maintenance of the "Weasel" or M-29. A group of about twelve MTC officers flew to Italy in the fall of 1943 to instruct troops in mountain technique on the spot.

To Canada at the invitation of the Canadian Alpine Club went two MTC officers in July 1943, Captain Jay and Lieutenant Bradley. They attended the three-week Canadian Army Mountaineering School at Little Yoho, British Columbia, and wrote a report for Army Ground Forces.⁸ Also to Canada went Lieutenants Thompson and Lomis in February 1944 to assist with the winter training of British troops at Jasper, Alberta.

5. MTC Unnumb memo GNYGC, 8 Mar 43, sub: Notes on Winter Warfare in the Mountains. 314.7/19 (Study No. 24)(C).

6. AGF ltr to Pres, MWWB, 8 Aug 42, sub: Rpts and Recommendations. 334.2/53 (MWWB).

7. Conversation of Hist Off with Capt John Woodward, MTG, Jan 44.

8. (1) MTC ltr (C) to CG AGF, 19 Aug 43, sub: Rpt on Canadian Alpine Tng for Trps. 334.2/53 (MWW Bd).

(2) 10th Lt Div ltr to CG AGF, 14 Aug 43, sub: Rpt on Canadian Alpine Club Course on Military Mountaineering. Ibid.

CHAPTER XIII

MOUNTAIN TRAINING GROUP

After the activation of the 10th Light Division on 15 July 1943, the days of the Mountain Training Center were obviously numbered. It had served its primary purpose--that of giving instruction in mountain and winter warfare to the officers and enlisted men who eventually were to go into combat as the 10th Light Division. Those who remained in the Mountain Training Center, after transfers and reorganization had been effected, were mainly men unsuited for tactical combat, on account of either lack of military training or physical handicaps. They were still excellent potential instructors of mountain and winter warfare. The fate of the hundred odd men and officers left in the Mountain Training Center on 15 July 1943 depended upon whether or not another division was to be activated.

On 20 October 1943 came a partial answer. The Mountain Training Center was disbanded, effective 23 October 1943.¹ In its place a mountain Training Group was set up, to which practically all personnel of the Mountain Training Center was shifted. Its job was similar to that of the old organization, but with this difference: more emphasis was to be placed on "instruction teams" of men and officers which would be sent out to other camps to give specialized training to various standard Army units. Also, the Table of Organization for the Mountain Training Group provided for no cooks, no mess sergeant, and no supply sergeant. It was a hybrid organization. Military training for the members of the Mountain Training Group practically ceased; they were now a pool of specialists skilled in army skiing and army mountaineering, available on call at any hour of the day or night to perform jobs of this nature at any place.

The first group left for Camp McCoy, Wis., late in October 1943, to give winter training to the 76th Division. Approximately thirty officers and a hundred enlisted men made up this contingent, commanded by Major Wikner. For six weeks they gave instruction in cross-country skiing, snowshoeing, and winter bivouacking a selected group of about one thousand 76th Division officers and noncommissioned officers. Lack of snow handicapped the program severely. Nevertheless, so well was the instruction given that at the end of six weeks' time, their 76th Division students were able to go back to their respective units and give capable instruction to their own men, while the members of the Mountain Training Group stood by in a supervisory capacity.²

Another group of MTG officers and men under Captain Woodward went to Pine Camp, N. Y., in early November 1943, to give similar winter training to the members of the 5th Armored Division. When work had been progressing satisfactorily here for about a week, orders came through sending the 5th Armored Division overseas. This left the somewhat bewildered members of the Mountain Training Group in the position of instructors without students, so they packed their rucksacks and went home to Camp Hale.³

A third contingent from the old Mountain Training Center--about twelve officers and twenty enlisted men--was already at Elkins, W. Va., when the orders came

1. Second Army ltr (R), AG 322.17-30 GNMDF, to CO MTC, 20 Oct 43, sub: Letter Orders, No 1-12 (Inactivation of MTC). 314.7/24 (Study No 24) (C).

2. Interview Hist Off with Capt John Woodward, MTG, 10 Jan 44. 314.7/29 (Study No 24) (C).

3. Idid.

notifying them of their transfer to the Mountain Training Group. It made little difference in their status, however. Under the command of Maj. Robert Works, they had been conducting schools in assault climbing since late July for the 28th, 35th, 77th, and 95th Divisions. Roped climbing, belaying, rappelling, piton work, and even the difficult tension climbing were successfully taught in a series of two-week classes, culminating in an all night "assault" up a 300-foot cliff.⁴ These four divisions, in addition to the 45th and one combat team of the 36th Division--which had been trained similarly a year previously--and the 2d and 76th Divisions--trained in over-snow movement in Wisconsin--all had opportunity to put to actual use in war the techniques learned from the instructors of the Mountain Training Center. A study of the accomplishments of these divisions will prove the value of even a short period of mountain and winter warfare training for combat troops.⁵

The remainder of the Mountain Training Group stayed at Camp Hale, Colo., augmented by about 40 officers and 160 enlisted men from the 87th Mountain Infantry. These men were sent back from Kiska because of their special qualifications as ski and mountain instructors. Unfortunately, they swamped the small Table of Organization for the Mountain Training Group far beyond the saturation point, thus cancelling any chances of promotion for those in the original Mountain Training Group. For example, over thirty second lieutenants were carried in an organization whose Table of Organization listed no second lieutenants at all. It was a situation that contributed to a general lowering of morale.

At Camp Hale itself a strange administrative setup existed. To take care of the various nondivisional troops created by the conversion of the large (11,000) Mountain Training Center into the streamlined (9,000) 10th Light Division, the 15th Headquarters and Headquarters Detachment, Special Troops, Second Army, had been activated on 23 October 1943.⁶

Consisting of five officers and fifteen enlisted men, this detachment was augmented to thirty-seven officers and forty enlisted men to "provide total personnel needed for mountain and winter instructional teams."⁷ One can imagine the resulting confusion when the 40 officers and 160 enlisted men from the 87th arrived out of the Aleutians and were attached unassigned to this already filled Table of Organization.

Under Headquarters 15th Detachment were the Mountain Training Group, 10th Reconnaissance Troop, 10th Quartermaster Battalion, 7th, 37th, and 38th Veterinary Companies, 126th and 226th Engineer Companies, and 252d Quartermaster Laundry Company. It was a heterogeneous group at best. The 10th Reconnaissance Troop and the Mountain Training Group paralleled each other in purpose and personnel, and were composed of expert skiers and mountaineers--two tactical pools of instructors. The other units were practically the same as might have been found in any flatland outfit. Over these was the 15th Headquarters and Headquarters Detachment, Special Troops, Second Army, staffed almost entirely with officers and men brought in from the Tank Destroyer Center, Camp Hood, Tex. And behind them, 1,450 miles away, stood Headquarters, Second Army.

4. Conversation of Hist Off with Lt Col Paul Lafferty, MTG, Feb 44.

5. MWV Sch & Tng Center Ltr for CG AGF 10 Mar 47, sub: Comments to Study 24, "The MTG." 314.7/49 (Study No 24) (C).

6. Second Army ltr (R), AG 322.17-15 GNMFF, 20 Oct 43, sub: Letter Orders No A-335. 314.7/23 (Study No 24) (C).

7. Ibid.

Perhaps the strangest situation of all was the position occupied by the 10th Cavalry Reconnaissance Troop. Originally formed in September 1942 at Ft. Meade, S.D., as a horse cavalry outfit, it was brought to Camp Hale in November 1942 and given winter training in the hope that it might become the Reconnaissance Troop for the Mountain Division, able to operate equally well on horses, skis, and over mountains. This did not turn out to be the case, as pointed out in Chapter III; the personnel proved to be both inept and unwilling to learn the skills necessary for mountain and winter warfare. Consequently, officers and men of the original troop were transferred to Camp Carson, Colo., in the spring of 1943 and split up among various Quartermaster pack companies at that station. In accordance with the letter from Army Ground Forces of 25 April 1943, these men were replaced by expert mountaineers, and mechanized equipment substituted for the horses.⁸ Captain Woodward became Commanding Officer of the new 10th Cavalry Reconnaissance Troop on 7 May 1943, and the troop embarked on its new mission of teaching a standard procedure of military mountaineering technique.

Throughout the summer of 1943, its officers and enlisted men taught rock climbing to units of the 10th Light Division at Camp Hale. In September fifteen officers and men went to Mt. Rainier to give a month's instruction in glacier technique to other 10th Division units. Ten more of the Troop's men went to Ft. Lewis to assist in the production of a training film entitled "Personal Hygiene in Snow and Extreme Cold."

The rock climbing school wound up on 16 October 1943, and shortly thereafter, a refresher course was begun in the new snow of the high mountains around Camp Hale for the ski instructors. Then followed the dispatch of winter instructional teams to Camp McCoy, Pine Camp, and units of the 10th Division at Camp Hale. A rock climbing detail of five officers and sixteen enlisted men were flown to Italy in December 1943.

Captain Jay became Commanding Officer of the 10th Cavalry Reconnaissance Troop on 16 December 1943, replacing Lt. Russell McJury. At this time a group of officers and men from the Office of Strategic Services in Washington, D.C., arrived at Camp Hale for a two weeks' course in skiing, and men from the 10th Reconnaissance Troop gave the instruction. This was followed by an assignment to teach the 10th Medical Battalion of the 10th Light Division. Throughout the winter, when not engaged in actual missions, the Troop went on long ski-mountaineering trips of from three to five days' duration in the high mountains on all sides of the camp, including ascent of the second and third highest mountains in the United States.⁹

The basic idea of the 10th Cavalry Reconnaissance Troop was excellent, but the name was unfortunate for a group of instructors in mountain and winter warfare. Considerable confusion was constantly arising as a result. Set up as a Cavalry Troop, under T/O 2-27 (1 March 1943), its ratings and equipment were all cavalry and unfitted for use in an instructor pool of mountaineers. Motor sergeants' ratings had to be juggled among skilled skiers; platoon officers' bars had to be transferred to rock-climbing supervisors; and no one knew what to do with the growing pile of .50-caliber machine guns, cavalry radio sets, and other tactical impedimenta that cluttered the small supply room.

Efforts to change the name of the troop proved unsuccessful. On 13 May 1943, the Mountain Training Center wrote to Army Ground Forces that "since all men in the

8. AGF ltr (R) 320.2/9(Mtr.)GNGGT, to CG MTC, 25 Apr 43, sub: Orgn and Tng of Mt Units.

9. Hist of 10th Recon Tr (Mech), 22 Mar 44, Suppl to 10th Cav Recon Tr History, 9 Oct 43. 314.7/25 (Study No 24) (C).

troop are basically Infantry, authority is requested to redesignate the 10th Cavalry Reconnaissance Troop as the 10th Reconnaissance Company." This request was disapproved on the grounds that the troop would eventually become the Reconnaissance Troop for the new Mountain Division.¹⁰ Actually, when the Table of Organization for the 10th Light Division appeared two months later, no provision whatsoever was made for "reconnaissance element."

Relations with Second Army were confused. Apparently, Memphis did not understand the AGF letter of 25 April 1943, which called for replacing the personnel of the troop with "skilled mountaineers and skiers." To Second Army, "10th Cavalry Reconnaissance Troop" meant just what it said, and they repeatedly sent letters to 15th Headquarters and Headquarters Detachment at Camp Hale, demanding information as to why Infantry and Signal Corps officers were being assigned to the 10th Cavalry Reconnaissance Troop. They also directed that two officers be sent from the Troop to attend the Officers' Advanced Course at the Cavalry School, Ft. Riley, Kans.

These and similar letters kept coming in from time to time until finally Col. Donald P. Spalding, Commanding Officer of the 15th Detachment, wrote a letter to Army Ground Forces through Second Army, requesting specific information as to the status and mission of the 10th Reconnaissance Troop. "This headquarters desires information as to whether this organization is to be considered as a non-tactical organization to be used as a pool of instructors in Mountain and Winter Warfare Operations, or whether they will be trained tactically as a reconnaissance unit."¹¹

A few weeks later Colonel Spalding received word through channels that the matter was being taken under consideration, and the situation eased up somewhat. But the 10th Cavalry Reconnaissance Troop still had its troubles, one of which was that it was used by 15 Headquarters as a kind of Headquarters Company, and from its meager roster of 62 men present for duty, it was forced to operate a motor pool of 50 odd vehicles and a supply room for 471 men, as well as fire the furnaces and perform similar janitor details for 15th Headquarters. Because of his geographical proximity to headquarters, the Troop's commanding officer acted, in addition to his regular duties, as a supply officer for what amounted to a battalion.

At that time, as a result of the culmination of much work by Colonel Lange, Colonel Cook, and others in Washington and Camp Hale, a Second Army order came transferring the 10th Cavalry Reconnaissance Troop, "less personnel and equipment," to Ft. Knox, Ky. The 7 officers and 142 widely-scattered men of the troop were transferred in grade and attached unassigned to the Mountain Training Group.¹² Five days later most of them had been transferred to Infantry units in the 10th Light Division, while those who remained (34 officers and 102 enlisted men) were assigned new jobs in a reorganized Mountain Training Group, with a Table of Organization that included sections on skiing, snowshoeing, rock climbing, equipment, and medical evacuation. Their future, however, depended on what plans Army Ground Forces had, if any, for training new mountain divisions, since the 10th Light Division was already on maneuvers and about ready for combat. At any rate, whatever the future might hold, none of it concerned the Mountain Training Center. All that was left to it was a history.

10. MTC ltr to CG AGF, 13 July 43, and 1st ind, sub: Redesignation of 10th Cav Recon Tr. 320.2/1.

11. 15th Hq Sp Tr ltr to CG AGF, 30 Dec 43, no sub. 314.7/26 (Study No 24)(C).

12. Hist of 10th Recon Tr (Mech), 22 Mar 44, Suppl to 10th Cav Recon Tr History, 9 Oct 43. 314.7/25 (Study No 24)(C).

CHAPTER XIV

THE MEDICAL SECTION

No history describing the activities of the Mountain Training Center would be complete without a summary of the accomplishments of the medical detachment of the 87th Mountain Infantry. When the first battalion of that regiment went to Mt. Rainier for winter training in February 1942, it was accompanied by a Battalion Medical Section of one officer, Capt. Louis Malow, and two enlisted men. Their evacuation equipment was so meager that from the start they were forced to improvise and borrow from the local Park Service. The enlisted personnel were accomplished mountaineers, fortunately, as well as trained National Ski Patrolmen. So, in spite of difficulties, the troops received good field support. Ski injuries, of which the percentage was low, were given prompt treatment. During that winter certain special items of over-snow evacuation equipment were tested and rejected as unsuitable for Army use. Notable among these was a light rescue sled. This sled was a copy of one used by explorers, hunters, and winter armies since the time of Wansen. It is of interest to note that finally, three years later, users of this sled revised their opinion and it came into deserved popularity.

During the summer and fall of 1942 a detachment from the 87th Mountain Infantry was sent to the Columbia ice fields in Canada. Throughout the last two months of this expedition, the medical section, with the help of other personnel, was able to perform every classical mountain and winter evacuation exercise.¹

Upon return to the States, many of the men who had been in Canada were sent to Camp McCoy, Wis., to assist with the winter training program of the 2d Division. The 87th Medical Detachment was represented by one officer, Captain Reynolds, who acted as adviser to the 2d Division Surgeon. Together they conducted studies in the winterization of standard divisions as well as experiments in the care and evacuation of the winter casualty. Much new equipment including the Finnish pulka, or snowboat, was built and tested.²

During this same winter the bulk of the work of the mountain winter evacuation program was carried on by the 10th Medical Battalion, and the 87th and 86th Infantry Medical Detachments. Downhill toboggan rescue technique was perfected, and tests were conducted at the request of the Army Ground Forces to determine the suitability of much new equipment.³

Throughout the winter of 1943, work went forward also on the Medical chapters of the proposed Mountain Troop manual. Chapters were approved, with modifications, by Army Ground Forces for use at the Mountain Training Center on first aid, evacuation of wounded, and mountain medicine. At the time of this writing, the complete manual is in an unfinished state.⁴

1. A complete record of this work may be found in the files of the Special Projects Branch, G-3, AGF, Washington, D.C.

2. Complete details of this work may be found in the report of the 2d Division's records on winter training, 1942-43, and in the report of the medical adviser to the Division Surgeon. 353/1 Winter.

3. Results of these studies are to be found in the files of the M&WB and Hq AGF.

4. AGF 5th ind to CO MTC on ltr 461-GMRC-2/23636(10-5-42). 314.7/17 (Study No. 24)(C).

Another important work was also going on at the same time. One of the greatest difficulties in the development of the mountain troops was always a lack of definite physical standards. This allowed men to be assigned to mountain duty who should never have left the lowlands. When the 1st Battalion of the 87th Mountain Infantry was activated, the general belief in military circles, as reported in the Army and Navy Register, was that "only men who possess the physical qualifications necessary for work at high altitudes and in low temperatures will be selected for the battalion."⁵ Actually, no special standards were applied and men from every climate and every walk of life were sent to the mountain unit, as well as trained skiers and mountaineers.

The cold, the extremely high altitude, and the rugged work soon took a heavy toll of these untrained men. The commanding general then had the problem of what to do with the misfits, and how to prevent more from arriving daily. On 10 November 1942, Colonel Gaither of the Special Projects Branch sent the following memorandum to G-3:⁶

It is believed from the experience of civilian expeditions that a certain percentage of so-called average personnel will be seriously handicapped when required to operate under real mountain conditions.

Principal among these limitations may be:

- (a) Inability to acclimatize fully to mountain altitudes.
- (b) Inability to acclimatize fully to low temperatures.
- (c) Inability to carry heavy mountain pack.
- (d) "Mental" acclimatization.

Recruiting officers have inquired concerning the advisability of establishing qualification requirements.

It is therefore believed that factual consideration should be given by appropriate medical officers of the Mountain Training Center to the desirability of establishing such standards.

G-3 agreed, and on 12 November 1943 a letter went out to Colonel Rolfe at the Mountain Training Center requesting that such a study be conducted by appropriate medical officers to determine whether or not special qualification requirements should be established for officers and enlisted men desiring service with mountain troops. It was suggested that Section V of War Department Circular No. 155, 21 May 1942, "Qualification Requirements for Parachute Troops," be used as a guide.⁷

To study this situation, a board of medical officers was convened at Camp Hale on 17 February 1943, consisting of the following members: Lt. Col. Harry L. Berman, 10th Medical Battalion; Maj. Louis Malow, 87th Mountain Infantry; Capt. Frederick Renteen, 10th Medical Battalion; and Capt. Thomas Connors, 87th Mountain Infantry.

It was the conclusion of this board that "the physical standards prescribed for Class 1-A in MR I-9 and in AR 40-105 are considered generally adequate for mountain troops and should be rigidly adhered to in their selection. As a general rule, no

5. Army and Navy Register, 1 Nov 1941, p 2.

6. Memo of Special Projects Branch AGF for G-3 AGF, 10 Nov 42, sub: Qualification Requirements for Mt Trs. 201.6.

7. AGF ltr 201.6/360-GMGCT, 12 Nov 42, sub: Qualification Requirements for Mt Trs.

limited service personnel should be accepted for duty in the mountains. However, it is recommended that a board of officers, both medical and nonmedical, be appointed to consider the physical qualifications of selected limited service officers and enlisted men who have particular skill for mountain duty and who might be used at a training center, but not in a combat division."⁸

The board also recommended that a maximum age limit of 35 years be set for enlisted men, and 30 years for mountain artillerymen. These latter should be at least 5 feet, 10 inches in height, to facilitate packing on animals. Two ailments, second degree pes planus and active syphilis, were listed as disqualifying any man for mountain and winter work.⁹

These recommendations were approved by the Mountain Training Center and sent on to Army Ground Forces. That headquarters sent the report on through channels to The Surgeon General with an indorsement to the effect that "as a general principle this headquarters is opposed to the establishment of any special qualifications for particular types of duties." The Military Personnel Division and The Surgeon General both agreed that the present general and limited service categories were sufficient, and if officers or men proved physically unqualified after due trial, they should be reassigned to other units of Army Ground Forces.

Back at Mountain Training Center again, the report was noted and indorsed back to Army Ground Forces asking for "authority to periodically report to your headquarters" such men as proved unfit for the mountains, but not to the extent that they could be reclassified as limited service.¹⁰

The discussion which took place in Army Ground Forces on this all-important question is of interest in view of the popular misconception, even among military authorities, that only selected personnel were being assigned to the Mountain Troops. On 12 April 1943, G-1, AGF, submitted the following memorandum to G-3, AGF:¹¹

G-1 is in general opposed to preferential treatment regarding personnel to be assigned to any type of unit. It is fully realized, however, that the training and operational requirements of some units require select personnel and cannot utilize run-of-the-mill inductees; such preferential treatment has been authorized for parachute units and to a lesser extent to the airborne troops.

The basic communication ultimately poses the question, "Shall mountain units be given special consideration in the assignment of personnel?"

In other words, seventeen months after the mountain troops had been officially activated, and two years after the experimental mountain units had turned in their reports, G-1 of Army Ground Forces had not yet made up its mind whether or not specialized personnel were necessary for mountain units.

8. 10th Med Bn ltr 201.6/360-GMGCT, 17 Feb 43 and 10 inds, sub: Qualification Requirements for Mt Trs. 314.7/18 (Study No. 24)(C).

9. Ibid.

10. Ibid.

11. Memo of G-1 AGF to G-3 AGF, 12 Apr 43. 201.C.

But the discussions of physical standards went on. Army Ground Forces sent back a table of physical standards for mountain troops, with a list of the units comprising such troops. Unfit personnel in those units were to be absorbed in other units of the Mountain Training Center. To this, Mountain Training Center added a ninth indorsement, asking for reconsideration of their previous request, and pointing out the large number of "altitude" patients unfit for mountain service, who would be fit for general service at a lower altitude. If merely transferred to other units at Camp Hale, as Army Ground Forces recommended, they would not be serving at a lower altitude, and thus their altitude sickness would remain with them; furthermore, they would be classified as limited service when in reality they were fit for general service at lower altitudes, in direct contrast to War Department directives.¹²

Finally, on the tenth indorsement, Army Ground Forces granted General Rolfe permission to apply the reassignment tests to all units of the Mountain Training Center. Men who showed definite symptoms of altitude sickness could be reassigned, and no such men could be absorbed in any other unit of the Mountain Training Center at Camp Hale. All men determined physically unfit for mountain work were to be reported to Army Ground Forces, attention Classification and Replacement Division, for reassignment.¹³

This was a great step forward in the struggle to eliminate unsuitable mountain troop personnel, and at the time of this writing over one thousand men have been reassigned since June 1943.¹⁴

Although by the end of spring 1943, the Mountain Training Center was eight months old, its complement included no assigned medical personnel. However, in June 1943, an officer was added to the roster; a month later he was sent to the West Virginia Maneuver Area to start the first United States Army School of Medical Mountaineering.

With the establishment of this school, the Medical Section of the Mountain Training Center came of age. Additional officers and enlisted men were added, and the results speak for themselves.¹⁵

After the Evacuation School had been operating successfully for ten weeks, the senior Mountain Training Center medical officer was assigned as technical advisor to a training film project entitled, "Personal Hygiene in Snow and Extreme Cold." This film was photographed in studios at Ft. Lewis, Wash., the Signal Corps Photographic Center, Long Island City, N. Y., and on Mt. Rainier. It is a notable addition to the present series of training films.

While this film was being made, the Mountain Training Center became the Mountain Training Group, under the Headquarters of 15th Detachment, Special Troops,

12. Memo of G-1 AGF to G-3 AGF, 12 Apr 43. AGF 201.6.

13. 10th Med Bn ltr 201.6/360-GNGCT, 17 Feb 43 and 10 inds, sub: Qualification Requirements for Mt Trs. 314.7/18 (Study No. 24)(C).

14. Conversation of Hist Off with Lt. Charles Bradley, Feb 44.

15. A brief synopsis of the type of work taught in this school may be found in "A Practical Handbook of Mountain Operations" (R), prepared by the Office of the Senior Technical Advisor, West Virginia Maneuver Area, Elkings, W. Va.

Second Army, and presently plans for the winterization of the 76th Division were prepared. The work of the Mountain Training Center was carried on under another name.¹⁶

An evaluation of the activities of the medical personnel in mountain troop units may be useful. There can be no doubt that some variety of special training must be provided for medical troops about to engage in mountain or flatland winter operations. But the question arises, "What kind and how much?" Must every soldier become a consummate mountaineer, woodsman, snowshoer, or skier? Or will a minimum of knowledge and proficiency be sufficient? These are the questions that had to be answered before the large-scale training of winter troops could be rationally conducted. The Bibliography of a paper entitled, "Medical Problems of Mountain Troops," on file in the Office of The Surgeon General, is recommended for those who are interested in the background of winter and mountain medical operations.¹⁷

Information from these sources and from practical experience have indicated beyond all doubt that civilian methods and training requirements are not applicable to the Army without considerable modifications. Actually, three types of training programs were prepared and conducted. Each program included woodcraft or mountaineering, personal health, sanitation, first aid, and the care and evacuation of casualties. The presentation of each program was a separate problem demanding much thought. Obviously, summer mountaineering in the West Virginia mountains called for a different technique from the winter operations in the high Rockies, and by the same token, a winter program for flatland troops would be unlike either. Since there is still confusion in some quarters, each problem will be discussed in some detail.

WINTER: MOUNTAIN

In order to appreciate the problem of training men to fight in snow and cold, the essential differences to be found in mountain and flatland operations must be understood. Although the fundamental principles of winterization are the same on the heights and the lowlands, their application must change with each new environment. Mountainous terrain necessitates relatively small units, having complete over-snow mobility, and decentralization of command; while on flatland, winter employment of troops will be more normal. In mountainous regions all logistical concepts must be revised to compensate for the retarded tempo of activity. The altitude and the rugged character of the land make speed a relative value. Communication is poor and the problems of supply and evacuation exceed all others. Individual activity is much more strenuous. A mountain soldier must be capable of operating over any terrain, under any conditions imposed by weather or combat. Although he may have received his basic winter training in the foothills, he must be prepared to live in the high forests, and to travel over the bleak snowy wastes above timberline. The months required to teach him the ultimate skills of winter mountaineering may be wasted in a flash if he makes a false move.

16. A record of the MTC Medical Department's experience with the 76th Division during the winter of 1943-44 will be found in the files of the 15th Hq Det, Special Trps, Second Army.

17. Further interesting notes on winter training may be found in the report of a conversation between three MTC officers and the Ass't Charge d'Affaires of the Soviet Embassy, Washington, D. C., April 1943. At the time of this writing, notes were on file at Hq AGF.

WINTER: FLATLAND

On the other hand, it has been demonstrated that any soldier fit for combat duty can be conditioned for flatland winter operations. As compared with the mountain soldier's, his mental and physical adjustment is slight. Although his activities must be modified to provide for his personal health and safety, he will never experience the degree of exhaustion common in high altitudes after effort. He must learn to use snowshoes or to ski, but most of the time these skills will not be used. In most circumstances he will have the companionship of relatively large numbers of men, and he can depend upon a fairly constant rate of supply. Although he may encounter difficulties of weather and terrain, they would not prove insurmountable.

In mountain warfare the medical soldier must be provided with the tools essential for winter mountaineering in addition to the basic toboggan sled, and M-28 or M-29. The flatland soldier has little need for special evacuation skills. Provided he has basic over-snow equipment and training and can keep the casualty warm, he will be well able to perform his mission as a medical soldier.

SUMMER: MOUNTAIN

Nowhere, with the possible exception of the jungles, is the evacuation of casualties more difficult than in the Mountains. In winter, when over-snow equipment is available, evacuation down steep slopes is quite simple, but when the ground is bare, the casualty must be borne down the mountain by manpower. However, by careful route selection and by the judicious use of ropes and other mechanical aids, the casualty may be brought to safety. Too much dependence must not be placed on pitons, snaplinks, and the like, for they are not always available. Medical mountain soldiers must develop stamina, initiative, and a determination that will enable them to overcome any obstacle with whatever equipment they have at hand. Mountain and winter training require the utmost from every soldier. If the curriculum is presented in a cold and dispassionate manner, he will rebel against it. But if he can be induced to accept this training as a personal challenge, his enthusiasm will be reflected in his work.

CONCLUSIONS:

The medical aspects of winter or mountain training for a division must be closely coordinated with the training of the division as a whole. Experience indicated that ten enlisted men and two officers are the minimum required for training the medical personnel of a division. The minimum time required to conduct the schedule listed are as follows:¹⁸

Divisional Medical Troops--Winter-Mountain, 6-8 weeks
RCT Medical Troops--Summer-Mountain, 2 weeks
Division Medical Troops--Flatland-Winter, 6-8 weeks

18. Training schedules for the training indicated above will be found in the files of the MTG, 15th Hq Det, Sp Trps, Second Army, and in the organizations already having undergone such training.

CHAPTER XV

CONCLUSIONS

Before an appraisal of the Army's experience with the Mountain Training Center can be made, cognizance must be taken of the fact that the entire program of mountain training hinged on certain unknowns of which the most important was the strategic plan, and therefore the military requirements behind the program adopted. It is realized that if the requirements of the Joint Chiefs of Staff and the War Department had called for a mountain force to match that of the German Army it is not unlikely that the obstacles and objections which compromised the program would have been pushed aside or overruled, as in the case of the Air Forces, and the objectives of the mountain-minded officers realized. If, on the other hand, the decision made was that the need for mountain troops was not urgent, and such would seem to be the case, it can be argued that the program adopted was adequate and would have met the requirements if it had been carried out effectively. That it was not carried out effectively was due partly to lack of support from above and partly to mistakes made within the mountain group itself.

In the broad over-all picture another fact stood out. Besides strategic requirements, it was necessary to weight heavily the need for an Army with unit parts as nearly interchangeable as possible if the Army had to be carried overseas and supplied with limited shipping, used in a variety of theaters, and probably shifted eventually from one to another. This condition favored the maximum of standard training at the expense of high specialization. Hence, the experimentation with Light Divisions. That this policy was adopted seems evident in the long-range tendency of policies governing both the organization and training of the Army. Furthermore, the skills needed to give emergency training in mountaineering techniques were to be found only in men who for various reasons (age, foreign extraction, etc.) could not be easily worked into positions of authority in the military setup. On the other hand, regular military experts, trained in peacetime by the Army, did not possess the mountain experience necessary to guide or administer the training program without the cooperation of such experts.

To repeat, if mountain troops had been given high priority, all of these problems may have been quickly overcome. To state whether or not they should have been given this priority, is beyond the scope of this study. But, if in the future, an emergency should arise demanding immediate action in developing and training mountain troops, the history of the Mountain Training Center's experience, as well as the findings embodied in its reports on the specifications of new equipment, should prove valuable. It is with that thought in mind--to point out the danger signals that led to previous mistakes, and to post and blaze the trail in the direction indicated as the right one--that the following summary is submitted.

HIGH PRIORITY OF MISSION

First and most important of all is the fact that nothing significant can be accomplished unless the whole program of the development of mountain troops is taken seriously. Everything hinges on that. The subsequent paragraphs are all based on the assumption that another emergency will give them a high priority.

PERSONNEL

1. Experience showed that even when recruited by a special effort, such as the "Junior Officers" plan, the number of actual mountaineers in this country, as distinguished from "fun" skiers, is a surprisingly small proportion of the population.

2. Many of the so-called rugged outdoor type--lumberjack, miner, teamster,

etc.--are not versatile enough to master the highly skilled techniques of modern mountain warfare.

3. Keen, young, physically-fit men without previous experience proved to be the best material from the "non-mountaineer" group.

4. Officer Candidate School graduates and Command and General Staff School graduates had to relearn much of what they had been taught when assigned to a mountain unit, especially in tactics and supply.

PROPOSALS: LONG-RANGE

A reservoir of trained mountaineers should be developed and supported in peacetime. Bestor Robinson, citing the analogy of the National Rifle Association as a perfect example of previous long-range planning by the Army, pointed out that "even the foreign armies admit we have the best marksmen in the world. Why? Because the National Rifle Association is virtually an offshoot of the Army. The Army supplies ammunition at reduced rates; it supplies manuals. A number of Army instructors are detailed to the National Rifle Association clubs to teach the members to shoot the Army way."¹ Thus a pool of trained marksmen is built up in peacetime for instant use in war. Similar pools of trained specialists are created by the Navy with the Coast Guard Reserve. The technical improvements in aviation are sponsored by the Air Forces through the National Advisory Committee on Aeronautics at Langley Field, and future pilots are oriented in the ways of military flying by the Civil Aeronautics Authority.

Thus ample precedent can be found for the Army to create a pool of mountaineers in peacetime through the sponsorship of civilian organizations. The groundwork has already been laid in the ski-mountaineering tests set up by the National Ski Association in collaboration with the Army. They need only to be better known and their importance stressed upon every ski and mountain club in the United States. Further steps should include having the government make available surplus equipment at reduced rates, so that ski mountaineers will become familiar with Army equipment and technique. The government should also provide instruction to tie together the Army and civilian methods of mountaineering, which differ very little as it is. There should be means for channeling new ideas in technology, technique, and equipment, originating in civilian groups, into the Army, and a board to test and develop them for military ends. At least there could be set up within the Army some form of civilian research group, similar to the National Advisory Committee on Aeronautics. Lastly, the support of government land administrators could be enlisted in establishing huts, trails, and other facilities for ski-mountaineering on public lands.

The organization of a "Mountain National Guard Reserve" unit in the army would be another phase of long-range planning, so that civilians who have sought mountain training as a recreation could also serve as a nucleus for the expansion of mountain troops in war time. Objections to this include the necessary altering of the present setup of the Army, but they could be met.

PROPOSALS: SHORT-RANGE

1. The present cordial and efficient cooperation between the National Ski Association of America and the Army should be maintained and increased to include other organizations of a similar nature, such as the American Alpine Club and the National Park Service. Results along this line in the past three years have been most encouraging, but they can be improved. The experience described on pages 54-58 above show how effective a campaign of publicity, conducted in cooperation with

1. "Winter Sports and Winter Warfare," The Commonwealth of California, XVIII(1942), No 2. Appendix 32.

these agencies, can be in attracting high-grade recruits for this type of warfare. With a little planning, a nation-wide clearing house for all types of mountaineers can be set into operation in a short time, utilizing the excellent example already set by the National Ski Association and its affiliate, the National Ski Patrol System.

2. Definite high physical standards for mountain units should be set, similar to those established for paratroopers (see Chapter XIV).

3. A Mountain Warfare Branch of the Infantry School should be established, preferably in a mountainous area. A mountain training course should be included in the Command and General Staff School.

4. Tables of Organization should be constructed which would provide, perhaps through training augmentations, for the commissioning of recognized experts on mountain warfare, in order to give them the authority necessary to administer effectively the technical sides of this training. The experience of the Mountain Training Center (see pages 58, 83, and 109 above) indicates that the importance of this need can hardly be exaggerated.

EQUIPMENT

Experience of the Mountain Training Center showed that, on the whole, the equipment problem was handled carefully and well, with skilled specialists on both the Mountain and Winter Warfare Board in the field and the Office of Quartermaster General in Washington. Specific difficulties were these:

1. Much existing information was not being utilized, because of a tendency to regard the whole program as brand new and unique in world history (see page 91 above).

2. There was a decided lack of liaison between the experiments in the field, and the development of the equipment in Washington. Long delays in transmission of test reports resulted in confused, misguided actions that later had to be undone. (See above, pages 97 - 99.)

3. Because of this delay, many tests were made by the Office of the Quartermaster General in laboratories or not at all, and the results proved far different when equipment was finally used under actual conditions in the field. (See above, pages 98 - 99.)

The following proposals are suggested regarding the development of equipment:

1. A broad liaison policy between the troops and the laboratory should be established, and clearance of all channels of delays and administrative red tape.

2. A board should be set up to read and keep abreast of all literature, reports, etc., on this subject, to avoid repeating costly research into fields already explored. (This could be one of the missions of the Board suggested under "Proposals: Long Range," above.)

3. Preparation should be begun at once by Army Ground Forces of a field manual embodying all the information gleaned to date, so that a source of proved knowledge will be readily available in the future; also, preparation of Tables of Organization for mountain units, based on experience recently obtained.

MORALE

Experience shows that morale was an important factor. Among the highly-trained, highly-intelligent members that made up the mountain troops, it was extremely volatile and was likely to soar very high or drop very low. Natural enthusiasm and love of the work tended to keep it high, and it could be maintained by the following measures:

1. Issuance of ratings for the ski and mountain instructors.
2. The building up of latent pride by (a) a high set of physical entrance requirements; (b) a distinctive uniform, similar to the paratroopers, or the "silent service" of the Navy.
3. A definite policy on the mission.
4. Knowledge that the whole program was being guided by recognized authorities in this specialized field, or by officers willing to take the advice of such authorities.

TRAINING

Experience showed the following to be true:

1. Basic training cannot be successfully conducted simultaneously with specialized mountain and winter training. (See above page 42.)
2. Ski training on packed slopes served by ski lifts is only valuable for teaching fundamentals. The same applies to assault cliff climbing taught on near-by school cliffs. Further extensive practice on long trips over rugged terrain is necessary.
3. Training in mountain lore (i.e., weather, mountain camouflage, avalanche danger and rescues, recognition and methods of obtaining edible foods and animals, etc.) is needed.
4. Training in air-ground liaison has been poor, partly because of the reluctance of pilots to fly over mountainous terrain, but mainly because of lack of initiative in the mountain units themselves.
5. The ski versus snowshoe question is still under investigation. Their different rates of speed alone create a big problem.

The following is proposed for the training program.

1. Conduct basic training at a medium altitude camp (such as Camp Carson, 5,000 feet); then send them to a high camp (similar to Camp Hale, 10,000 feet) for mountain and winter training.
2. Conduct advanced training for skiers, and mountaineers in long trips through difficult mountainous terrain, under trained supervision. Take them off the packed slopes and school cliffs as soon as possible.
3. Establish troop schools conducted by commissioned experts in the fields of mountain meteorology, avalanche prevention and rescue, evacuation technique, survival in the mountains, etc.
4. Establish an air-ground liaison school, and stress practicing actual supply by air, and fire support from the air.

5. Conduct fair tests to settle once for all the correct ration of skiers to snowshoers in the units. Keep the two elements separate as much as possible, as their tracks and rate of speed are quite different. (Brigadier Dunn's report "Notes on Winter Warfare in the Mountains," Appendix 33; also page 100 of text, are of interest in this connection.)