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British Army Cold Weather and Mountain Warfare Training in the Second World War

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ABSTRACT
While the British Army fought the Second World War in the temperate climes of Europe, the deserts of North Africa and the jungles of Malaya and Burma it devoted considerable resources to training and equipping troops to fight in cold weather and mountain warfare. This article will review three different scenarios where the British Army sought to develop units to fight in this specialised environment, the methods they utilised, and the lessons learned from each attempt.

Introduction

Throughout history armies have developed to fight in the conditions particular to their home country. Tactics, equipment and conditioning for North Europeans were very different than for the Berber tribes of Africa or the Sepoys in the jungles of India. Given the scope and breadth of the British Empire its armies have found themselves deployed to almost every environment imaginable. Unlike the French, Germans and Italians, while the British Army has found itself fighting in cold weather and at altitude on numerous occasions, prior to the Second World War it had not implemented any formal, large scale training for regular troops operating in those environments. The British expected any fighting during a second world conflict to be with mechanised forces in western Europe or in the jungles of the Far East. As events unfolded, other 'minor' theatres, like Scandinavia and the desert, became important. While historians have studied how the British adapted to fight in jungles and deserts, there has been little coverage of how Britain developed a cold weather and mountain warfare capability almost from scratch, committing at one point to the training and equipping of two divisions specifically for combat in cold weather and mountainous terrain. The introduction to the 1944 Military Training Pamphlet on Snow and Mountain Warfare states:

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> It is wrong to suppose that there is any type of warfare that is "normal." The climate, the topography and the soil in each theatre of war, present their own set of problems, and troops must be prepared to fight and work in the tropical jungles, in arid deserts, in open plains, in fertile enclosed fields, and in mountains. Sound basic training, first-class leadership, a receptive mind and keenness on their job, will enable British soldiers in the future, as in the past, to adapt themselves to unaccustomed surroundings and to climatic extremes.[1]

How the British army developed this 'sound basic training' is what this article seeks to explore. The official histories, of the Second World War in general, and more specifically on the campaigns in the Arctic, do not deal with the detail of military training for those troops who deployed. Recent scholarly works, such as Lunde and Kiszely's excellent assessments of the Norwegian campaign identify the lack of training and preparation as elements which led to the failure of allied operations.[2] However, there has been little detailed work on the lessons learned from the unsuccessful campaigns and how the British Army sought to address its deficiencies in training, equipment and preparation to fight in one of the most hostile environments in the world.

Whilst cold weather and mountains are often grouped together, the challenges proposed by both are very different. At an individual level, the skills and physical capabilities required to move quickly and efficiently over deep snow are different from those required to scale mountains. Similarly coordinating artillery, armour and infantry in open terrain requires a different approach to narrow defiles and scree slopes of mountains in non-arctic conditions.

Before exploring the developments that took place during the Second World War it is necessary to identify the baseline of cold weather and mountain warfare training in the British Army prior to the outbreak of hostilities in Europe. In 1916 a Mountain Warfare School had been established by the Indian Army in Abbottabad in what is now Pakistan, and at the time was a major garrison of the Northern Army Command.

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[1]Imperial War Museum (hereafter IWM) LBY WO 1676 Military training pamphlet no. 90: snow and mountain warfare. Part II: Mountain warfare - blackshod operations 1944 (provisional).

[2]Henrik O. Lunde, *Hitler's Pre-Emptive War: The Battle for Norway, 1940,* (Casemate: Newbury, 2009); John Kiszely, *Anatomy of a Campaign: The British Fiasco in Norway, 1940* (Cambridge Military History: Cambridge, 2017).

This school would seem a likely place to find such training. However, the School was quick to point out that

> the name "Mountain Warfare" does not express really what is taught. But it is a convenient name. The school teaches "Transborder fighting on the North West Frontier of India." Mountain Warfare proper will hardly be touched on as there is so little time.[3]

The syllabus, designed for British officers undertaking an Imperial Policing role, contained lectures on 'uncivilised enemies', 'salients and reentrants' and 'reconnaissance' which were all useful for the trans-border fighting being undertaken, but were not necessarily transferable to combat with a modern, mechanised enemy in western Europe.[4] While the British Army had fought against the Bolsheviks in the arctic snow around Murmansk and Arkhangelsk in 1918 and 1919 there is no evidence that the lessons learned formed any part of the corporate knowledge of the Army when war broke out again 20 years later.

The spur for wider scale training and deployment of specialist troops for this environment was the Soviet invasion of Finland on 30 November 1939. This short, but brutal, winter war saw the Finns employ mobility as a significant tactical advantage against the Russians who, encumbered by heavy weapons and armour, were forced to stay close to the roads. The Finns' exploited this weakness, outmanoeuvring and encircling the Russians using the mobility of skis and snowshoes, sledge dragged artillery and machine guns and a willingness to use terrain and climate as part of their arsenal. The Finns placed a premium on physical mobility, intellectual flexibility and improvisation.[5] Western journalists working in Helsinki introduced a new word to the wider world – *motti*. By encircling and reducing Russian units through surprise and mobility, the Finns achieved notable success. While this captured the imagination of the press and their readers, the tactics pitted Finnish forces, which lacked large numbers of tanks and artillery pieces, against static defences and though usually successful, *motti* was costly in terms of Finland's most precious resource, its troops. The true success of the Finns in the early years of the war with the Russians was not these *motti* attacks, but the underlying use of mobility and exploitation of terrain, logistics which ensured troops were rotated through front line saunas to ensure

[3]IWM LBY 92/1259 Mountain Warfare School, Abbottabad [synopsis notes on the manuals with handwritten additions by Lieutenant I.M. Sparrow].
[4]IWM LBY K.06/2617 Mountain warfare lectures and demonstrations by Captain Charles Beattie Anderson KOSB whilst attached to 2/54 Sikhs, Mountain Warfare School, Abbottabad, 1918.
[5]Pasi Tuunainen, *Finnish Military Effectiveness in the Winter War, 1939-1940* (Palgrave Macmillan: London, 2016), p. 91.

hygiene, the provision of hot food and careful maintenance and care of weapons and equipment in freezing temperatures.[6] While unable to defeat the numerically superior Soviets the heavy losses in men and materiel they inflicted were noted by the watching Americans and British who, attracted to the ideal of an underdog, suddenly began to appreciate the need for specialist troops to operate in this environment. David Bradley, an American skier, was a military observer in Finland and reported his observations back through the chain of command to the Army Chief of Staff and the Secretary of War.[7] In the UK the conflict attracted little attention in the military where it was considered a sideshow to operations in France, but there was significant interest amongst politicians who recognised 'Finland had at present the sympathy of the whole world, and if she collapsed, the blame would be laid at the doors of ourselves and the French.'[8]

In Britain, Churchill had long been lobbying for action to be taken against the Swedish iron ore shipments to Germany. Initial plans were based around mining the Norwegian Leads to force the shipments further out into the high seas where the Royal Navy and Royal Air Force could interdict them. These plans were held up due to a reluctance amongst British decision makers to so blatantly violate Norwegian neutrality and territorial waters. Churchill saw the Finnish war with Russia as a way to take more direct action against the Swedish ore exports by sending troops, ostensibly to join the Finnish resistance. However, the main goal was for these troops to occupy the Swedish ore fields themselves.[9]

To begin assembling a force to undertake this mission the army turned to men already trained in skiing and working in the cold and so on 5 February 1940 the 5 (Special Reserve) Battalion Scots Guards was formed under Lieutenant Colonel J. S. Coats, late of the Coldstream Guards. Amongst the senior officers of the unit was considerable experience of mountains and the cold. Coats was a British bobsleigh champion. The adjutant Captain W.D.M. Raeburn was a polar explorer and the Medical Officer Lieutenant E.H.L. Wigram had been involved in two unsuccessful attempts to scale Everest. Another volunteer for the unit, who we will return to later, was Lieutenant Q. T. P. M Riley of the RNVR. Riley had previously been involved with two expeditions to Greenland and another to British Graham Land in Antarctica and so was well versed in moving and living in the cold. He had even written to The Times on the subject of British involvement in Finland to suggest the Government contact the Scott Polar Research Institute for advice on travelling and equipment in different

[6]William R. Trotter, *The Winter War,* (Aurum Press: London, 2003), pp. 145-147.
[7]Jenkins McKay, *The Last Ridge*, (Random House: New York, 2005), loc 361.
[8]Kiszely, *Anatomy of a Campaign,* p. 52.
[9]Martin Gilbert, *Churchill, A Life* (Pimlico: London, 2000), p. 630.

polar environments.[10] On being accepted into the unit he was given the rank of Colour Sergeant and was assigned to start sorting out the necessary equipment for the cold and mountains. Volunteers for the unit quickly flooded in from across the services, however those men with previous skiing experience tended to come from the upper class and the unit therefore ended up with a considerable number of commissioned officers - far more than was required. By 29 February, some 269 officers and 462 other ranks, plus 37 civilians, had volunteered for the unit. Of those volunteers 20 officers were appointed, 168 officers were selected to serve as other ranks while drawing officer pay and 352 other ranks were admitted.[11] This high proportion of officers caused a number of issues. In a report on the unit it was noted:

> The skiing experiences of personnel have been gained from hotels. Very few had slept under canvas in snow conditions. Only about one in five knew how to use a primus stove or how to fit skins to skis. Perhaps one man in fifty had used snowshoes. Only one man in the Battalion had done any sledge man-hauling. Only four in the Battalion were experts at man-management under arctic conditions.[12]

There were also issues on the military side in that 'one sixth, though in most cases excellent skiers, had either no military experience at all or else in some branch of the Service other than the Infantry and, therefore, could not shoot.'[13]

The unit was to be ready and equipped for overseas service by 1 March, which did not give Coats much time to prepare his troops. Poorly equipped with the military necessities such as weapons (the unit was only equipped with the No. 4 service rifle and no other heavy or specialist weapons, radios etc,) the unit nicknamed the 'Snowballers' embarked for France to train in Chamonix. Since the 19th century the Chasseurs had been France's specialist mountain troops, established to prevent Italian incursions through the Alps. The value of this training was limited as the Commanding Officer of the 199 Battalion of Chasseurs, their host unit and a reserve formation, had forbidden his troops from leaving the valley due to the risk of avalanche. Despite these limitations the men got to experience sled handling, specialist casualty evacuation techniques and the advantages of the carbine over the standard battle rifle in

[10]'Help for Finland' *The Times,* 26 January 1940
[11]The UK National Archives (hereinafter TNA) WO 166/4110 Figures from unit strength return, part of official war diary of unit.
[12]TNA WO 166/4110 Report of Colonel Coats on the birth and demise of the 5 (S.R.) Battalion Scots Guards, document reference C.R.S.G.1/678 (Henceforth referred to as Birth and Demise.)
[13]Ibid.

mountains and dense woodland. Some of the training was of questionable value, however. Mike Calvert, who would go on to become a famous Chindit, noted:

> We spent a hectic time climbing mountains and rushing down them again on skis, and it wasn't until sometime afterwards that I discovered the land we were supposed to fight over in Finland was dead flat. Presumably the need to get us ready and away was so urgent that no one had enquired what sort of country we would find out there.[14]

The Guards returned hastily to Britain with orders to join a French force of 50,000 volunteers being sent to Norway to help the Finns fight off renewed Russian attacks.[15] From their barracks they travelled to Glasgow where they were hours from embarkation when, following the surrender of Finland, their orders were cancelled, and the battalion was disbanded. Despite its brief existence, there were some useful lessons learned, and Coats produced a report in which he stated that

> It is possible that one month's intensive training would produce a battalion capable of movement in any but the most difficult and mountainous country, provided that the rejection of the few obviously unfitted was permitted.[16]

Also tasked to support the Finns in their struggle against the Soviets had been 49 (West Riding) Division. They were then stood up again when Germany invaded Norway in April 1940. The British had become interested in Norway early in the conflict, however the issue of Norwegian neutrality prevented attempts to agree a strategic approach. The Altmark incident on 16 February saw sailors from *HMS Cossack* board the German supply ship *Altmark* in Norwegian territorial waters. After a brief skirmish they released 299 British sailors from captivity, despite Norwegian assertions they had previously searched and cleared the vessel. The incident had implications for both the British and the Germans. For Hitler the events proved the British would not respect Norwegian neutrality. Similarly, the British felt that Norway could not be relied on to enforce its neutrality and therefore action would need to be taken, with the laying of sea mines and earmarking troops to occupy key ports as part of Plan 'R.4'.[17] Prior planning meant that the Germans beat the British to the punch with the launch of Operation WESERUBUNG, under the guise of protecting Norwegian neutrality from a proposed Anglo-French invasion. Of the six German

[14]Mike Calvert, *Fighting Mad,* (Pen and Sword Military: Barnsley, 2004), loc 452.
[15]David Erskine, *The Scots Guards 1919-1955,* (Naval and Military Press: Uckfield, 2006), p. 25.
[16]TNA WO 166/4110 Coats, Birth and Demise.
[17]M. J. Pearce & R. Porter, *Fight for the Fjords,* (University of Plymouth Press: Plymouth, 2012), p. 33

Divisions allocated to WESERUBUNG, two were mountain trained and equipped and consisted of a mix of German and Austrian troops, while the rest had no specialist training for the environment in which they were going to operate.[18] The force Britain was to send against them, in Churchill's own words:

> lacked aircraft, anti-aircraft guns, anti-tank guns, tanks, transports and training. The whole of North Norway was covered with snow to depths which none of our soldiers had ever seen, felt or imagined. There were neither snow-shoes nor skis - still less skiers.[19]

On the allied side, whilst the original plan for operations in Scandinavia included specialist ski troops, like the Snowballers, the troops who actually deployed were of a very different background. The 49th was a Territorial Division, and most of its troops had only received seven months continuous training of any kind at the time they embarked for Scandinavia. Ironically, given their destination, some of their training had been postponed due to the severe winter in the UK.[20] Two of its brigades, the 146th and 148th embarked and landed at Narvik and Namsos and their deficiencies in training and equipment soon became apparent. The troops allocated to the task had no special instruction in fighting and surviving in arctic conditions, while their issued maps were Norwegian holiday brochures.[21] Cold weather clothing was issued, indeed troops were carrying 'three kit bags per man, to carry the seventeen items of special clothing, thirty-five pieces in all – the scale of issue as for winter garrison in Tientsin plus items got ready for Finland.'[22] However, this was designed to allow troops to survive in the cold, not fight in it, and one British commander noted 'if they wore all these things they were scarcely able to move at all, and looked like paralysed bears.'[23] On the equipment front Lunde notes 'they had no skis or snowshoes. However, since they did not know how to use them, it made little difference.'[24] Some sharp actions were fought in the snows of Norway but the allied effort was ultimately doomed and ended in withdrawal. The litany of mistakes and miscalculations that led to defeat in Norway is lengthy, but the importance of sending troops adequately trained and equipped to operate in the cold and the mountains was one of the lessons that was certainly learned, and the relationship formed with the Norwegians was to pay dividends later.

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[18]Lunde, *Hitler's, Pre-emptive War,* p. 77.
[19]Winston Churchill, *The Gathering Storm,* (Rosetta Books: New York, 2013), p. 547.
[20]TK Derry, *History of the Second World War: The Campaign in Norway,* (The Naval and Military Press Ltd: Uckfield, 2004), p. 63; TNA WO 166/4426 Lincoln's War Diary.
[21]Jonathon Riley, *From Pole to Pole: Life of Quintin Riley, 1905-80,* (Bluntisham Books: Huntingdon, 1989), p. 103.
[22]Derry, *The Campaign in Norway,* p. 149.
[23]Adrian Carton de Wiart, *Happy Odyssey* (Pen and Sword: Barnsley, 2011) loc 2095.
[24]Lunde, *Hitler's Pre-emptive War*, p. 277.

Following the evacuation from Norway, 146 Brigade returned to Britain, before being sent to Iceland. Again, with his desire to see Iceland secured to act as a base for flying boats and as a refuelling station for ships operating in the area, Churchill had a hand in this. Iceland had been 'invaded' on 10 May 1940 by a force of Royal Marines under Colonel Robert Sturges with orders to land 'as a precaution against German invasion' and 'as preliminary to the establishment of a naval and air base.'[25] The Marines were too few to adequately garrison the island and handed the responsibility over to the Army. 146 Brigade were to join the Division's 147 Brigade and they were followed by the 70 Independent Brigade, which was the sole surviving combat effective unit of the 23 (Northumbrian) Division. To reflect their new area of operations the 49th adopted the Polar Bear as their divisional badge.[26] The climate and lack of adequate accommodation began to condition the troops to the difficulties of operating in arctic conditions and given the open spaces and need to keep the troops active route marches and field firing exercises were common. A Force Tactical School was established at Reykjavik in November 1940, but the priority in terms of formal training was leadership and discipline rather than training specific to their conditions. Indeed, the military action assigned to be studied by all officers during that first winter period was the Gallipoli campaign, when a review of their recent actions in Norway may have been of more relevance. The arrival of the first winter snows, and the presence of free Norwegian forces, led to ski training for the British troops both as a form of physical exercise and mobility training. Eighteen Norwegians had arrived in Iceland by varied means and, determined to make a contribution to the war effort under the Norwegian flag, established the 'Norwegian Company, Iceland.' In November the Company became an official unit of the Royal Norwegian Army and was reinforced by 27 further troops fresh from training in Scotland. This small force included Lt Colonel Stenersen who would later go on to help instruct the US Army through its own Winter Warfare Department. By December 1940 70 Brigade had ski reconnaissance platoons, supervised and trained by two Norwegian instructors, in each battalion. Their war diary also notes:

> A beginning has also been made in learning the tactics of mountain warfare for here again admirable facilities are at all unit's doorsteps. Progress must, of course, be slow if for no other reason than that there are few who have experience of this somewhat specialised form of warfare.[27]

[25]DF Bittner, *The Lion and White Falcon: Britain and Iceland in the World War II Era,* (Archon Books: Hamden, 1983), p. 46.
[26]Patrick Delaforce, *The Polar Bears: Monty's Left Flank,* (Chancellor Press: London, 1999), p. 13.
[27]TNA WO 176/304 Appendix "B" to War Diary 1940 - Training December 1940. 70 Brigade War Diary (Henceforth referred to as 70 Brigade War Diary.)

This training continued on an informal basis until a visit by Churchill on 16 August 1941 whilst returning from talks in the United States. He noted at that time

> The important thing is not so much to reduce our troops in Iceland (C) but to make it a training ground for Alpine units…..I regard the creation of these Alpine Units as a vital feature in our inner organisation. I ask that this may be taken up with the utmost vigour.[28]

Clearly Churchill still saw an offensive through Norway as both possible and desirable and that any such attempt would need troops trained to operate in those conditions. He remained convinced that the British should return to Norway and urged his Generals to draw up plans for this eventuality. Operations AJAX, MARROW and JUPITER were the result but all were opposed by the Chiefs of Staff as being distractions from ongoing operations in the Mediterranean and North Africa.[29] However Churchill got his way in Iceland, and an Operation Instruction was accordingly issued by the War Office on 27 November 1941 that set out the formation of 49 Mountain Division and that it

> …must be prepared and will be trained to operate in:-
>
> (i) Mountainous country in arctic or snow conditions.
> (ii) Non mountainous country in arctic or snow conditions.
> (iii) Mountainous country with or without snow conditions.
> (iv) From a road into a roadless country. This condition may also apply to (i) (ii) and (iii) above.[30]

In response a Specialist Training School, Skogar Camp, was established to teach aspects of surviving and fighting in arctic conditions. This ranged from basic cooking and hygiene to climbing and sledging, dog handling and the maintenance and operation of combustion engine powered vehicles in cold weather. Information was sought from the Soviets on operating equipment such as artillery in cold weather and US and captured German Field Manuals were consulted to ensure Best Practice was followed where possible. Specialist instructors were brought in and Lieutenant Riley appears again, bringing his wealth of cold weather experience to the officers and senior NCOs

[28]TNA PREM 3/230/2 Prime Minister's Personal Minute to C.I.G.S. 19th August 1941
[29]Christopher Mann, *British Policy and Strategy towards Norway, 1941-1945,* (Palgrave: Basingstoke, 2012), p. 73.
[30]70 Brigade War Diary.

on Iceland.[31] Alongside the Specialist Training School was the Force Tactical School, teaching combat techniques and troop handling in arctic and alpine conditions through lectures, cloth model exercises and Tactical Exercises Without Troops (TEWTs).[32] Many of the units established their own training centres, and 70 Brigade had theirs at Hvitanes in Hvalfjord where a company from each battalion rotated through for one week under the instruction of Norwegian experts. The training was obviously dependent on having both the time and weather conditions to undertake it. For the Durham Light Infantry, part of 70 Brigade and based in the west of Iceland, both of these factors were in abundance and they were able to make the most of their time in becoming proficient in what Churchill sought. The 1/6 and 1/7 Duke of Wellington's Regiment, located as they were near Reykjavik, found themselves without snow and occupied building the airfield, which took priority over their training. The resultant level of expertise across the three brigades stationed on Iceland was therefore varied. Iceland also served as an excellent proving ground for much of the experimental equipment that was being developed. The results of field trials of rations, clothing, load carrying equipment and boots was fed back to allow for refinements and improvements.[33]

Given that Churchill's directive was issued in August 1941, it seems odd that in December 1941 70 and 49 Brigades were informed that they would be returning to the UK to undertake further training as part of 49 Mountain Division. The 70th left for the UK in December and began training with pack mules in the hills and mountains of Wales, while for the troops that remained winter warfare training was prioritised over all other training, based on Force Training Instruction No 29. Reaching the same conclusions as Lt Col Coats had earlier, the units began to assess those individuals who could not meet the standards required and the first batch of men 'unfit for mountain warfare' were sent to other units.[34] The basic level of fitness for all troops on completion of training was to be able to carry a load of 80 pounds for 7 hours over rough and hilly country and still be sufficiently fit at the end of the day to fight.[35] This standard was clearly higher than that required of a normal infantryman of the time, hence the priority to identify those who could not perform at this level. Unlike units

[31]Liddell Hart Centre for Military Archives (hereafter KCLMA) GB0099 Riley Winter Warfare School Synopsis of Lectures.
[32]TNA WO 199/827 Report on Training of 70 Inf Bde Grp in Mountain Warfare.
[33]TNA WO 176/329 1/6 Duke of Wellington's Regiment War Diary, March 1942.
[34]CN Barclay, *The History of the Duke of Wellingtons Regiment, 1919-1952,* (William Clowes: London, 1953), p. 187.
[35]TNA WO 176/340 Notes on Training in Winter and Mountain Warfare with special reference to training, living and moving in Winter conditions. Appendix A to 1/5 W Yorks Training Instruction No 10 dated 23 Feb 42.

such as the Commandos and Paratroopers these men were not volunteers for special service, but Territorial Infantry converted to a specialised role.

The need to remove those individuals who could not meet these higher standards was underlined by Riley in his lecture to the Royal Institute of International Affairs in October 1942. As he put it,

> A man may not be as good a shot as his next number, but it doesn't impede the good shot; a bad skier in a platoon may easily upset a whole unit; their speed of advance and general mobility is that of the worst man.[36]

147 Brigade left for the UK in April 1942 once US troops arrived to take over the garrison in Iceland and the final units of the Polar Bears, 146 Brigade who had served on Iceland for over two years returned home. As the troops returned to the UK so too did the responsibility for training the British Army in cold weather and mountain warfare. A Mountain and Snow Warfare Training Centre was established at Braemar commanded by Frank Smythe, the noted climber with three Everest expeditions under his belt.[37] The approach here was different from that operated in Iceland. The man with first-hand experience of the quality of training delivered in Iceland was Major-General Curtis who had commanded the garrison in Iceland. In late February 1942 he wrote a report to the War Office on his thoughts on the training delivered at the various schools in Iceland and the shortfalls as he saw them. The report was somewhat critical, and Curtis states

> As a general criticism, the School did not succeed in returning personnel to their units full of enthusiasm to destroy Germans, despite natures obstacles. It did succeed in filling a limited number of students with an enthusiasm for the "exploring" and "sporting" site of the arctic and mountain living and moving.[38]

The document, which contains a number of suggestions on how training could be more practically delivered, was copied to the Commandant of the Winter Warfare School for him to benefit from these lessons learned. One of these recommendations was that a higher percentage of soldiers be included on the training staff, and a directive

[36]KCLMA GB0099, Riley "Arctic Warfare" Lecture delivered to the Royal Institute of International Affairs at Chatham House, 13 October 1942 by Commander Q Riley.
[37]Maurice Isserman and Stewart Weaver *Fallen Giants: A History of Himalayan Mountaineering from the Age of Empire to the Age of Extremes,* (Yale University Press: London, 2008), p. 226.
[38]TNA WO 199/826 Note from Major General, Commander, Iceland (C) Force to Under Secretary of State (M.T.1) IF/102/14/3/G.

was drafted to seek those officers with experience of fighting, not just adventuring, in arctic and alpine conditions.

The lessons learned from Iceland were combined with those from a more unlikely setting. A Middle Eastern Mountain Warfare School had been established outside Tripoli, with mountain and rock-climbing schools based in Lebanon. This was not planned and arose through the personal efforts of former British Olympic skier Captain WJ Riddell, who happened to be stationed in the region as a political officer, and who took it upon himself to develop the capability.[39] These schools took small units of Commonwealth troops, including specialist units such as the SAS and the Long Range Desert Group, through the basics of moving and surviving in mountainous conditions, and gradually built up to training entire battalions at a time. The ski syllabus consisted of four phases:

> Phase 1 (One week) Early essentials and technique
> Phase 2 (Two weeks) Control
> Phase 3 (Four weeks) Slow continuous running and short distance patrols with light loads
> Phase 4 (Twelve weeks) Fast continuous running and long-distance patrols with heavy loads.[40]

Also based at the school were medical staff such as Captain L.G.C.E Pugh, RAMC. An international skier in his own right, he carried out physiological work on the conditioning and dietary requirements of mountain troops which was fed back to the War Office. This supplemented conditioning work undertaken by Lt Colonel Head who visited the Harvard Fatigue Laboratory and sought advice from Canadian publications to identify a fitness test to determine those troops best suited for mountain warfare. In addition, prominent medical civilians such as E Arnold Carmichael FRCP provided input into conferences convened by the War Office on the topic of mountain warfare.[41]

At all times the British Army was receptive to advice from civilian specialists, foreign experts and 'gentlemen adventurers' to establish effective training and doctrine. That the Army was willing and able to allocate troops of battalion size to over four months of training indicates some understanding of the importance of specialist training. However, the training was again centred on movement rather than combat, and no

[39]ADM Cox, 'The Lebanon: Some memories of Mountain Warfare Training during World War II' *Alpine Journal,* 1992, pp191-197.
[40]James Riddell, *Dog in the Snow,* (Michael Joseph Ltd: London, 1957), p. 58.
[41]See TNA FD 1/6471 for reports from the Medical Research Committee and Medical Research Council on Mountain Warfare.

attempts were made to conduct military exercises or integrate the different arms to operate together in the cold or mountainous terrain.

Despite their previous experience 49 Division was not to be the sole practitioner of mountain and arctic warfare in the British Army. 52 (Lowland) Division returned from France and became part of the south of England's defences against a German invasion. In May 1942 this role was put aside as they returned to Scotland and were designated to become trained as a Mountain Division like the 49th. It seems odd that despite the 49th's previous experience the War Office determined:

> 52 Div will re-organise as a Mountain Division adhering as closely as possible to the normal organisation…52 Div will carry out all the necessary preliminary experiments and will be responsible for producing the detailed organisation of a Mountain Division. 49 Div will adopt this organisation when it has been approved by the War Office.[42]

The creation of a second Mountain Division was despite a War Office committee recommending in April 1942 that rather than form a Mountain Division the system should be to rotate cadres from a number of divisions through the Mountain Warfare school so that at any point there would be units available in the UK who could quickly be deployed in an Arctic and Mountain Warfare role.[43]

The primary motivation for 52 Division taking the lead in this area seems to be their proximity to the newly established Mountain Warfare Training Centre, their close working with the Norwegian brigade which was embedded with 52 Division, and their being near the centres set up to train the Commandos. The mountains and hills of Scotland certainly provided more access to snow than the 49 Division had in North Wales and the Lowlanders took their new task with enthusiasm. The directive establishing the 52nd as a Mountain Division was explicit in that its role was to be carried out from the sub-arctic, as in Norway, to the sub-tropical, as in Africa.[44] It is interesting that the directive was re-written several times to accurately codify what was required of the Division, with the final drafting being provided by the Division's senior staff itself.[45] The emphasis was on physical fitness and the fundamentals of mountain warfare. Three ski training centres were set up in Scotland, Canadian Army

[42]TNA WO 199/825 Minutes of meeting on Preparation of a force for operation in Mountainous and Near Arctic Conditions 4 November 1942.
[43]TNA WO 199/826 Memorandum on the Organisation of Forces required to operate in Arctic and Mountainous country.
[44]TNA WO 199/826 Training of 52 Div ref HF.16069/9/G(Trg).
[45]TNA WO 199/827 Directive to GOC 52 Division on the organisation and training of the Division for a Mountain Warfare role.

dog-sled handling experts were brought over and regular exercises were held with the Norwegian contingent acting as enemy forces to break up the monotony. The importance of the Norwegian component was recognised, with the Chief of the General Staff instructing Scottish Command that the Norwegians were to be given priority only below 52 Division for the allotment of special equipment for winter warfare.[46]

In November 1942 it was directed that 52 Division would complete training for Mountain Warfare in Snow Conditions and would be available for operations by 15 April 1943. Similarly, 49 Division would complete training for 'mountain warfare not in snow conditions' by 1 May 1943. By February 1943 this position was changed, and it was determined that there was no need for two full mountain trained divisions, and 49 Division converted back to a normal line infantry role. This left 52 Division as the sole Mountain Division and they continued to train and exercise for this role. Instructional pamphlets on mountain and cold weather warfare were obtained from the US and Canadian forces and distributed throughout the Division. Of particular interest here is a report by Lt Colonel Wedderburn who was on a six month visit to the US Mountain Troops. He identified a number of issues which were relevant to the training of British troops. He noted:

> So far as winter warfare is concerned, the US Army has found that the best results in training are achieved not by having courses for instructors, but by equipping whole units and after preliminary instruction in the use of their equipment and the general principles of winter war fare, taking them out in the snow for unit training.[47]

The British had already arrived at the same conclusions, with the switch from the 'train the trainer' approach adopted in the schools of Iceland to the larger scale, structured Divisional level training of 52 Lowland. The need for specialist training beyond the Division was recognised, and in order to address a specific vulnerability identified by 70 Brigade with regards flank protection and skirmishers the Lovat Scouts were earmarked in December 1943 for training in mountain warfare, in a new school established in the Canadian Rockies by Smythe who had since left Braemar.[48] Drawing on the lessons of Tunisia and Sicily a recommendation was made in November 1943

[46]TNA WO 199/825 Memo from GCHQ Home Forces to Scottish Command HF/16069/G.(Trg).
[47]TNA WO 199/826 Memorandum on Mountain and Snow Warfare in the United States Army.
[48]TNA WO 199/826 Training Directive - Lovat Scouts 43/Trg/3379(MT1); Tony Smythe, *My Father, Frank,* (Vertebrate Digital, 2013), loc 4907.

that a parachute battalion carry out training in 52 Division's training area in the winter of 1943 to provide them with additional capability.[49]

Large scale exercises in the form of GOLIATH I in November-December 1942, GOLIATH II in October 1943 and SNOWSHOE in March 1944 tested men, equipment and staff combining infantry, armour and artillery in exacting conditions to establish that the Division was combat effective.[50] The presence of this Division in Scotland and their activity did not go unnoticed by the Germans who had to consider the possibility of an invasion of Norway just as the allies were planning for their landings in Normandy. The British made the most of this through FORTITUDE NORTH, the part of the deception plans to cover the Normandy landings. Significant planning was still being undertaken to land British forces, along with US and Norwegian contingents and even Russian troops through Finnmark under the titles RANKIN A through C.[51]

Even so, at this time German forces in Norway consisted of three entire Corps and the British troops would have faced a difficult challenge dislodging them from their positions. Immediately after the landings in France 52 Division lost their mountain speciality and became an Air-Portable Division. If this was because there was no longer an appetite to invade Norway, then the unit could have been gainfully employed elsewhere. In May 1944 General Alexander was lobbying for the division to be transferred to Italy where it would be joined by 4 Indian Division which already had some experience of operating in the mountains and would be redesignated as a Mountain Division.[52] This request was turned down. It was almost inevitable that after two years of intensive training to fight in the mountains and a sudden re-roleing to air-portability 52 Division were finally to go into battle as infanteers in the low-lying terrain of the Netherlands, albeit still proudly wearing their Mountaineer flashes.

Though there was now no longer a designated Mountain Warfare Division there was still fighting to be done in the mountains, and in Italy plans were being made in 1944 for future needs and how to address them. The need for some element of mountain and cold weather training had already been identified and in December 1943 a Mountain Warfare school had been established in Sepino in Italy.[53] The mission for

[49]TNA WO 199/826 Memorandum to G.H.Q Home Forces G(S.D.) 20/Misc/2147.(Air.2.).
[50]George Blake, *Mountain and Flood: The History of the 52nd (Lowland) Division,* (Partizan Press: Nottingham, 2007), p. 53.
[51]Mann, *British Policy,* p. 179.
[52]TNA WO 204/7401 Message from AAI to V Corps/Eight Army AFHQ 28th May 1944.
[53]TNA WO 169/13767 War Diary, Snow Warfare School, 1943.

this school was not to train large scale formations, but to train instructors who could take the skills back to their units. The main syllabus topics were: living under conditions of snow and severe weather; and moving in small parties (ie patrols) under these conditions – though it was noted that the first essential for mountain training was 'general hardening' as had previously been identified in Iceland.[54] The school began its first course on 28 December 1943 and moved to Terminillo in October 1944, continuing to process Commonwealth and US troops on courses before returning them to their units to share their knowledge and experience. There were however differences of opinion over the actual employment of Mountain troops in Italy. While Alexander in May of 1944 saw the value of specialised troops when he asked for the transfer of 52 Division, by September his Eighth Army commander, Lieutenant-General Oliver Leese, considered that the formation of a special Mountain Force was 'not considered either desirable or necessary.'[55] The memo explained that if they were still facing the enemy in the mountains come the winter then the best course of action was to maintain contact with as few troops as possible and use the time to train the rest of the troops for the Spring and that the Army Commander 'is very averse to any scheme which would divert his forces from this object.' While there was enthusiasm for training troops to operate in the cold and the mountains this did not seemed to be matched with the will to employ these troops in combat in those environments. There was therefore no need for large scale training, but use could be made of those few specialists who had passed through the Italian school. As it was, the British switched their attention to the coast allowing the Americans, and the newly arrived US 10 Mountain Division to put their training to the test.

The US Army approach to Mountain Warfare was initiated by the National Ski Patrol in 1940, who lobbied the War Department, and General Marshal personally, for the creation of a specialised unit of ski troops. While their interest was also sparked by the Russian war with Finland, it was the Italian invasion of Greece which seemed to spur the US Army to revisit the idea of developing specialised Mountain troops. Lt Col LS Gerow of the US General Staff Corps wrote of the Italian action and the need for specialised troops '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.'[56] In November 1941 the Ski Patrol finally succeeded when 87 Mountain Infantry Battalion, later a Regiment, was activated.[57] Their approach was to take trained and experienced mountaineers and skiers and turn them into soldiers, and initial recruiters

[54]TNA WO 169/13767 Formation Authority and objects of school, reference 2022/35/G (Trg).
[55]TNA WO 204/7374 COS/1028 Memo from Lt Gen GOC Eight September 1944.
[56]Peter Shelton, *Climb to Conquer: The Untold Story of World War II's 10th Mountain Division Ski Troops,* (Scribner: New York, 2003), p. 25.
[57]McKay, *The Last Ridge*, loc 627.

were told to look out for 'large men with a high degree of physical stamina, above average intelligence and an education.'[58] While this core unit was able to develop equipment and tactics there was only a finite number of men with the necessary skills and more and more of the volunteers turning up for training had never climbed or worn skis before reporting to Camp Hale in Colorado. They were attracted to the unit by the elite appeal of a specialised unit, where 'None but real He-Men need apply' as well as Hollywood films such as the Warner Brothers 1943 film Mountain Fighters filmed at Camp Hale.[59] Yet despite this the physical requirements to join the Mountain Division, as opposed to a regular Infantry Division, were exactly the same.[60] These additional troops were necessary as the decision was taken to expand the unit into a Division of three regiments, adding 85 and 86 Regiments, and the now famous 10th Mountain Division was reformed. Alongside the training undertaken by the unit was the development of equipment suitable for mountain warfare, including refinements to sleeping bags, stoves and climbing ropes to reduce the burden to be man packed through difficult terrain.[61] After three years of intensive training and participation in Operation COTTAGE in the Aleutians, the unit deployed to Italy where its skill and experience was put to good use in the battles for Riva Ridge and Mt. Belvedere. In much the same way as the capabilities and potential of the 52 Division were never truly understood by the British, despite their success in Italy the 10th Mountain were described as 'an unprecedented force of elite soldiers that the army didn't know how to recruit, train or employ, and they were inserted into a campaign American strategists were never completely sure they wanted to fight.'[62]

During the war the British had identified the need for specialist training and equipment for troops to operate in the harsh climate of the mountains and arctic. It was identified that not all troops were capable of withstanding the punishing regime of operating at altitude and that units must have the ability to remove those weak links. Though not volunteer units, the higher standards demanded and special unit patches installed a sense of superiority in both 49 Division and 52 Division. A vast array of lessons were learned which is reflected in the progression from one training pamphlet for the British Army on Mountain Warfare in 1943 to five full volumes by the end of 1944. The 1944 manuals, covering a general survey, mountain warfare - blackshod operations, mountain warfare - training for blackshod operations, whiteshod training and operations and techniques for moving and living in mountains contain along with more

[58]Albert H. Meinke, *Mountain Troops and Medics: A Complete WWII Combat History of the US Tenth Mountain Division,* (Trafford: Victoria, 2002), p. 57.
[59]McKay, *The Last Ridge,* loc 295.
[60]AB Feuer, *"Packs On!" Memoirs of the 10th Mountain Division,* (Praeger: Westport, 2004), loc 137.
[61]Ibid. loc 126.
[62]McKay, *The Last Ridge*, loc 4347.

general information.[63] They reflected that there were a host of issues to be mastered in order to be able to operate in the cold and mountains and that 'all ranks will therefore be trained mentally, physically, militarily and technically (if tradesmen.)'[64] The difficulties of operating artillery and radios in mountains, of ensuring traffic through mountains is effectively managed by provost services and the packing and handling of mules was all covered in detail along with lessons on musketry and callisthenics. The distilled learning of the links with the Norwegians, the training in Iceland from the 'adventurers' and the lessons hard learned in the glens and mountains of Scotland, the cedars of Lebanon and the mountains of Italy became a part of formal British Army training and doctrine.

Throughout the conflict the British Army adopted a number of approaches to training troops to operate in cold and mountainous conditions. Starting with those who had experience with the conditions and transferrable skills from their civilian lives, they then tried the 'train the trainer' approach to pass on information through officers and NCOs to teach to their men. They finally arrived at the optimal approach, to train an entire large-scale unit, with integrated supporting arms though they lacked the commitment to deploy them in the arena for which they had trained. Whilst the size of the British Army ruled out the luxury of one, let alone two, specialised Mountain Divisions the lessons learned by the 5 Scots Guards, 70 Brigade, and 49 and 52 Divisions, and a host of other units were not lost and would inform the British Army's operations in that specialist environment for years to come.

[63]IWM LBY WO 1676 The pamphlets define blackshod operations as those undertaken by normal troops that require some special training, while whiteshod are as above but above the snow line. The term mountaineer was reserved for specially organised and trained troops. Military training pamphlet no. 90: snow and mountain warfare. Part II: mountain warfare - blackshod operations 1944 (provisional).
[64]IWM LBY WO 1676 Military training pamphlet No 90 Part II p2.