*Pasi Tuunainen*

# FINNISH MILITARY EFFECTIVENESS *in the* WINTER WAR *1939 – 1940*

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*This book is dedicated to my late grandfathers, both of whom were citizen soldiers and veterans of the Winter War*

# Preface

The Winter War was a conventional total war fought in an Arctic setting. In the context of World War II it was merely a northern sideshow waged in the early stages of the conflict. In the former Soviet Union, it was not even considered a war but a 'border clash'. Yet Stalin aimed at occupying the whole of his Western neighbor. Thus, for the Finns it was a struggle for national survival. During the war the Finns closed their ranks. The world's attention turned to the north because it was relatively quiet on other fronts. Finland, waging a just defensive war, received a great deal of sympathy from many nations. A small nation fought practically alone for 105 days, almost to the brink of collapse. In spite of overwhelming odds the well-prepared—led and—motivated Finnish Army did not disintegrate, and the hostilities ended in a negotiated settlement. The Finns lost the war but gained a victory in defeat. This can be attributed to overall Finnish military effectiveness which is the topic of this monograph. It is a multifaceted phenomenon.

The Winter War was Finland's finest hour. Universal conscription kept the army close to their people. Their spirits, in the field and the home front alike, remained exceptionally high during the entire conflict. The experience of the Winter War is still often referred to. It has been an important ingredient of Finnish national identity ever since.

This study is a kind of synthesis. It has been possible because I am well acquainted with the archival sources pertaining to the Winter War. Moreover, my knowledge of literature related to the Arctic conflict has developed since I have over 2000 titles in my personal Winter War book collection. I have focused on the theme from various viewpoints for over

25 years: taught courses, given public talks and written several monographs, book chapters and articles on it. Therefore, I have been able to build on my earlier works and occasionally cite my own publications. In the midst of many other commitments this laborious book project has taken me over six years to complete.

Many people have helped me during this project. My family has allowed me to spend countless hours in preparation of this book which I truly appreciate. I am grateful to many individuals with whom I have discussed my research. In particular, I am indebted to Professors Allan R. Millett, Ohto Manninen and Pasi Kesseli. I am also most grateful to many colleagues at UEF's Department of Geographical and Historical Studies, at Finnish National Defense University's Department of Warfare, on the Board of the Association for Military History in Finland, and my fellows on the editorial board of *Sotahistoriallinen Aikakauskirja* (Finnish journal of military history). Furthermore, I warmly thank Mr. Timo Pakarinen for drawing the map, and the language specialists at AAC Global for checking my text. Lastly, I thank Palgrave Macmillan for publishing my monograph and their various contact persons for fruitful cooperation at every stage of the process.

Over the years, I have received economic support from different sources. In addition to my home department, I wish to extend my humble thanks to various funding organizations. They are Eevi ja Eemil Tannisen säätiö, Jenny ja Antti Wihurin rahasto, Kaatuneiden Muistosäätiö, Karjalaisen Kulttuurin Edistämissäätiö, Otavan kirjasäätiö, Sotavahinkosäätiö, Sotaveteraanien tuki- ja perinnesäätiö, Suomen Marsalkka Mannerheimin Sotatieteellinen Rahasto, Suomen Tietokirjailijat, Uuden Päivän rahasto and WSOY:n kirjallisuussäätiö.

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30 November 2015

Pasi Tuunainen

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# Abbreviations

| | |
|---|---|
| AK | Armeijakunta (Army corps) |
| AKE | Armeijakunnan esikunta (Army corps headquarters) |
| ark. | arkisto (archive) |
| D | divisioona (infantry division) |
| E | esikunta (headquarters) |
| FGH | Finnish General Headquarters |
| FHC | Finnish High Command |
| i | ilmatorjunta (anti-aircraft) |
| IlmavE | Ilmavoimien Esikunta (Air Force headquarters) |
| *JMH* | *The Journal of Military History* |
| *J.O.* | *Jalkaväen ohjesääntö (infantry manual)* |
| JR | jalkaväkirykmentti (infantry regiment) |
| Järj. | järjestely (marshalling) |
| K | komppania (company) |
| KA | Kansallisarkisto (Finnish National Archives) |
| *K.TYÖ.O.* | *Kenttätyöohjesääntö (field works manual)* |
| Kev.Os. | kevyt osasto (light detachment) |
| *K.O.* | *Kenttäohjesääntö (field manual)* |
| kok. | kokoelma (collection) |
| Kom. | komento (personnel) |
| Koul. | koulutus (training) |
| KTR | kenttätykistörykmentti (field artillery regiment) |
| LeR | lentorykmentti (wing) |
| LR | Lapin Ryhmä (Lapland Group, LG) |
| Lääk. | lääkintä (medical) |
| Maav. | maavoimat (army, ground forces) |
| MPKK | Maanpuolustuskorkeakoulu (Finnish National Defense University) |

| | |
|---|---|
| Op. | operatiivinen (operations) |
| Os. | osasto (branch/section) |
| Pion. | pioneeri (engineer) |
| PK | pikkukokoelma (small collection) |
| P-KR | Pohjois-Karjalan Ryhmä (North Karelia Group, NKG) |
| Pky | päiväkäsky (order of the day) |
| PLM | Puolustusministeriö (Finnish Ministry of Defense) |
| PLN | Puolustusneuvosto (Finnish Defense Council) |
| PM | Päämaja (Finnish High Command, 1939–40) |
| PSHY | Pohjois-Suomen Historiallinen Yhdistys (The Historical Association of Northern Finland) |
| P-SR | Pohjois-Suomen Ryhmä (North Finland Group, NFG) |
| Prop. | propaganda |
| Pst. | panssarintorjunta (anti-tank) |
| *PU-36* | *Puna-armeijan väliaikainen kenttäohjesääntö vuodelta 1936* (Helsinki: Otava, 1939) (The provisional field regulations for the Red Army 1936) |
| Pvk. | päiväkirja (diary) |
| PvPE | Puolustusvoimain Pääesikunta (Finnish High Command 1940–41) |
| RGVA | Rossiiskii Gosudarstvenni Voennyi Arkhiv (Russian State Military Archive) |
| RT | Ryhmä Talvela (Talvela Group, TG) |
| Sal. | salainen (secret matter) |
| *SAL* | *Sotilasaikakauslehti* (Finnish military professional journal) |
| *SHAik* | *Sotahistoriallinen Aikakauskirja* (Finnish journal of military history) |
| SHS | Suomen historiallinen seura (Finnish Historical Society) |
| *SJO* | *Syöksyjoukko-opas* (storm troop guide) |
| Sk. | Suojeluskunta (Civil Guard) |
| SKK | Sotakorkeakoulu (War College) |
| SKS | Suomalaisen Kirjallisuuden Seura |
| Spk. | sotapäiväkirja (war diary) |
| Spol. | sotapoliisi (Military police) |
| Stal. | sotatalous (war economy) |
| STT | Suomen Tietotoimisto (Finnish News Agency) |
| *SVT* | *Suomen virallinen tilasto* (Official Statistics of Finland) |
| *T&A* | *Tiede ja ase* (Finnish General Staff officers' yearbook) |
| Takt.tsto | (Päämajan) Taktillinen toimisto (High Command's Tactical Office, HCTO) |
| *Teltta.O* | *Telttaohjesääntö* (tent manual) |
| Tied. | tiedustelu (reconnaissance) |
| Tsto | toimisto (office) |
| *T.S.K.K.* | *Talvisotakäsikirja* (winter warfare handbook) |

| | |
|---|---|
| *TSH* | *Talvisodan historia* 1–4 (Porvoo: WSOY 1977–79) |
| Tväl. | taisteluväline (ordnance) |
| USAMHI | US Army Military History Institute |
| YE | Yleisesikunta (Finnish General Headquarters, FGH) |
| Yl. | yleinen (general matter) |
| yo | yliopisto (university) |

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CHAPTER 1

# Introduction: Understanding Military Effectiveness

On the morning of 30 November 1939 the Red Army launched an all-out attack on its small neighbor, Finland. This unprovoked invasion marked the outbreak of the Winter War, the only contemporary armed conflict in the age of total war fought in its entirety in Arctic conditions. The odds were badly against Finland. Yet the unexpected happened. A country with a population of 3.9 million lasted for 105 days against a 170 million-strong nation. The hostilities ended on 13 March 1940 in a negotiated settlement. The Finns ceded territories and leased a naval base to the Soviet Union. The Finnish armed forces had been able to frustrate Soviet plans to occupy Finland. Thus Finland avoided capitulation, and survived the conflict as a democratic and independent nation.

The conclusion that the Finnish Army performed effectively on the battlefields of the Winter War has often been reached simply by judging its outcome. In many works on the Winter War, Finland's relative military success is attributed to the determination, training and equipment of the Finnish soldiers. Some authors have commented on the problems of the Red Army, especially on how weather and terrain worked against the Soviet troops and their heavy weapons, rendering them unable to exploit their personnel and technical superiority. After becoming apparent that it was not going to be an easy undertaking for the attacker, the Finns received a great deal of international sympathy and admiration but very little tangible support. Reports by foreign war correspondents contributed to the widespread image of a little nation fighting together for a common cause against a formidable foe.[1]



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Without rebutting these rather simplistic interpretations of Finnish relative military effectiveness, I argue that they are not based on thorough research since the authors rarely have had access to the full range of the belligerent's own sources or the linguistic abilities to use them. There must be more to Finnish military effectiveness than is presented in these previous accounts of the Winter War. It is a truly multifaceted phenomenon.

## The Winter War in a Nutshell

The subtitle of Olli Vehviläinen's political history Finland in World War II, *Between Germany and Russia*,[2] aptly encapsulates the larger security environment and the context of European power politics facing Finland in the late 1930s. After the signing of the Molotov–Ribbentrop Non-aggression Pact on 23 August 1939, Finland became part of the Soviet sphere of influence. The Soviet Union threatened Estonia, Latvia and Lithuania with invasion unless they granted the USSR military bases. Subsequently, in June 1940, Soviet troops occupied the territories of the independent Baltic nations and put in place pro-Soviet governments. The Soviets had envisioned a similar future for Finland. According to the Soviets the security of Leningrad was jeopardized by the proximity of the Finnish border.[3]

While negotiations for territorial concessions were still going on in early October 1939, Finland mobilized its entire army under the guise of 'special maneuvers'. The Finnish Army, Navy and Air Forces initially consisted of some 280,000 men with considerable material shortages of heavy weapons and munitions. Prewar defense budgets had been strained, affecting procurements. The Finns had some 400 useful artillery pieces, mainly of small caliber, and just 32 obsolete tanks. Their Air Force consisted of 110 aircraft, of which only 75 were suited for air combat. The Finnish Navy was small but possessed reasonably modern vessels. At the outset of the war, the Leningrad Military District, which was responsible for the Finnish campaign, had a half million troops at its disposal to execute its offensive plans. They had the support of 5700 field guns, over 6500 tanks and 3800 planes. The Red Navy (Baltic Fleet) was also powerful.[4]

The Finnish strategy rested on the basic assumption that national survival was at stake in the event of a large-scale war against the Soviet Union, which was deemed the only possible enemy. Everyone at the highest politico-military levels, as well as the majority of the population, understood this. The Finns generally trusted their democratically elected leaders, and their army enjoyed popular support. They highly treasured their freedom, territorial integrity and independence, which had only been

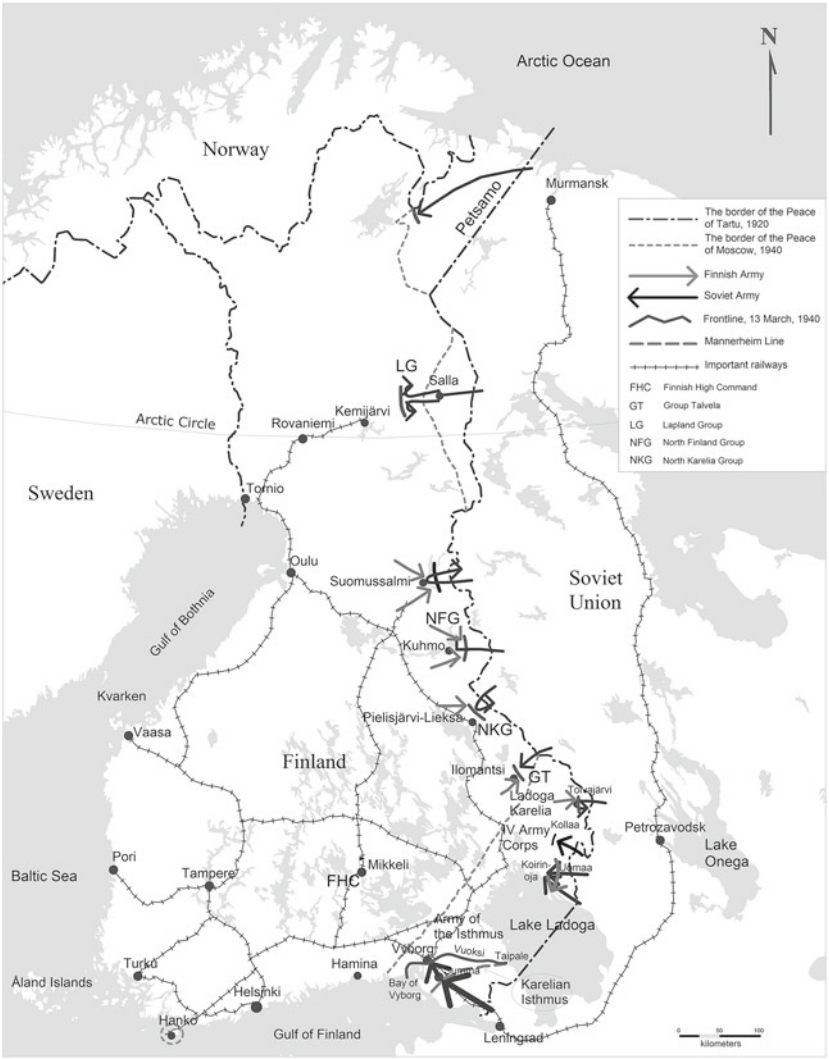
achieved in 1917. The Soviet Union had installed a puppet government headed by the Finnish communist O. W. Kuusinen, which made the Finns question Soviet motives. The extensive bombings of civilian targets also deepened these sentiments among the Finnish population.[5]

The bulk of the fighting in the Winter War occurred in cold weather and deep snow. The Finns were familiar with the terrain and weather conditions and had been trained and equipped for winter warfare, but the Red Army was not equally prepared in field-craft and survival skills. Moreover, many Finnish soldiers had unmatched local knowledge as many were literally defending their homesteads. Understandably, this boosted their morale and increased their already high level of determination not to give in. The battlefield performance of the Finnish Army was enhanced by the fact that the majority of Finnish soldiers were—on average—better marksmen than the Soviet soldiers.[6]

Finland was a 'nation in arms'. There was a long tradition of voluntarism in Finnish defense. Many had voluntarily improved his fighting skills in the 100,000 strong Civil Guard Defense Corps paramilitary organization. Most of the reservists had received refresher training since 1935 and thus they knew their wartime tasks. The troops had been formed on a territorial basis, which gave the units cohesion. The firing methods of the Finnish artillery were far more sophisticated than those of the Soviet artillery. Yet the Finns had problems integrating all arms.[7]

The Finnish–Soviet border regions comprised one theatre of operations. Within it the areas of operation were different in terms of military geography. The Finns had accurately anticipated that the Karelian Isthmus, between the Gulf of Finland and Lake Ladoga, would be the location for the main Soviet thrust because it was closest to Leningrad and the terrain with its road network was suitable for tanks. The nature of the war there would be trench warfare and attrition. In the northern sectors the Finns were surprised that the Soviets dispatched large formations along almost every road. Yet in these vast forests the Finnish troops had more space to maneuver and in most areas the operations became mobile (Map 1.1).[8]

After crossing the border the Red Army operating on the Karelian Isthmus had orders to advance and reach the Finnish capital, Helsinki, in three weeks. Their main offensive was to be supported by an attack north of Lake Ladoga aimed at the rear of the main Finnish forces. In the central part of Finland the Red Army had orders to cut the country in half. The first phase of the war was characterized by Finnish withdrawal from the border to prepared, and sometimes well-fortified, positions. During this phase the Finnish forces employed delaying tactics and conducted counter-attacks.




**Map 1.1** The Battles of the Winter War, 30 November 1939–13 March 1940

On the Karelian Isthmus, where Finnish troops were mainly on the defensive, the situation was stabilized as the Finns were able to bring the Soviet offensive to a halt. The second phase constituted trench warfare at the main defensive position, the Mannerheim Line, named after the Finnish Commander-in-Chief Marshal C. G. E. Mannerheim. After the Red Army had twice attempted in vain to breech the Finnish defenses, the Finns launched an ill-fated major counter-attack just prior to Christmas on the Karelian Isthmus. Meanwhile, elsewhere during December 1939, the Finns managed to defeat a couple of Soviet divisions with their over-snow mobility. These first victories, and the fact that the Soviet attacks were successfully contained, restored Finnish confidence in their own capabilities and thus were psychologically very important.[9]

The situation for the Finns was sometimes critical in many sectors. Along the long Finnish–Soviet border Finnish operations were based on active defense, flanking attacks and envelopments, even in the Soviet territory. In order to spare their main resources, the people, the Finns avoided frontal attacks. Instead their ski troops conducted many encircling attacks by which the road-bound Red Army columns were hemmed in from all sides into pockets or *mottis*. The cut-off units were split into smaller segments to be destroyed piecemeal. These stormed *mottis* yielded them large quantities of war booty. Yet due to a lack of men and heavy weapons, the Finns were not always capable of defeating the encirclements.[10]

In mid-February the Red Army, after having made considerable reforms, started its well-prepared major offensive on the Karelian Isthmus, which led to a breakthrough at the central sector in Summa. During this third and final phase of the war the Finns, conducting a strategic retreat, fell back to the middle position and after two weeks to the rear position, where the onslaught was repelled. The Gulf of Finland rarely froze completely, except suddenly during the extremely harsh winter of 1939–40, thus in March these special conditions allowed the advancing Red Army to seize the initiative by opening a new front on the ice cover of the Bay of Vyborg. The Finns were able to send their troops from Lapland, where a brigade of Swedish volunteers had taken responsibility. The Finnish leadership had, in vain, entertained the idea of large-scale Swedish support. Germany, the Soviet Union's partner at the time, also watched from afar, and held some weapon shipments to Finland until the end of the Winter War.[11]

The Finnish war effort depended on the total support of the home front. The women and other non-combatants freed men from the farms and munitions factories to the firing lines. Similarly, the 100,000 members of the Lotta Svärd, the Women's Voluntary Auxiliary Corps, served in various

supply, headquarters (HQ) and air surveillance duties. The transportation system was based on utilizing the Finnish State Railways. The maintenance system to keep the troops fighting generally functioned. The training centers sent fresh units into battle, and the total strength of the Finnish Army peaked at 340,000 against one million Soviet soldiers. Finland's ability to continue the war was seriously hampered by the fact that its last line reserves had been committed.[12]

The fighting at sea took place only during the first month of the war. The freezing of the Baltic Sea paralyzed the naval action by Christmas. Thus the sea front was reasonably quiet, and did not play a significant role in the conflict. The Finnish coastal artillery secured the coast and also supported the ground forces in some places. In cooperation with the Finnish Navy, they were prepared to prevent landings. The Navy protected the Åland Islands and the vital sea-lanes despite the Soviet naval blockade of Finland.[13]

The Soviets enjoyed air superiority, yet in the beginning of the war, due to poor flying weather, the Soviet planes were grounded for long periods of time. There were enough anti-aircraft units to protect only 14 localities of the home area in southern Finland. More than 600 targets of the Red Air Forces were completely without protection from the air. The Finnish Field Army was lightly protected. The role of the Finnish Air Force was largely limited to defense of their home territory and reconnaissance.[14]

During the Winter War the Finnish Army was able to win many battles against the Red Army. The outcome of the war was decided on the Karelian Isthmus. By March 1940, the Finnish Army encountered serious difficulties. The Finns waited for the spring thaw that would have slowed down the Soviet advance. The Franco-British intervention plan was even more important, but the Finnish government never made an appeal and Sweden refused to allow for transit. The international environment was changing fast, and, by March 1940, the Soviets, who knew about the schemes of the Western powers, could not afford to be caught up in fighting the Allies.[15]

The war ended at the eleventh hour for the Finnish Army. Both belligerents suffered greatly. The Finnish combat losses amounted to approximately 26,000 fallen, compared to up to 140,000 Soviet dead. The Red Army lost over 3500 tanks. The Finnish Air Force lost 62 planes but the Red Air Force's overall losses were some 1000 aircraft. The Moscow Peace Treaty stipulated that Finland had to cede approximately 10 percent of its land area and some islands and lease a naval base to the Soviets. More than 400,000 Karelian evacuees had to be resettled. Despite these peace terms, Finland survived the war as an independent nation.[16]

## The Research Task, Concepts and Interpretative Framework

Why did Finland prevail against the Soviet Union during the Winter War? That is the broad question explored throughout this research. More specifically this study seeks to discover how the Finns were able to develop and maintain their military effectiveness in the Winter War. I will also compare Finnish and Soviet performance because effectiveness does not only depend on one's own capabilities and mission, but also on those of the adversary. The larger context of the book is the place of the Winter War in the evolution of warfare as practiced by European nations during the early stages of World War II.

Scholars generally agree that victory is not a good criterion for military effectiveness. The elusive concept of victory is actually the outcome of battle, and it merely implies an imposed peace or conquest. Thus it could not be used to describe what military organizations do in battle or, in the Finnish case, their organized resistance in defeat. Finland lost the Winter War but, as Nikita Khrushchev later admitted, the Soviet Union also suffered a huge moral defeat. According to Allan R. Millett, Williamson Murray and Kenneth H. Watman, who regard the Finnish Army in the Winter War as an example of an effective military in their seminal three-volume study *Military Effectiveness*, proportional costs and organizational activity and process should be included in the measurement of effectiveness. Suzanne C. Nielsen agrees, and writes that regardless of the Soviet victory, 'a detailed look at the manner in which the conflict was fought makes it implausible to argue that the Soviets had the more "effective" military'.[17]

Richard Overy argues that deeper factors that affect military victory and failure in a full-scale war are industrial strength, fighting ability, the quality of leadership and moral considerations. For Overy, abundant material resources or technical ingenuity do not necessarily guarantee the effective use of weapons. Insufficiently armed troops can outfight a better-equipped and superior force. Fighting power needs to be accounted for by looking at training, organization, morale and military élan.[18]

Moreover, Stephen Biddle, exploring the reasons for military victories and defeats, emphasizes force employments, doctrines and tactics over sizes of armies, equipment and technology. He adds that real combat outcomes are produced by the interaction between force employment and materiel, for example the manner in which technology is used. Biddle argues that military effectiveness 'shapes military outcomes'. Ryan Grauer

and Michael C. Horowitz stress the need to find possible links between unit-level explanations of military power and the organizational-level force employment as indicators to examine the relative importance of force employment as a cause of military victory.[19]

Jason Lyall categorizes the existing explanations on the sources of military effectiveness. When assessing the military capabilities of different countries and explaining the differences in states' level of military effectiveness, political scientists tend to stress material preponderance or democratic triumphalism. Historians have often been preoccupied with ideational explanations. The supporters of the traditional school see that the outcomes of battles and wars depend on force strengths and relative military and economic power. The second group of explanations posits that political institutions (regime type), and its adherents consider democracy and victory as explanatory variables for military effectiveness. The third group often point to non-material factors (modes of military organization).[20]

A group of political scientists, using quantitative data, has investigated conventional interstate wars from the Napoleonic wars to the 1980s. They argue that there is a strong correlation between regime type and military effectiveness. David Lake, for example, has claimed that democracies have won over 80 percent of the wars in which they were belligerents. Autocracies emerged as victors in merely 43 percent of the wars they participated in. Dan Reiter and Allan C. Stam III assert that if democracies decide to go to war, they are likely to win them. Western democracies are claimed to possess an advantage over autocracies because of their good human capital and well-functioning civil–military relations. Furthermore, Reiter and Stam III point out that military leadership can develop and display stronger initiative in democracies because the officers can concentrate on their business and external threats wholeheartedly and do not need, unlike in autocracies, to show that they are 'politically unthreatening'. Similarly, Ulrich Pilster and Tobias Böhmelt maintain that in democracies the officer corps exhibit loyalty, and the democratic leaders do not need to be afraid of the military seizing power. This positively affects their battlefield performance and military effectiveness.[21]

Based on their study on the effects of democracy on war outcomes, D. Scott Bennett and Allan C. Stam III question the benefits of a democratic form of governance in long wars. According to them, the likelihood of victory is high for democracies in wars that last less than 18 months. After that, democracies have exhibited more willingness towards quitting and settling for draws or losses. Bennett and Stam III also point out that

there is variation in relationships between war outcomes and some control variables like military-industrial capacity and military strategy. Similarly, Kathryn McNabb Cochran and Stephen B. Long, measuring military effectiveness by utilizing combatants' loss–exchange ratio datasets, conclude that 'democracy does not appear to have a statistically significant effect'.[22]

Michael C. Desch is also skeptical about democratic triumphalism as the primary source of military effectiveness because it depends on the international environment. Military power requires a well-functioning organization, material assets and the right decisions concerning strategy, doctrines and training. For Michael Beckley, those who place emphasis on non-material factors tend to overlook economic development, the 'critical determinant of (military) effectiveness'. He asserts that economic development determines military power, and culture and human capital are irrelevant. 'Democracy actually seems to degrade war fighting capability', Beckley writes. Charles A. Miller, who supports Beckley, has examined the political economy of military effectiveness in conventional combat. Miller sees that the primary motivation for entering the Army, 'rank order tournament', is the advancement of one's career, which can be achieved if one masters military skills and performs well in combat. Literacy, development, political stability and culture of hierarchy all strongly influence this 'destructivity'. On the other hand, low literacy rates, political promotions and weak post-retirement career prospects in state bureaucracies are key restrictions that affect 'destructivity' negatively. For Miller, peer monitoring is the single most effective control mechanism in preventing the soldiers from shirking and motivating them to fight. Interestingly, ethnic diversity does not undermine combat power provided that the units experience combat together.[23]

Literacy is also important in all regimes as it promotes nationalistic sentiments. Barry R. Posen argues 'that nationalism increases the intensity of warfare, and specifically the ability of states to mobilize the creative energies and the spirit of self-sacrifice'. Mass literacy among the conscripts increases their ability to absorb new military technology, and literate conscripts are also more easily subjected to propaganda and indoctrination. 'A more literate population also makes the training and organization of very large forces easier, facilitating mass mobilization', Posen adds.[24]

The conventional wisdom about civil–military relations in democracies holds that after political leaders have decided upon the war aims, they should give leeway to senior officers in the conduct of operations. This inculcates military professionalism, and officers voluntarily opt not

to interfere in politics. Professionalism fosters military effectiveness, and civilian control of the military can be ensured if both spheres have large autonomy. Views like this are often based on the works of Samuel P. Huntington who viewed civil–military relations as an explanatory variable. Morris Janowitz shared most of Huntington's assertions but also argued that since militaries are not homogenous they will be at least slightly politicized. Thus strict civilian control is needed, and the politicized military cannot be granted full autonomy. Eliot A. Cohen challenges these traditional notions when examining the roles and relationships of statesmen and soldiers in wartime. He asserts that some active statesmen have interfered in, and even defied, the activities of their military leaders. By questioning and pushing the actions of senior military leadership, civilian leaders actually assisted their subordinates to successfully accomplish their difficult missions. Cohen highlights the fundamental subordination of soldiers to civilian oversight, and covers the ever-present tensions and mutual mistrust between civilian and military leaders. Suzanne C. Nielsen presents criticism towards Huntington's premises. For her, Huntington's patterns of civil–military relations pertain to the American case during the Cold War. Nielsen adds that Huntington misinterpreted Carl von Clausewitz's notions and that professionalism, as Huntington described it in the late 1950s, 'is problematic as an adequate indicator of (military) effectiveness'.[25]

According to Desch, the line between the civilian and military spheres is not clear in all cases, good civil–military relations do not automatically happen in a coup-free nation, and good civil–military relations do not necessarily guarantee good policy decisions. However, cohesion and interplay increase as threats grow. Those countries operating in high external threat situations and having low internal threats are likely to have quite stable relations between political and military leaders, while the effectiveness of internally oriented militaries is often decreased. For Desch, the level of civilian control is best determined by looking at 'who prevails when civilian and military preferences diverge'. Doctrines also affect civilian control because they shape the structure of military organizations, military organizational cultures, and act 'as a focal point for the convergence or divergence of civilian and military ideas about the use of force and the international environment'. Externally oriented doctrine usually strengthens the role of those civilian institutions overseeing the military. Desch regards civilian control as a necessity in 'developed democracies' since larger intervention of senior officers in national-level policies can

even jeopardize the successful conduct of war, and low control by the civilians can be harmful to the nation and its military.[26]

Caitlin Talmadge, who looks at how political interventions into the military can guarantee battlefield effectiveness, focuses on large structural material resource variables like economic wealth and demography and non-material variables such as culture and regime type ('what states do with what they have'). The latter is important to understand the ability of each state to generate overall military power. Yet, as they do not change fast, they are poorly suited to explaining much of the variation in performance of different armies. Talmadge also advises caution in the use of resource-based material variables ('what states have'), and she critiques those scholars emphasizing non-material variables or 'force multipliers or dividers' such as regime type, threat environment, culture and society, and civil–military relations. Instead, she emphasizes promotion patterns, training regimens, command arrangements and information management. Talmadge argues persuasively that the most effective militaries are able to produce cohesive units with proficiency in basic preferred tactics and have the ability to conduct complex operations. In order to have their armies perform with maximum battlefield effectiveness, the officers should be promoted based on their merits and competence, and the troops should be trained rigorously, realistically and frequently at both the small- and large-unit levels and in the fashion that allows them to create bonds and build trust. Command arrangements should be decentralized: command structures should be integrated and unified in order to secure rapid decision-making and coordination. Field commanders should have the authority to improvise and exhibit initiative. Finally, information management policies should not include any breakdowns in the flow of information and no delays in reacting to vital enemy information. She posits that caveats or anomalies in any of the four key areas of military activity (promotion patterns, training regimens, command arrangements and information management) will decrease the overall battlefield effectiveness. Talmadge asserts that 'states that adopt best practices can be expected to fight harder, resist longer, and impose significantly higher costs on their adversaries than might otherwise be expected based on an assessment of their material resources'.[27]

Against this backdrop, the strategic appraisal and evaluation of potential enemies' military capabilities have been an important but difficult task for decision-makers. Murray and Millett point out that an accurate view is needed for preparedness and military effectiveness in possible coming

wars. The net assessments of one's own and enemies' strengths influence the decisions to wage war or to try to avoid it. They included projected performance of the armed forces, military technology and hardware, as well as economic, military and political power, ideology and leaders' intentions. The organizational structures and the flow of information count: correct information, factual analysis and structured policy options need to be forwarded to the decision-makers in a timely fashion. Moreover, Thomas G. Mahnken has discerned that intelligence organizations are likely to detect developments in armed services that resemble their own militaries. It is a difficult task for them to recognize foreign military innovation from scattered information unless it 'fits with their predispositions'. The military attachés often identify signs 'of new warfare areas on the battlefield or in realistic war games' than see them in theoretical documents. Intelligence services also tend to detect innovative developments 'in those areas that one's own services are exploring' as opposed to those they are not following or have rejected.[28]

Risa Brooks asserts that strategic assessments during war times are affected by states' civil–military relations. Accurate assessments are conditioned by an easy exchange of information and a thorough analysis of a state's own relative capabilities and the larger strategic environment. If the relations between political and military leaders are strained, the highest-level decisions taken in war times can prove ineffective.[29]

Military effectiveness is, to a large extent, a matter of careful planning. Prior to World War II the military planners of major European nations were faced with dilemmas of choosing offensive, defensive or deterrent strategies. Military planning and foreign policies were then clearly interwoven, and planning was affected by the interplay of social, political, diplomatic and economic factors with military concerns. Countries like France opted for defensive foreign policy leading to a defensive strategy that centered on the use of fortifications (the Maginot Line). On the other hand, the appeasement policy practiced by the British during the 1930s indicated a decreased level of military preparedness.[30]

The changing nature of military technology in the course of the nineteenth and twentieth centuries affected strategic planning (including military planning) and made it a difficult endeavor. Talbot Imlay and Monica Duffy Toft divided this uncertainty into three sets of difficulties: to identify the enemy, understand the nature of war and determine its timing. They demonstrate that peacetime military planning under conditions of uncertainty has proven a real challenge—or has offered good

opportunities—for governments and military organizations. Effective planning has required that the planners have been 'flexible, imaginative and persistent in their efforts'.[31]

Effectiveness is also manifested in the way in which militaries are able to influence peacemaking efforts. Allan C. Stam III uses rational choice analysis and explores the relative effect on the war outcomes of leaders' wartime choices and the resources they have had since the early 1800s. He shows that domestic political factors and constraints affect decisions on strategy, troop levels and defense spending. Decision-makers' preferences are altered due to domestic politics, and strategies often fall short of the optimal strategies ultimately having an effect on the state's ability to prevail. Dan Reiter's bargaining theory of war termination uses the Winter War as one of his case studies. He alludes to the fact that 'the problems of uncertainty and unenforceable commitments cause war, fighting serves to alleviate these problems, and war ends when these problems have been reduced sufficiently or eliminated'. Reiter focuses on an information-based approach and hypothesizes that concessions leading to war termination are the result of military defeats, whereas the belligerent's own battlefield successes diminish willingness to make concessions and might even lead to additional demands of its enemy. On the other hand, Williamson Murray contends that the ending of wars does not follow certain patterns as they have occurred in very different contexts.[32]

Some scholars have studied if and in what way the performance of nation states before a war conveys signals to its allies about its likely military effectiveness in times of war. Stephen B. Long looks at the reliability of possible allies, the mechanisms of violation or honor of one's alliances. The decision whether or not to assist an ally in war depends on the credible information about 'the likely effects of [the] decision' and historical record of the ally's military performance.[33]

Williamson Murray and Mark Grimsley argue that 'strategy is a process, a constant adaptation to shifting conditions and circumstances in a world where chance, uncertainty, and ambiguity dominate'. It is difficult to quantify because it incorporates 'human passions, values, and beliefs'. Strategic thinking and national strategic cultures are profoundly shaped by geography (size and location of a country), history, culture (including religion), economics and technology and governmental systems (including ideology and mass politics). The correct appraisal of the international environment is a prerequisite for formulating a sound strategic policy. Strategies are also, as Murray writes, 'about balancing risks'. Great states,

unlike the small states, are able to have grand strategies that not only allow them to react to immediate events but are designed in a manner that provides them with adaptability to all kinds of changes in the international environment, be they short-term or long-term dangers. This requires that leaders are able to recognize changes in economic, political and diplomatic arenas.[34]

Strategic culture is an essential context for studying military effectiveness. Political scientists have since the 1970s favored the idea of strategic culture, whereas military historians have already since the 1930s preferred to utilize the concept of national ways of war. Lawrence Sondhaus reaches beyond disciplinary boundaries, and argues that culture mainly determines how national strategies are formulated and what kind of approaches nations have to warfare. Colin S. Gray adds that 'culture shapes the process of strategy-making and influences the execution of strategy, no matter how close actual choice may be to some abstract or idealized cultural preference'. States' strategic doctrines are collections of military, economic and political means and ends to achieve security.[35]

Barry R. Posen outlines that one of the key components of strategic doctrines formulated by major European powers during the interwar years was military or operational innovation. The other elements were its offensive, defensive or deterrent characteristics, as well as its integration of military resources with political aims. Moreover, Elizabeth Kier maintains that the organizational culture of an army is affected by broader societal beliefs about the role of the armed forces. Thus the organizational culture has an impact on the formulation of doctrine—and, in turn, also affects the fighting capabilities of armies.[36]

Correspondingly, Deborah Avant asserts that civilians are needed to make the armies adopt effective doctrines, but the role of political institutions is determined by the nature and history of those institutions. Jack Snyder argues that even though doctrine has mainly been the responsibility of military leaders, politicians have provided the frameworks shaping soldiers' choices. In France, before World War I, the planning and doctrine formulation was nearly completely in the hands of the senior officers who favored offensives that led to huge casualties and failures. Strategic cultures can make a huge difference. For example, according to C. Christine Fair, in the case of Pakistan, its army's distorted view of history and self-perception has led it to pursue revisionist military policies that have endangered the viability of the whole state.[37]

For Theo Farrell, cultures and norms directly shape the way in which states organize for war, societies mobilize for war, and how war is conducted. Culture determines everything as it provides 'the moral codes and technical scripts for war'. Military organizations resemble each other because core cultural beliefs about how militaries should organize themselves are shared by professional soldiers everywhere.[38]

Williamson Murray argues that the highly effective Prusso-German approach to war and doctrinal framework dated back to the early nineteenth century. They were supported by the German military culture that 'emphasized decentralized tactics and rapid exploitation'. Isabel V. Hull, who studied the German military from 1864 to 1918, asserts that the political system and unique military organizational culture has had a great impact on the German way of war. The Germans have been able to produce and effectively execute sound operational and tactical plans, but, at the same time, they have not had a national war policy. Thus they neglected strategic-level planning and also failed, to their demise, to place enough emphasis on logistics and provisioning. Hull maintains that specific military culture is developed and shaped by the military's place in state and society, the task of the military, its organizational structure, its resources, the social base of its leaders and rank and file, gender issues, and its past war experiences. Robert M. Citino has also detected continuity in German operational-level offensive warfare. These recurrent patterns that include rapid and surprising outflanking maneuvers and envelopments and the idea of annihilation have resulted in German operational effectiveness against larger enemies. These successes have been possible because of independent action by subordinate commanders. For Citino, this German way of war, characterized by aggressive action, has been attributable to their military culture.[39]

Indeed, culture matters for military effectiveness. Subsequently, I agree with Jeremy Black that culture is central to the study of military organizations in wartime. It helps us to explain why soldiers in individualistic cultures innovate and adapt to conditions and circumstances. As Martin van Creveld has shown, the fighting qualities of armies in the context of World War II were linked with national character. He is supported by Pradeep P. Barua, who holds that some unique characteristics of non-Western states affect their military effectiveness in a number of ways. Moreover, Kenneth M. Pollack, who has written about Arab military effectiveness during the Cold War, sees the phenomenon as referring 'to the skills that are employed', and thus measuring the quality of an army's

personnel. Furthermore, Arab culture has negatively affected the performance of various Arab militaries.[40]

By World War I, the citizen-based army had become the norm in Europe. Eliot E. Cohen shows how the short duration of military service in the cadre/conscript system brings serious challenges to military effectiveness. In the militia system there are also only brief periods of active service but the peacetime training of militiamen (or national or civil guardsmen) is continuous. The leadership is provided not by professionals but by part-time officers. Michael S. Neiberg points out that the military institutions are not separate from their representative societies but, rather, 'extensions of the societies that produce them'. The armies can also be quite isolated from their parent societies. Stephen Peter Rosen argues that dominant social structures do make a huge difference because 'the less a military organization reflects the structures of the society … the more the military will be perceived as an alien element.' Social characteristics are at the heart of military power.[41]

Successful military innovation can increase military effectiveness. Basing his view of historical antecedents from World War II, Stephen Peter Rosen investigates how and why innovation occurred or did not occur. Rosen claims that military innovation has been much easier in wartime than peacetime. Eliot A. Cohen and John Gooch conclude that even competent armies might fail if they are incapable of learning, anticipation and adaptation.[42]

Emily O. Goldman and Leslie C. Eliason point out that the study of the diffusion of military innovations is not only about the state's interaction to acquire new ideas, practices and equipment, but it is also about 'how they adapt and utilize new knowledge'. Organizational and cultural factors can inhibit or promote the exploitation of military technologies and other innovations. Also, the militaries tend to observe the war experiences of others and draw lessons from them. Diffusion is, thus, 'driven by the threat of defeat by a superior power'. Alas, the process involves emulation of the most successful organizational forms, practices and technologies.[43]

A good deal of the literature deals with how armies draw lessons from their previous operations. It is the task of the officer corps to adapt organization, tactics and procedures to fit the dynamic surroundings and changing situations. This has been accomplished by the US military in both world wars by acquiring, interpreting and distributing information (framework for examining how knowledge and skills obtained from past experiences could be shared). Effectiveness could have been improved by

identifying and systematically correcting shortcomings. The lesson-learning process has also been investigated by looking at those debates that have lead to doctrinal development (doctrines manifested in manuals). Keith B. Bickel, for example, studying the development of US Marine corps' small-war doctrine during the interwar period, argues that it was the committed and innovative junior- and mid-level combat officers that played a key role in choosing and passing on relevant information. Bickel pays attention to the formal and informal processes of conveying combat lessons to officers. The latter often means oral exchanges or writing monographs and articles in professional journals. There is continuity to the present times: James A. Russell, a scholar of the Iraq War, maintains that tactical innovation takes place because combat leadership is forced to adapt (even though their superiors would remain hesitant). It occurs as soon as various unit leaders realize the ineffectiveness of their current doctrine and tactical methods. This usually happens as a bottom-up phenomenon with 'informal doctrine' as its product. Russell argues that these new best practices, which are shared with those facing the same kinds of situations, develop over time and improve the involved units' performance.[44]

Similarly, the organizational learning approach has been a central theme for Brian A. Jackson who has studied the learning behavior of terrorist organizations. He added storing of information as the fourth component to the above-mentioned learning process. Jackson asserts that without the ability to learn, a terrorist organization's 'effectiveness in achieving goals will largely be determined by chance'. This wisdom can be extended to any military institution. James S. Powell's book *Learning Under Fire* concerns the learning of one US cavalry regiment deployed in the rugged environment of the Southwest Pacific Area during World War II. Powell notes that learning did not happen simply by building on experience and polishing one's performance. It often required the fast discovery of problems and swift on-the-spot correction of them. Earlier experience was not always applicable, and unexpected challenges called for varying responses. Learning took place with mixed successes at various levels of the regiment's organization. Advance was achieved even if the cavalrymen failed to learn in some areas. Powell stresses that the organizational learning process was facilitated or disrupted by the presence of certain conditions. They included the difficulty of their tasks, the interference of higher echelons of command and the reactions of the Japanese to the changing environment.[45]

Gregory A. Daddis asserts that the assessment of military effectiveness has to be separated from operational and strategic progress. An army can exhibit battlefield learning but measuring military successes and effectiveness in a conventional total war is much easier than in an unconventional war.[46]

Military effectiveness is often manifested in effective battlefield performance that depends on the adoption of the latest, combat-proven fighting methods and command principles. At the tactical level, the most important military innovation of World War I was the German storm-troop tactic (sometimes called infiltration tactics) that was, in essence, a small-unit offensive method to bypass strongholds and penetrate deep into the enemy's defensive system. The development of this tactic, extensively used in World War II, has been aptly described by Bruce I. Gudmundsson. The effective use of this novel doctrinal solution required specialized squad-level skills, and placed high demands on the training of the troops. Furthermore, the successful employment of this tactical method required a system of decentralized command (*Auftragstaktik*). Martin Samuels has addressed this topic in two comparative books. With these mission orders, lower-level leaders were delegated powers to use their own initiative. Jörg Muth asserts that *Auftragstaktik*, which was based on trust and responsibility, was actually more than just an order-issuing technique; it was a comprehensive 'command philosophy'.[47]

References to the vital role of primary group ties have been popular among those trying to understand sources of combat motivation and why troops kept on fighting without disintegrating in World War II. Primary group cohesion is normally viewed as peer and leader bonding in small units up to company level. This bonding of the members sustains their will and commitment to each other, the organization and the mission. Secondary group cohesion refers to organizational and institutional bonding. Finnish sociologist Knut Pipping has written about the complex social structure of a Finnish infantry company and informal norm system among its members. He examined how they affected soldiers' behavior and attitudes concerning everyday life at the front and behind it. Pipping found six formal and informal social groupings in one company, to which loyalty was often latent. The small-group membership enhanced the well-being of individual soldiers. During the war the Finnish soldiers deviated from formal military discipline and protocols but this did not have a negative impact on their battlefield performance. Samuel A. Stouffer et al. asserted in their study of American soldiers that it had not been

ideology or patriotism that mostly motivated the soldiers in combat but rather unity and bonding. In a similar vein, Edward A. Shils and Morris Janowitz's classic article stresses the role of primary groups as sources of German unit cohesion, tenacity and superior combat performance. Many scholars, such as Anthony King, still assert that in the citizen armies of the twentieth century, 'soldiers fight for their friends'. W. Victor Madej offered criticism and writes that Shils and Janowitz have a tendency to overemphasize the importance of primary group solidarity. For Madej, the full scope of the war effort has to be considered, and cohesion in the Wehrmacht was the product of military skill and efficiency. Instead of being a cause of military effectiveness, cohesion was the result of superior German military organization. Madej adds, 'societal factors may inspire success but only the proper use of weaponry can translate motivation into reality'.[48]

Correspondingly, Martin van Creveld posits that by taking care of individual soldier's social and psychological needs, the Germans were able to increase their military effectiveness in World War II. Fighting power, which incorporates individual as well as organizational components, multiplies the numbers and equipment. It depends on the mental qualities of the soldiers. According to van Creveld, fighting power is 'the mixture, in one combination or another, of discipline and cohesion, morale and initiative, courage and toughness, the willingness to fight and the readiness, if necessary, to die'.[49]

Alexander Watson, who studied the mental coping strategies of the British and German soldiers in World War I, asserts that the mental strain they experienced badly eroded the soldiers' combat motivation and unit cohesion. However, they endured and continued to fight because of 'human faith, hope and optimism, no less than cultural traits, discipline, primary groups and patriotism'. Watson adds that combatants' morale was cultivated by the effective support of their armies and societies. Yet the true strength of the armies stemmed from natural human resilience. Moreover, the high level of discipline and cohesion resulted from 'the close identification felt by the majority of soldiers for their army and its aims'.[50]

However, Hew Strachan warns of making crude generalizations that the soldiers were merely fighting for their comrades. He points out that some others have stressed the role of ideology and disciplinary systems to account for combat motivation. Strachan adds realistic training to the list of plausible explanations. Bruce Newsome explores issues in military effectiveness as he asks 'why some soldiers are better than others' and fight

hard even with inferior numbers and weapons. He measures combat performance using nine categories: force employment (including strategy and tactics), command, leadership, decision-making, stress resistance, cohesion, motivation, athleticism and special operations capabilities. Newsome admits that an individual character might, to some extent, explain the combat soldiers' capabilities but 'soldiers, like most professionals, are made more than born'. According to Newsome, this is accomplished by means of training, socialization and other forms of conditioning.[51]

In the study of wartime sociological and psychological phenomena as elements of military effectiveness, one needs to incorporate human factors. Motivation and morale are at the heart of this approach. F. M. Richardson, who looks at morale as a medical question, argues that battle exhaustion is a normal reaction to the stress of war. Even the most courageous and resolute soldiers, when facing the psychological problems of war, can break down. Even the victorious side can suffer from problems related to morale. Good morale grows from comradeship (the buddy system), regimental spirit, physical health and mental factors (including religious faith, the cause and self-confidence). Personnel selection and mental training, as well as regimental and appropriate medical measures, are important in the prevention of psychiatric casualties.[52]

Jonathan Fennell defines morale broadly as the willingness of an individual or group to prepare for and engage in an action required by an authority or institution; this willingness may be engendered by a positive desire for action and/or by the discipline to accept orders to take such action. The degree of morale of an individual or army relates to the extent of their desire or discipline to act, or their determination to see an action through.

Fennell admits the problems of measuring morale since the factors affecting morale are a 'complex web'. For him, things like rates of desertion, sickness, battle exhaustion, missing and surrender are actually outcomes or correlates of morale. Furthermore, morale is influenced or determined by weapons, quality of manpower (soldiers and their leaders) and the primary group, as well as the operational environment. Other factors are supply, welfare (coping with boredom), contact with the home front, cause, past combat experiences, training and discipline, level of integration within the immediate group, and casualties. Morale can primarily be assessed qualitatively. Only rates of desertion, surrender, sickness and breakdown can be analyzed and compared quantitatively.[53]

Therefore, the relationship between battlefield performance and morale lies also within the domain of this study. The point of departure of Roger R. Reese's book *Why Stalin's Soldiers Fight* is that Red Army's military effectiveness 'rested on the performance of the individual soldier'. He investigates the individual Soviet soldiers on the micro-organizational scale, that is, at company level and below. In Reese's view, willingness to fight comes before the ability of the military unit of various sizes 'to impose its will on the enemy'. He persuasively maintains that the army's will and ability to sustain battle are the key to military effectiveness. For Reese, military effectiveness is mainly about morale, motivation, unit integrity and discipline.[54]

Still, John E. Jessup finds judging Soviet military effectiveness in World War II a very difficult undertaking because there is neither a fundamental definition of Soviet military effectiveness nor reliable data to be used in its estimation. Besides, in the Soviet case, one should also consider the role of political factors (the Communist Party).[55]

In his multi-disciplinary study *National Resilience during War*, Eyal Lewin traces the mechanisms of national resilience by analyzing Second World War case studies applying the PEST and SWOT models. He concentrates on political, economic, social and military-technological factors for each of his case studies, one of them being the Winter War. Lewin points out those factors that are crucial for a nation's ability to win wars and survive. He concludes that a nation prevailing depends upon a combination of political and social factors.[56]

High societal cohesion is considered by some scholars to be a major source of military effectiveness. Jason Lyall, for example, focuses on military culture and identity types as key determinants of both battlefield performance and war outcomes. Lyall stresses the role of battlefield cohesion when explaining mass desertion in conventional wars. According to him, the key metric in the theories of military effectiveness, with the loss–exchange ratio, is the army's staying power, which means its capacity that allows the army to continue to be effective without weakening.[57]

Similarly, Jasen J. Castillo seeks to understand why some armies fight harder than others and avoid disintegration even in the face of defeat. Castillo's novel theory accounts for the national sources of military cohesion (and resilience) and discerns the differences in the staying power of some militaries during wartime. By military cohesion Castillo means an army's 'capacity to fight with determination and flexibility on the battlefield', as well as its 'ability to resist internal pressures to collapse as the

likelihood of winning a war decreases'. Based on his case studies of major twentieth-century conflicts and the use of previous literature on group solidarity and military effectiveness, Castillo theorizes on the sources of endurance (or its loss). He asserts that the explanatory variables determining a country's military cohesion are the regime's control and the army's autonomy to conduct training to fight a war. Professional militaries (the others being messianic, authoritarian and apathetic) normally possess a low degree of regime control and thus a high degree of organizational autonomy. They often display strong battlefield performance but only moderate staying power that is gradually lost if the likelihood of victory decreases. Castillo, who also ponders alternative non-material explanations, has found that neither nationalism and democracy arguments nor even small-group theory are applicable. Instead he argues that large groups, like armies, provide motivation to group members, their soldiers, to sustain collective action, 'by both promoting and enforcing norms of unconditional loyalty among its members'. Cohesion is maintained as these norms, which define the members' obligations, 'motivate some members to remain committed to group goals' even in the most difficult circumstances. For Castillo, certain ties binding together the members of the army determine cohesion and resilience that are manifested in a collective action such as war fighting. In his usage the concept of cohesion is broadened to encompass all of a nation's wartime military organization(s).[58]

Leadership brings all elements of military effectiveness together, and at the heart of any military organization lie the command and control of troops in battle. John H. Cushman, quoting Field Marshal Slim, wrote that at any level of command the pattern for successful leaders is the same. They must assume responsibility for the command, assess the situation in accurate terms and set the objective, devise a suitable action plan, and execute that plan well while adapting to changing conditions. Cushman adds that effective military institutions and schools can, in some cases, increase the effectiveness of the officer corps. According to him, the quality of leadership proved decisive in World War II and 'for the highest quality of response to challenge, military institutions and individuals must have a high rating in both insight and execution'. At the operational and tactical levels, superior leadership is not enough to perform. The right kinds of tools (weapons, well-organized formations and a suitable fighting style) are also necessary.[59]

Williamson Murray posit that German *Blitzkrieg* tactics succeeded in the beginning of World War II because the German officers corps had

exhibited 'willingness to learn from combat and from realistic experiment'. Success owes as much to 'incremental and evolutionary improvements in doctrine, training and technology' as to military culture and military education.[60]

According to Alexander Watson, junior leadership accounts for much of German and British resilience in World War I because junior officers greatly affected troops' battlefield behavior and discipline. They shared dangers and hardships with the common soldiery. Watson emphasizes their intermediary position. In the German Army, for example, 'the self-sacrifice and paternalism of these young, overstretched officers played a crucial role'.[61]

Highly competent, adaptable and courageous battalion commanders can contribute significantly to battlefield success, argues Steven Thomas Barry. They can achieve this by displaying discipline, maturity, experience and 'the ability to translate common operational guidance into tactical reality'. In the American case in the Mediterranean area 1942–43, this occurred regardless of 'the deficiencies in equipment, organization, and mobilization and the inadequate operational (higher-level) leadership'. Barry examines three sets of factors: preparatory institutional factors (professional military education, unit training exercises and commissioning source), less tangible personal factors (calmness under fire, vigor and common personality traits) and the 'most complex' tactical factors (the table of organization and equipment of their units, doctrine, the friction of combat and enemy actions). He highlights the friction and writes that since there are so many uncertainties and unexpected problems in war, no single factor can determine success. Barry also views battalions as learning organizations. He thus aims to evaluate how 'citizen soldiers and their battalion leaders worked together to improve their units' combat effectiveness'. It was vital that the officers could value the contribution of their subordinates and 'foster a command climate conducive to organizational innovation and tactical adaptation'. The tactical level successes also called for the incorporation of technical innovations to enable combined arms maneuver.[62]

It becomes clear from the existing literature that military effectiveness is a difficult concept to define or measure precisely. Effectiveness is normally perceived as referring to the capability of producing desired results or doing the right things. Most of the traditional definitions incorporate military power and military outcomes as indicators of military effectiveness.

To measure institutional effectiveness, one needs to, as Russell F. Weigley asserts, ponder the question, 'effective in pursuit of what purposes?' John E. Jessup persuasively notes that, because military effectiveness 'is made up of a group of intangible variables', there is no universal concept that 'would present measures of effectiveness that could be applied in all cases and to all situations'. Jessup adds that military effectiveness is truly something intangible because superior technology and greater numbers cannot always be factors when determining the outcome of battles. Paul Kennedy convincingly notes that it is 'a complicated, multi-layered phenomenon, and one that is unlikely to be attained by a few smart reforms here and there'.[63]

For Stephen B. Long, military effectiveness is the 'state's ability to achieve desired military outcomes in times of conflict'. Yet he admits that beyond that simplistic definition, 'the concept of effectiveness becomes quite complicated'. It is very difficult to predict war outcomes. Long regards military effectiveness as a multilayered concept that it is closely linked with capabilities and state power. Capabilities differ from military effectiveness as they are 'measures of the potential of a state in a war than its actual performance in wars', and capabilities as such do not necessarily lead to successes at various levels of war.[64]

In *Creating Military Power* the authors account for the sources of military effectiveness, that is, how states actually generate military power from their given human and material resources. The contributors pay close attention to societies, cultures, political structures and the global environment affecting nations' military organization, in order to emphasize the wider cultural and societal contexts behind military power. Risa Brooks, the editor of the volume, stresses the technological element of military effectiveness. On the one hand, resources only refer to potential military power, and military effectiveness depends upon 'the capacity to create military power from states' basic resources in wealth, technology, population size, and human capital'. She categorizes four attributes crucial to military effectiveness: integration, responsiveness, skill and quality. For Brooks, effective militaries need to integrate their military activities 'within and across (different) levels and areas of all military activity'. This happens in military organizations in which activities at (tactical, operational and strategic) levels are internally consistent and support each other (are 'mutually reinforcing'). Furthermore, integrated militaries have been successful in achieving consistency in planning and preparations. To be effective, militaries also need to be responsive 'to internal constraints and the external

environment'. This means that military activity is in line with the nation's and its enemy's capabilities, as well as with external limitations. Skill can be 'measured in the motivation and basic competencies of personnel' in relation to accomplishing their tasks and carrying out their orders. The attribute of skill also incorporates the ability of the military organization in motivating its soldiers to 'fight hard, and seize the initiative in combat'. The last criterion is quality, by which Brooks means that effective militaries should display the 'ability to provide itself with highly capable weapons and equipment'.[65]

Molly Dunigan accepts Brooks's notions as she aims to deconstruct and measure 'the effectiveness of particular military actions across a range of different types of contingencies'. For Dunigan, an effective military organization 'displays high levels of integration, responsiveness, skill, and quality'. She augments Brooks's definition and considers that an effective military also needs to be able to accomplish its tactical, operational, strategic and political goals, which are linked with the goals of their relevant environments (goals pertaining to the most immediate battlefield goals, theatre(s) of operation, broader politico-military goals and the political goals of its government). In this vein Dunigan captures the ends-versus-the-means and unit-level assessment aspects in her definition of military effectiveness.[66]

Time is of the essence for Edward C. O'Dowd, who asserts, 'military effectiveness is best measured by assessing the speed and efficiency demonstrated by a military unit in accomplishing its tasks'. According to O'Dowd, attention should be paid whether that unit contributed positively to effectiveness by employing good tactics and whether the unit managed to take its objectives 'in a reasonable amount of time'.[67]

Overall military effectiveness is not the same as combat effectiveness. The latter means the quality of performance on the battlefield and in campaigns, at the tactical and operational levels of war. Trevor N. Dupuy utilized history to evaluate combat factors and to predict victories. In his view, the central variables of combat effectiveness, capabilities of units, are control and command, training/experience, morale and logistics. Based on this, Edward J. Erickson's comparative case study explores the ability of the Ottoman Army to develop and maintain a high level of combat effectiveness during World War I. For Erickson, combat effectiveness means 'the relative relationship between combatants in their ability to accomplish desired objectives'. He attributes Ottoman battlefield successes to internal factors, namely organizational structure and doctrine, the

quality of experienced leadership, the ability to organize for combat and the application of German influences.[68]

Philip Hayward theorizes that combat effectiveness is all about success probabilities in combat operations. John A. Lynn argues that it is determined by the technical aspects of the military system (military justice, tactics, administration, organization and command) together with the psychological dimensions of the motivational system (morale, primary group cohesion and motivation). For Peter R. Mansoor, a military organization possesses a high level of combat effectiveness if it manages to achieve its mission quickly without losing much human and materiel resources. Combat effectiveness encompasses human factors (leadership, discipline, morale and cohesion), organizational factors (doctrine, command and control, adaptability and interservice cooperation) and technical factors (weapons, intelligence and fire support). Mansoor stresses the importance of leadership, adaptability, cohesion, and manning and replacement policies. The replenishment systems of a military organization can, as Martin van Creveld has argued, literally multiply their numbers—and increase their effectiveness. Well-functioning replacement policies can also positively influence the level of cohesion and fighting power.[69]

In addition, Dan Reiter and Allan C. Stam III maintain that useful criteria for this phenomenon are effective command (battlefield leadership), good initiative and logistics. These are linked with the level of democracy, as the best motivation comes from soldiers' personal interests, which determine what kind of incentives and control are required to ensure combat effectiveness.[70]

It has not always been clearly articulated by military historians that logistical support has been key to achieving military successes. For example, in *Supplying War* Martin van Creveld maintains 'that logistics make up as much as nine tenths of the business of war'. For many armies the single most important bulk item has been fodder. They have been dependent on railway networks and depots located in the rear.[71]

As indicated above, military effectiveness is often measured quantitatively, yet good military performance (capability and proficiency) is a multifaceted phenomenon that appears impossible to quantify. Rather than examining the strengths of armies, loss–exchange ratios, and the types of weapons (the brute force), I accept the definition that 'military effectiveness is the process by which armed forces convert resources into fighting power' by Millett, Murray and Watman. In their view, the most effective armies are those capable of getting 'maximum combat power

from the resources physically and politically available'. Combat power is demonstrated by the ability to inflict heavy casualties on one's enemies while minimizing one's own losses and to pit one's own strengths against the enemy's weaknesses. Thus it is also about making the means and ends meet. Commenting on this point, Russell F. Weigley concludes, 'the key to making armed forces effective is to tailor their responsibilities and goals to the limits of tactical, operational, strategic, and policy-making practicability'. Millett, Murray and Watman also stress the influence of organizational factors on military effectiveness. They argue that military effectiveness is the product of internal consistency, sensitivity to resource and other constraints, and integration across and within each level of political and military activity. For example, Murray adds, a 'significant German deficiency in both world wars lay in its approach to industrial mobilization'.[72]

Millett and Murray later elaborated on their earlier writings by adding that among the indicators of military effectiveness of military organizations and their organizational behavior is 'the national cultural and intellectual framework that shapes armed forces in war and peace'. Murray concludes that despite a strong economy and advanced technology, the main determinants for wartime military effectiveness are culture, command style and the professional ethos of the military. Following this line of reasoning, cultural factors might help one understand a low degree of military effectiveness and military disintegration. MacGregor Knox maintains in his spin-off book *Hitler's Italian Allies* that Fascist Italy experienced a military failure in World War II because its military culture and military institutions failed. According to Knox, the profound reasons for Italy's defeat 'derived from social and institutional failings' that were even greater than the problems caused by the country's political system.[73]

Also, Millett and Murray later admitted that their conceptual model partly ignored the fact that military effectiveness also, to a large extent, depends on peacetime military innovation and wartime adaptation. They point out that, in general, it was very hard for the armies to innovate because they were uncertain of what will be needed of them. Before the war, military innovation was often slow and had to serve certain purposes, unless political interference sped up the process. Because of miscalculations about the nature of future wars, armies needed to exhibit military effectiveness and show an 'ability to adapt to the actual conditions of combat'. Regarding these facets this study is also informed by the works of Millett and Murray. The former concludes that case studies from the 1920s and 1930s show that there was 'a complex pattern of interactions

between strategic assumptions, the technological state-of-the-art and future research and development, military organizational politics and operational doctrine, and civil–military interaction'. Officer education and professionalism were also parts of the equation. Furthermore, Murray has sketched out the parameters of successful military innovation: it requires the ability to recognize the specific types of military problem to which the solutions offered significant advantages. Military innovations are often nonlinear and evolutionary rather than revolutionary, and they tend to occur gradually. Moreover, successful innovations are not possible without open-minded (senior) leaders with clear visions of how to change their concepts and understanding of the nature of future wars based on the lessons learned from previous conflicts. In addition to plain incompetence, innovations might fail because of problems in the organizational (military) culture, if past experiences are neglected or history is somehow 'misused', and if doctrinal rigidity exists.[74]

To achieve a deeper understanding of Finnish military effectiveness in the Winter War I will use Millett, Murray and Watman's work as my conceptual and interpretative framework and their measuring system (see the criteria in Appendix I) for judging Finnish military capability and the organizational effectiveness of Finland's military institutions during the Winter War. The investigation reaches also beyond the period of 105 days. In order to be able to correctly assess the level of Finnish preparedness and discern how the Finns had planned to meet the challenges of war it is imperative to also briefly examine the net assessments and preparations during the years prior to the war.

I will explore Finnish military effectiveness at—overlapping—political, strategic, operational and tactical levels. Strategic decisions are made by the politicians. Political-level effectiveness overlaps with the strategic level that comprises the actions of the Commander-in-Chief of the Finnish Armed Forces and the Finnish High Command, FHC (military strategic level). Different services, ground forces, Navy and Air Forces make up the operational level at which major operations were conducted to achieve strategic goals. Strategic policies of FHC need to be assessed, as successes at the operational level can prove useless unless strategic policies are viable. In the 1920s, the Finns did not think of operational art, and associated operations with military action between division and army corps levels. Everything below that was tactical. In order to prevail at war, all levels of warfare need to be synchronized with national policies, have the same goals and be in line with each other. It is sometimes difficult to make out the differences between operational and tactical levels. The latter refer to

military action in which specific techniques are used by combat units in engagements to fulfil operational-level objectives. It also includes movement to contact, and the fire-fights and logistical support for those engagements.[75]

One is not usually effective at all four levels, and the increasing of effectiveness on one level might lead to problems at other levels. This happened to Germany in both world wars. It showed political ineptitude and strategic incompetence to such a degree that 'all of their tactical and operational competence could not redress their political and strategic mistakes', asserts Murray. These problems were due to human limitations and political considerations. Therefore, the assessment of military effectiveness needs to be conducted separately at various levels of activity, all of which are crucially important, yet the conditions in which they are likely to occur need to be determined. The major aspect of the political effectiveness of armed forces, the budget share, can be measured quantifiably. For many, they add, military effectiveness is the same as tactical effectiveness. Millett, Murray and Watman share that same contention: 'strategic effectiveness is useless unless a military force can operate successfully on the battlefield'. On the other hand, they add that war aims have to be reconciled with military means. If political- and strategic-level decisions are flawed, it practically negates the correct decisions at the operational (the way in which forces are employed to attain strategic objectives) and tactical (methods to fight engagements in order to secure operational objectives) levels. Millett, Murray and Watman argue that there is a vertical dimension that refers to war preparations and the conduct of war at all four levels. The horizontal dimension involves those 'numerous, simultaneous, and interdependent tasks' that armies are required to carry out at various levels of hierarchy in order to display proficient performance. Moreover, Paul Kennedy asserts, 'improvements can be made in the areas of identified weaknesses, if the system is flexible enough'. The assessment of military effectiveness should not be limited to non-dynamic factors. In fact, as Millett, Murray and Watman also note, 'one must include in the analysis non-quantifiable organizational attitudes, behaviors, and relationships that span a military organization's full activities' at all four levels.[76]

Consequently, this work aims to be a qualitative multifactor analysis of Finland's war capabilities and the Finnish Army's conversion and innovation capabilities. These nationwide resources are vital for the effective performance of military organizations. They include existing resources (human, natural and monetary), technical advancement, industrial base (including the development and production of weapons), regime type,

political capital, sociological characteristics, human capital in terms of high-level officers, and morale. Regarding morale facets, this study builds on Jonathan Fennell's categorization. In command performance this study is informed by John H. Cushman.[77]

I have commented on certain theories but I have not attempted to test any existing theories nor to develop them further, let alone formulate new ones. This is to say that I am not merely interested in a particular past but also in the past in general. I have not aimed at identifying causal or law-like generalizations pertaining to a highly complex series of events like the Winter War as political scientists tend to do. I regard the Winter War as a national interpretative case study that is, in my view, unique like all historical events. It was waged in a single theatre of war. The case has very many variables and interactions—too many for any single theory to accommodate.[78]

The effectiveness of military institutions can only be fully judged in times of crisis. In the Winter War, the Finnish military organizations were put to the ultimate test, and the conflict waged in Arctic winter truly tested belligerents' military effectiveness. The northern winter environment offers an apt opportunity to explore morale and its relation to battlefield performance. Morale is viewed here in a broad sense as a complex question, not only as one of simply soldiers' fighting behavior and their willingness to engage the enemy. My work is qualitative research. Nonetheless, with my readings in history and social sciences, I have been able to write about broader systemic questions on military effectiveness. This study, that reconstructs historically what renders a military system effective, may have both historical and contemporary relevance. Hopefully, it will add to our current knowledge of the Winter War and the position of small states in conventional armed conflicts. History is not an exact discipline, and thus I will only offer one interpretation. Therefore, this study is not meant as guidance to policy-makers or practitioners.[79]

## Outline of the Book

Millett, Murray and Watman's guidance for the contributors of *Military Effectiveness* was to look at political, strategic, operational and tactical levels separately. However, I have done so only partially (see measures shown in Appendix I) because the levels are interdependent and the borders between them are sometimes vague. In order to emphasize certain important factors and keep the chapters balanced I have chosen to divide the narrative into four main chapters (Chaps. 2–5). The general analysis of

military activity at the two highest levels is offered in Chap. 2, whereas Chap. 3 focuses on the two lower levels. In Chap. 3, some of the criteria for operational- and tactical-level activity are assessed together. The control and command issues could easily have been treated in previous chapters but as professional leadership at various levels is decisive in order to secure effectiveness of any military organization, it deserves its own Chap. 4. Moreover, it also incorporates sociological and psychological phenomena, including discipline and cohesion. The combat motivation and morale of the rank and file. Thus Chap. 4 treats the Finnish Army as a social institution. The role of the human element and the interaction between military and civil society are discussed as well. The issue of training is, however, split between chapters depending on the context. The big picture of support capabilities and the workings of Finnish wartime logistical and supply systems (to clothe, house, equip and feed), prerequisites to all effective military actions especially in cold weather and a crucial factor for successful military operations and armed forces' sustainability, and wartime war production are given in Chap. 5. Yet prewar material preparedness and manpower allocations are covered in Chap. 2. Much of the treatment throughout the chapters concerns operational and tactical levels, in particular the tendency of the Finns to place their strengths against Soviet weaknesses, as well as their ability for innovation and adaptation within a national cultural framework.

The two literature reviews at the end of this chapter (split into the interpretative framework and the tradition of research, i.e. historiography) cover the main theoretical and methodological contributions on different aspects of military effectiveness and the current substantive findings on Finnish military effectiveness in the Winter War.

The second chapter focuses on Finland's ability to turn national manpower and material resources into combat proficiency at political and strategic levels. It also concerns the interwar plans and preparations for acquiring material and mobilizing the society for a war. What was the Finnish high-level decision-makers' capacity to make plans to fight a war and direct the war effort? The impact of regime type and civil–military relations on military effectiveness is discussed as the overall preparedness was the task of political leadership. What kind of mistakes did they make in the planning and preparation? Did the Finns utilize their resources in a cost-effective way? Were their strategic objectives set realistically in accordance with logistical infrastructure and the national industrial and technical base? How accurately were the Finnish military

planners able to make net assessments, predict their enemy's capabilities and the nature of the next war? What were the characteristics of Finnish strategy and what was the consistency of the force size and structure in comparison to it? Did their personnel management systems and unit manning practices function effectively? In this connection, the sufficiency of manpower resources is assessed (including the role of women and other non-combatants). How was the Finnish Army equipped in terms of material capability and technology? Did the Finns try to secure their strategic objectives by acquiring foreign military technology and by alliances or coalition warfare?

The doctrinal and organizational characteristics of fighting power are covered in the third chapter. How did the men and units prepare for and conduct combat operations and how was fighting power employed to attain a favorable outcome and secure strategic level objectives? Did the Finnish doctrine suit wartime realities? Were the Finnish tactics consistent with their strategic objectives and operational capabilities? The chapter also combines military geographical realities and limitations. How did the Finns battle the elements? How did the Finns assess the terrain and exploit Soviet weaknesses? In what questions did they have shortcomings and drawbacks? Was their training and organization able to accommodate the conversion of available resources into effective combat methods and best practices? In what way did organizational learning occur in the Finnish Army during the war? Did it and its members possess capacity for organizational innovation and tactical adaptation? To what extent and to what effect did the Finns adopt and disseminate foreign tactical influences? Even though focus on sheer numerical strength and material resources is in many ways problematic, the loss–exchange ratios are introduced in a separate subchapter. In it, conclusions based on comparisons between Finnish and Soviet human losses and equipment damages are made.

In the fourth chapter human resources are emphasized. The first part begins with control and command issues as the Finnish officer corps as a whole was responsible for converting the available resources into fighting power. Did Finnish officers have an ethos of professionalism? How were they promoted and rewarded? What kind of command principle was favored? How well did they perform in terms of executing the art of war, carrying out orders, seizing and retaining the initiative, motivating the troops to obey and follow orders, adapting to circumstances and so on? Were the chains of command and information management handled in an effective way? Were the officers able to conduct complex operations?

What were the officer–officer relationships like, and what was the impact of personality clashes? Were their training and tactical systems in line with their approach to morale, unit cohesion and relations between the rank and file, officers and Non-Commissioned Officers (NCOs)? How did the officers utilize psychological and sociological insights to build trust and determine the manner in which the Finnish troops should be led in battle to keep on fighting? Did the officers take care of their men? What kinds of mechanism were used to enhance their fighting spirit and control combat stress? How were morale-related problems handled and to what extent did the officers have to resort to coercion to restore effectiveness?

The latter part of Chap. 4 looks at Finnish citizen soldiers as a fighting force. The Army was mainly made up of reservists. The level of support for the military and military service among civil society (also the image of the soldier in Finnish society) and the support of the home front to the soldiers are analyzed to determine popular attitudes towards the Army. Was Finnish society completely united when facing the Soviet invasion? How much did societal and cultural factors matter in Finnish military effectiveness? Furthermore, the Finnish soldiers' general beliefs, value systems, attitudes and behavior patterns are discussed. Were there strong bonds, unit-affiliations and small-unit memberships in the Finnish Army? The chapter also sketches the content of the 'Spirit of the Winter War'. Was the Finnish Field Army as a whole able to maintain unit cohesion under fire? What was their approach to discipline? Why were the Finns ready to make ultimate sacrifices and why did their resistance stiffen? What were the roles of ideology, nationalism, patriotism or religion in motivating the soldiers and explaining their stamina in combat? Did the soldiers trust their weapons and leaders? How did their experience of victory and mounting casualties affect their determination? What did they fight for? Sociological and psychological factors (soldiers' identity, sense of self-worth, sense of duty and relationship vis-à-vis state and society) affecting the soldiers' motivation and behavior are also discussed.

Military effectiveness also had to be maintained during a sustained war. This is illustrated by the examination of the support and logistics systems in the fifth chapter. How did their intelligence, supply, communications, field medical care and transport systems function? The chapter sheds light on the quality of intelligence activities. What was the role of field chaplains at the front? How did people mobilize for the war effort, including the exploitation of the traditional image of the enemy in their propaganda? It is also necessary to explore themes such as wartime industrial output,

transportation, maintenance of equipment, resupply of fuel, lubricants, spare parts, munitions, provisioning and other replenishments. How did the Finns manage to deal with the occasional breakdown of their military effectiveness? What were the pitfalls of the supply system?

The sixth chapter contains an overall assessment of the reasons why Finland survived the Winter War. An answer is given as to why the Finns were able to generate sufficient fighting power from their resources. The processes through which they were able to convert their resources for effective operational use are described. What were the sources of their national resilience? The Winter War also meant serious challenges that the Finns had to overcome in order to succeed and exhibit relative military effectiveness. Grading of performance is provided. Comparisons are made to the findings of the contributors to *Military Effectiveness*, using the same conceptual framework. Moreover, the Conclusion includes a brief discussion on whether there was a certain Finnish military culture, even a kind of 'Finnish way of war'. The conclusion briefly discusses the aftermath of the war.

## A Note on Primary Sources

The bulk of the Finnish archival sources are deposited at Kansallisarkisto (KA, the Finnish National Archives). For the examination of political effectiveness there are, for example, minutes of government meetings, parliamentary records, Ministry of Defense and Finnish Defense Council archives. To study war planning and doctrine development, access to the papers of the Finnish General Headquarters (FGH) are required. On the operational level, I have used planning documents, orders, various reports and correspondence between field commands and the FHC. Quite often the most useful documents have been produced by the appropriate branches and offices. The Tactical Office of the FHC was responsible for gathering lessons from the fronts and issuing practical guidebooks based on the lessons learned. References to tactical effectiveness have been best captured in units' war diaries and after-action reports. The rich holdings of KA include over 3500 war diaries from the Winter War alone.[80] Furthermore, some wartime military and government documents have been published, such as doctrinal publications (listed under Printed Sources).

In addition, I have been able to visit Rossiiskii Gosudarstvenni Voennyi Arkhiv (RGVA, the Russian State War Archive) in Moscow. The Russian

archival documentation of the Winter War is not concise, and it primarily focuses on the activities of HQ and larger formations. I have found some Soviet materials that include estimates of Finnish fighting capabilities. Moreover, some captured Red Army documents can be found in the KA.

## Tradition of Research

The Finnish war experience in the Winter War has been studied from various viewpoints. Yet there are surprisingly few studies that address even some aspects of Finnish military effectiveness in the Winter War, and no exclusive treatment of my topic exists in the literature to date. On the one hand, analyses of some dimensions of military effectiveness are conducted, but, on the other, only partial answers are given. Still, those conclusions discussed below have proved useful and against them I can compare my own findings.

Interestingly, Millett, Murray and Watman refer to the Winter War when making a point about tactical effectiveness. They write about the utilization of genuinely Finnish *motti* tactics. Because the Finns were operating deep in the rear of the enemy and were defeating the Red Army units in detail, the Soviets were unable to utilize their full combat power. As long as the Finns kept the battlefield fluid, they could derive a great deal of fighting power from scarce resources. The Red Army increased their effectiveness only in static trench warfare when they could resort to attrition, enmesh the Finns by their larger numbers and pin them down by bringing their superior firepower to bear.[81]

Roger R. Reese's study of the Red Army and Soviet society in World War II contains one full chapter on the examination of Soviet military effectiveness in the Winter War as a predictor of Soviet military effectiveness against the Germans. Reese argues that the Red Army was, in fact, performing far better than has been previously accepted and was learning from its mistakes. He has pointed out that the encircled Red Army soldiers held out, avoided capture and refused to surrender. The Soviet soldiers were captured by the Finns as their leadership disintegrated and they were placed in a position to choose whether or not to continue pointless resistance.[82]

An insightful Finnish military writer, Wolf H. Halsti, who assessed Finnish military effectiveness at all four levels, blamed the politicians for neglecting preparations. He calls the actions of individual government members 'groping', and lacking a sense of geopolitical realism. Halsti

gives a reasonably good mark for strategic-level effectiveness. Most of the strategic-level military actions were dictated by necessity and overwhelming odds. Yet Marshal Mannerheim's strategy was a gamble. 'It [the military strategy] tied the hands of the government and forced it to conclude peace', he argues. The location of the defensive lines on the Karelian Isthmus, which were lacking depth, had not been ideal. Still, the terrain had favored Finnish defensive actions. The Finnish tactical leadership had been up to their tasks but the command performance of larger formations had been clumsy. Even though badly equipped and too few in number, the Finnish soldiers had proved to be better trained than the Soviet soldiers, and their morale had remained high.[83]

Eyal Lewin argues that Finland displayed considerable national resilience in the Winter War. He gives the highest estimations for those PEST factors that count the most: leadership, inspiring national ethos, war enthusiasm and collective hope. On the SWOT side, the military geography and scarce population (little strategic vulnerability), as well as internal political and social factors (like Churchillian wartime leadership of Mannerheim, cohesive national spirit and *sisu*, perseverance) were the clear strengths of the Finns. Weaknesses comprised limited human and material resources of the society and the Army. Winter fighting knowledge and skill sets, Stalin's purges and underestimations of the Finns' capabilities and the international environment are seen by Lewin as opportunities for the Finns. The geopolitical location posed threats to the country's very existence. All attempts to obtain collective security failed. Among the threats were that the Soviets possessed limitless manpower resources, and, towards the end of the war, the Red Army improved its performance. Yet, Lewin argues, by fighting hard to the brink of total annihilation, the Finnish Army led the Soviets astray from its real capabilities to prolong the war.[84]

In the view of Michael C. Desch the outcome of the Winter War, in which the Finns could not select themselves and were facing an invasion, does not support the 'democratic triumphalists' but rather gives partial support to pessimists (defeatists) who claim that democracies are likely to be defeated by authoritarian states. In the dataset used by Desch, the Winter War is titled a 'gross mismatch' as the Soviet Union, who won the war, had a 'massive advantage' in both manpower and material resources—but the per capita GNP of Finland was higher than that of the Soviet Union at the time.[85]

Belligerents' willingness to end hostilities in early 1940, argues Dan Reiter, meant that the war-termination behavior of leaders was directly

linked to military performance and information received on combat capabilities and intentions. Reiter set out to examine the reactions of the Soviet leadership to battlefield setbacks and the reasons why they ended the war and accepted limited gains instead of pursuing an absolute victory. Reiter argues that the reason for the fact that Stalin decided to lower Soviet war aims was the Red Army's 'unexpectedly poor' performance that harmed the reputation of the Soviet military. On the other hand, as the Red Army started to succeed, their demands increased. The Finns distrusted Soviet commitment credibility because they had proved untrustworthy by breaking neutrality agreements and initiating war. Yet, even with the mounting losses, the Finnish public displayed less eagerness for concessions than their leaders. Caitlin Talmadge emphasizes the role of civilian leadership in guaranteeing military effectiveness. She refers to the Winter War when making a point that a country, in this case the Soviet Union, can fight poorly but still achieve victory.[86]

A state's geopolitical vulnerability does not have any impact on its military effectiveness. For Charles A. Miller, Finnish soldiers were worth more than Red Army soldiers in the Winter War. Still, in the end the higher level of 'destructivity' does not count. 'Even if states with an advantage in destructivity are eventually overwhelmed by the sheer size of their opponents, as Finland was, they can still inflict substantial losses and gain significant concessions at the negotiating table, as Finland did.'[87]

The sufficiency of manpower is part of political effectiveness. Replacement policies are vital in a small country that has to ensure the combat power of its armed forces and grant exemptions to some industrial work force. Tomi Saikkonen concludes that in replacing the depleted field units the Finns could not follow their plans but had to create an improvised system.[88]

Good civil–military relations are a key factor in strategic effectiveness. The officers' advice to the politicians is addressed in various books. They have centered on the question whether it could have been avoided. Max Jakobson presented the dominant interpretation in 1955 (the English-language edition, *The Diplomacy of the Winter War*, was published in 1961). He focused on diplomacy and placed the war in its larger context. For him, the war had not been in vain: it was fought for values, independence and freedom, thus confirming the memoirs of key participants. Jakobson shows how the Winter War had an impact on Finnish identity. Keijo Korhonen demonstrated that Finland was not a separate foreign policy problem for the Soviet Union in the 1930s but was part of a bigger

geopolitical environment related to the rise of Germany. For him, the Soviet leadership was trying to avoid the conflict. The Winter War has often been called 'Erkko's war' after Foreign Minister Eljas Erkko, who advised the Finnish parliamentary delegates in 1939 against Mannerheim's warnings: 'Forget that the Soviet Union is a great power.' Juhani Suomi argues that the war could have been avoided. He acknowledges the legitimate security interest of the Soviet Union but notes there was a breach of mutual trust. It has often been admitted that Stalin's installation of a Finnish puppet government in November 1939 was a mistake that really united the Finnish people. Osmo Jussila asserts that this was a natural part of Soviet foreign policy since the age of Lenin, used again as late as 1979 in Afghanistan.[89]

The Finns trusted their political and military leaders. Vilho Tervasmäki argues that senior officers had easy access to the national leadership and they were generally successful in communicating their resource needs to the political decision-makers. The defense and foreign policies were synchronized, but there was strong civilian control in Finland. Yet when the war began, the president ceded all war powers to Mannerheim as the Commander-in-Chief. He now exercised some of the presidential powers. Kullervo Killinen concludes that dualism had prevailed before the Winter War between Mannerheim and the leading politicians. Mannerheim's advice was not listened to, and he had threatened to resign a couple of times. During the war, the Commander-in-Chief's realistic assessments of the situation formed the basis for the highest-level decisions. Thus that dualism did not exist anymore with regard to important decisions.[90]

Jorma Juottonen discusses the material development of Finnish defenses, procurement and mobilization of the Finnish economy during the interwar period. He shows how the Finns had manufactured weapons independently and under license and began modernization programs for obsolete weapons. Yet the Army's inventory at the outbreak of war was not large enough. Juottonen also explains the difficulties in purchasing war materials during the Winter War.[91]

In his standard study of national reconciliation from the perspective of interaction between foreign and domestic policies in 1933–39, Timo Soikkanen shows that by 1939 the Finnish people were reunited after the bloody Civil War of 1918 and that Finnish civil society had become more internally cohesive in the face of a common threat. For Soikkanen, towards the end of the 1930s there were no real turbulences in domestic policy and the economy was growing fast. These all further supported the strong will

to resist. Soikkanen writes that Mannerheim was a far-sighted figure who enjoyed large popular support. His idea of making minor territorial concessions to the Soviets in 1939 was intended to buy time to improve the Army's military capabilities.[92]

Anssi Vuorenmaa postulates that in the late critical stages of the war many strategic-level decisions were taken quickly, and they did not anymore 'reflect a directed and clearly defined defensive struggle' as set forth in operational plans. Wartime operations were not always integrated. The Finns managed to keep their focus of effort on the Karelian Isthmus and, even though tying up a bulk of their reserves, in the northern sectors they managed to cope with smaller forces. According to Vuorenmaa, this indicates a strong ability for improvisation on the part of the Finns.[93]

Strategic effectiveness usually includes alliance politics. Kari Selén asserts that Marshal Mannerheim as the head of the Finnish Defense Council worked adamantly all through the 1930s to achieve close military cooperation with Sweden but he ran out of time. In various studies part of the blame has been placed on the Swedish government who sought to remain neutral but gave material aid and allowed volunteers to go and help the Finns but refused to grant transit for the expeditionary force. Jukka Nevakivi argues that the Franco-British intervention offer did not materialize because the Finnish government did not make the appeal. The threat of the intervention mattered in Stalin's calculations, however, and he chose to conclude a negotiated settlement with Finland. Thus Henrik Tala, who focused on French aid to Finland, asserts that the myth of Finland fighting alone is not correct as Finnish survival was, in the end, conditioned upon French and British political support. They strengthened the Finnish position in early 1940 vis-à-vis the Soviet conditions for concluding a peace agreement. The French also started to make, as Patrick Osborn reveals, plans to bomb the oil fields in the Caucasus, which Stalin could not afford.[94]

Raimo Heiskanen demonstrates how Finnish military intelligence failed at the strategic level to warn that the Red Army was going to attack with significant forces along the entire border. Otherwise reconnaissance and information management functioned effectively on operational and tactical levels, enabling the army to assess situations, make sound decisions and conduct successful operations.[95]

Reino Arimo's three-volume study ponders the development of Finnish operational plans during the interwar period. Arimo maintains that these plans were put to the test and fundamentally proved right in the Winter

War. The worst scenario, a surprise attack without a declaration of war, did not occur.[96]

Very little academic work has been conducted on the aspect of operational leadership and its effectiveness. Raimo Heiskanen investigates the operational command activity of the ground forces. He sees it as successful because the doctrine proved its usefulness and limited resources were used in a centralized fashion with a favorable outcome. Field commanders could execute their orders with considerable flexibility, and with their men they showed 'immense adaptability' even to attritional warfare. On the other hand, the higher echelons of command often gave the troops too little time for preparations. The effectiveness of the Finnish armed forces primarily rested on the effectiveness of infantry, of which its best qualities the operational leadership could exploit as a tool of war to the Commander-in-Chief. Some operational orders were issued as challenges to push the infantry units to exceed their abilities.[97]

Lasse Laaksonen explains how in the last stages of the Winter War the Finnish defenses on the Isthmus were thin, and the whole resistance came very close to actual collapse. The Red Army was almost able to cut the Finnish lines of communication in March 1940 by their flanking attack along the ice of the Bay of Vyborg. According to Laaksonen, effective command was hindered by bad personal chemistry between Marshal Mannerheim and some leading Finnish generals. Mannerheim, who wanted to have tight control and did not accept dissenting views, appointed and dismissed commanders based on their personal traits. This manner suited his leadership style. Laaksonen also argues that the problems surfacing during the Winter War originated in many cases from schisms of prewar times.[98]

The studies on Finnish naval and air operations confirm that the Finns, indeed, utilized their scarce resources, effectively contributing to performance at various levels of war. It was mainly about the quality of troops that compensated for numbers. Kalervo Kijanen argues that it was of strategic importance that, despite the Soviet sea blockade, the Finnish Navy fulfilled its main task of keeping the vital sea-lanes open to neutral countries. For Petteri Jouko, the effectiveness of the Air Forces, like other services, was based on the skillful and concentrated use of human resources. However, as Risto Pajari argues, the Finnish Air Forces were too weak to support the ground troops. They received new planes but could not utilize them effectively because the swift training of new personnel to use them was not possible.[99]

The Finnish art of war is examined in a couple of studies. The 'official' histories of Finland in World War II were prepared under the auspices of the Finnish Army. In the first, *Kunnia—Isänmaa* (1942), the Finnish Army is portrayed in articles written by senior officers participating in operations and drawing lessons from all levels. In the late 1970s the four-volume, and more balanced, history of the Winter War was published. It is the organizational-, operational- and tactical-level history of the Finnish Army at war and provides a chronology of events.[100]

Y. A. Järvinen's comparative study on Finnish and Soviet tactics applied in the Winter War concludes that 'the defeat was not caused by the quality of Finnish tactics, nor can the victory be attributed to the level of Soviet tactics'. Correspondingly, Matti Aarnio argues for Finnish qualitative superiority. He ranks high the tactical effectiveness of the Finns. Aarnio calls the Finnish Army the 'People's Army of skiers' with an active spirit, enveloping through forest and hitting the flanks and the rear of the Red Army formations. The advantage enjoyed by the Red Army of strategic surprise preceding commencement of hostilities had been eliminated through time and defensive battles.[101]

Vesa Tynkkynen suggests that the leading Finnish tactical principles were the element of surprise, the center of gravity concept and the timely use of reserves. A primacy of the offensive prevailed, with more emphasis placed on defense only at the end of the decade. For Tynkkynen, *motti* tactics contributed greatly to the image of Finnish military effectiveness. Moreover, H. M. Tillotson argues that *motti* warfare aptly highlights the great Finnish ability for tactical adaptation. For him, 'the Finns were uninhibited by any rigid military doctrine or tactical theory'. Tillotson adds that they could place their competencies against the Red Army's weaknesses by applying 'their natural initiative and guile'. This was in sharp contrast to the Soviet army.[102]

The Finnish professional officer corps were up to their wartime tasks. At the level of Finnish battlefield (tactical) leadership, Pertti Kilkki has found that successful battalion and artillery battalion commanders in the Winter War were relatively old, in their early 40s, lending them authority. Educational background varied, but better-educated officers were in the southern fronts whereas the northern sectors had to manage with more poorly trained officers who still distinguished themselves and succeeded equally well. The commanders' successes correlated with their participation in continuation courses. On the other hand, Kilkki suggests, many intangible factors account for commanders' effectiveness. Antti Juutilainen

argues that those appointments were not usually determined by age and seniority but rather merits and qualifications. Many of them developed into true professionals, whose ideas in combat technique and tactics were disseminated to wider use. According to Olavi Sipponen and Martti Suhonen, company and battery commanders, who were almost ten years younger than battalion commanders, were central figures in the Winter War. They were, in many cases, champions and 'earthy father figures' with high mental endurance, and they led men from the front. The company-grade officers motivated and instilled fighting spirit (which was usually high in the first place) in their subordinates. In addition, Veikko Karhunen demonstrates that tactical-level effectiveness was increased by Finnish front junior (reserve) officers who served as platoon leaders and, to a large extent, as company commanders. They suffered proportionally the highest casualties too. According to Karhunen, well-trained reserve officers, 'who were the secret weapon', utilized the best qualities of the Finnish soldiers, and used common sense and continuously exhibited innovativeness and adaptability. He argues that the Finns simply sought to avoid the strengths of the Red Army, while using their own strengths in attacking their enemy's weak points using indirect methods. Finnish military effectiveness was due to the fact that they were able to inflict heavy casualties on the Soviets while minimizing their own losses through adherence to the law of least resistance.[103]

Literature is scant on Finnish military culture of the citizen soldier army and its ability for innovation and adaptation. There are just a few works to date that concern themselves with Finnish military culture and its formation during the 1920s and 1930s. The topic is treated in the standard peacetime history of the Finnish Army. The other culturally oriented works concentrate on different aspects, like ethnologist Pekka Leimu on the bullying of young privates as a process of group socialization, and historian Anders Ahlbäck on how universal male conscription militarized manhood. For Ahlbäck, the primary goal of the Finnish military education, 'the men's school', was to educate dutiful citizen soldiers to serve their country to protect their next of kin and the people, not to go to war for their military or political leaders' sake.[104]

Juha Mälkki's study examines how the citizen soldier and professional soldier armies—two parallel military cultures with their own self-understandings—developed within the Finnish defense structure and how their construction into 'the Miracle of the Winter War' took place during the interwar period. Mälkki, who drew upon oral history transcripts, argues that half of the

Finnish military capabilities during 1939–40 were generated from the specific art of war suitable for the conditions developed by professional soldiers. The rest, in his view, can be accounted for by the internal dynamics of the Finnish military organization. There were tensions between both organizations—official and unofficial—but fighting power was generated through compromise. The frontline citizen soldiers, who were difficult to handle and seemed undisciplined at first, functioned more in accordance with the organizational behavior patterns learned during peacetime forest work than those they had been taught in garrisons as conscripts. This unofficial disciplinary system and unorthodox behavior did not diminish the combat power of the Finnish Army. On the contrary, Mälkki argues, it significantly enhanced it. The answer was to train individual fighters. He adds that the values of the army matched generally accepted Finnish social norms. Mälkki also introduces the idea of 'linchpin' figures, junior combat leadership, who operated between the two organizations and who made it work. In sum, Mälkki offers one possible explanation for the Finnish Army's military effectiveness in the Winter War. This interpretation that focuses on sociological and cultural factors is useful, but it does not capture the entire multidimensional phenomenon.[105]

The Finnish military system was basically a cadre/conscript system but the 100,000 strong Civil Guard was like 'an organization within an organization'. It functioned in a similar fashion to the Swiss militia system. Kari Selén and Ali Pylkkänen demonstrate how important Civil Guard training was in the Winter War and how it greatly increased Finnish military effectiveness.[106]

The role of mental factors behind fighting spirit and endurance has been addressed by few researchers. Sampo Ahto's book title *Talvisodan henki* may be translated 'the Spirit of the Winter War'. It is actually a catchphrase that has been used since the war years to describe the extraordinary spirit that enables a small nation to remain united and successfully wage a strategic-level defensive war against a strong enemy. Ahto relies on archival documents, newspapers and periodicals to show that the Finns did not have an abundance of weapons and material resources to achieve their success. The only remaining explanation for him is their spirits, or the high morale of the Finns, emphasizing the non-material factors in military effectiveness. To conclude, Ahto asserts that in the Winter War the Finns simply closed ranks and fought with perseverance for their national and personal freedom. Tuomas Tepora examines morale on the Finnish home front. He argues that the high spirit was consciously constructed. It had

some negative undercurrents, and towards the end of the conflict, enthusiasm for the war was breaking down and sentiments of disillusionment were on the rise. It was generally felt that the glorious fighting ended in a shameful peace. For the Finns the Winter War was a highly moral and just struggle, and they felt they were defending their rights, freedom and democracy. For Michael Walzer the war was 'a paradigmatic example of the necessary defense'.[107]

It is noteworthy that the Finns were a religious people in the 1930s. Over 90 percent of them were members of the Finnish Lutheran (Protestant) Church, which supported the war effort. Jaakko Sillanpää shows that the war dead were brought home: some 85 percent of those Finnish soldiers killed in action were buried in the cemeteries of their home parishes. This had a huge impact on Finnish morale. Ilona Kemppainen has studied the ultimate sacrifice of these soldiers from the perspective of mourning. She concludes that during the Winter War, all of the Finnish fallen soldiers received hero status, and the Finns' attitudes towards them reflected the shared grief of the whole nation. The Winter War was portrayed as a holy war between the Christian Finns and the evil atheist Soviets.[108]

Some Finnish units experienced weeks of artillery barrages followed by continuous daily attacks without any hope of relief. Some units were even kept in line for the duration of the whole Winter War. It is obvious that the extended periods of front duty must have resulted in physical and mental exhaustion that decreased combat effectiveness. This exposure to intense situations imposed great strain on the fighting men, and some of them began to show signs of war-related mental breakdown. Ville Kivimäki looks at the ways in which Finnish soldiers coped with their mental burdens. He places these traumatic war experiences, psychiatric casualties and their medical treatment in the wider sociocultural and ideological framework of Finland in World War II. Surprisingly, Kivimäki argues, the number of confirmed cases of 'war neurosis' only adds up to less than 1 percent of the strength of the Field Army. It concerned mainly older reservists and hardly any leaders. The figure is very low by World War II standards.[109]

The question of the endurance of the Finnish troops has been studied by a former Swedish Army officer, B. G. Geijer, in his treatise on the Finnish stiff resistance at the Taipale River sector. Geijer investigates the Finnish soldier at war but fails to give a satisfactory explanation for the relative success of the Finns.[110]

Jouko Vahtola explores tank warfare. The appearance of Soviet tanks sometimes resulted in panic among the Finns. In the absence of anti-tank weapons the Finns' ability to take cover offered the best protection. Adverse conditions and other military geographical realities caused a great deal of mechanical breakages and prevented mass use of tanks. This favored the defender. Vahtola also asserts the 'the miracle of the Winter War' was the result of the sum of strong features of Finnish morale, as well as the weaknesses and poor morale of the Red Army.[111]

The maintenance of the fighting troops has also been studied by scholars like Markku Iskanius. Studies on logistical and transport systems confirm the effectiveness of resupply and logistics transportation. The Finnish State Railways provided operational mobility and transport services without interference by the Soviet Air Force.[112]

Pavel Petrov, who writes about trends in Soviet/Russian Winter War historiography since 1939, reveals that the Winter War was almost a taboo subject until the last days of the Soviet Union. Interpretations reflected and were in line with 'the official truth'. The Winter War was occasionally mentioned in published diaries and memoirs already in the 1960s. Some former commanding generals compared the Mannerheim Line to the Maginot and Siegfried Lines. The authors presented some criticism, and occasionally commented on Finnish tactical effectiveness. For decades the war was portrayed in a positive light. Only in memoirs published since the 1990s have the problems—and even miscalculations and failures—of the Red Army been admitted. Some authors point out the Red Army's failure to exploit their quantitative advantages in manpower and materiel. The impact of Stalin's purges on the officer corps is also mentioned quite frequently. The Winter War has sometimes been viewed as a partial success for the Red Army or as a botched campaign.[113]

Soviet–Finnish diplomatic relations in the 1930s and the reasons for the Winter War have received a great deal of attention in Russian scholarship. For a long time the 'Finnish campaign' was portrayed as a local conflict or 'border clash'. The subsequent Great Patriotic War overshadowed earlier events. Petrov writes that during the Soviet period, none of the authors questioned the necessity of the Winter War. It had been fought because the Finns did not give in and the security of Leningrad and the northeastern borders of the Soviet state had to be protected. It was common to understate Finnish neutrality, blame the Finns for being 'hawkish' and claim that the Finnish territory was a bridgehead for Western aggression

against the Soviet Union. The authors agree that Stalin had been able to meet his minimum demands and guarantee the security of the city of Leningrad. The Soviet Union had been expelled from the League of Nations. This political cost and the repercussions of the war have rarely been commented upon by Russian scholars.[114]

Petrov also describes how the declassification of many Soviet documents pertaining to the Winter War has led to growing interest among researchers. Juri Kilin adds that since the late 1980s, earlier interpretations of the conflict were, from then on, speaking about undeclared real war. However, the new Russian contributions on the topic have been rather fragmented and no real comprehensive accounts have been written. Due to the lifting of earlier censorship many documentary collections have been published since the early 1990s. Russian and Finnish scholars have held seminars and published joint edited collections in which they employ comparative approaches. Some Russian authors have had access to Finnish archival material. For example, Bair Irincheev's book still takes the Red Army perspective, and as is typical of Russian authors, still concentrates on operations in the Karelian Isthmus.[115]

There have been some attempts by Anglo-American authors to study the Winter War. Carl van Dyke concentrates on the Red Army's performance and offers useful insights into its problems. Drawing on his investigation into Russian archives, van Dyke identifies the initial failures of the Red Army and shows how the Soviet military leadership learned from their earlier experiences. By February 1940 the Soviet commanders no longer misjudged the Finns. The breakthrough of the Mannerheim Line was carefully planned and executed. Most of the other existing Anglo-American books on the Winter War by writers such as Allen F. Chew, Eloise Engle and Lauri Paananen, William R. Trotter, Robert Edwards and Gordon F. Sander are either now out of print or merely journalistic popular heroic narratives that are mainly based on earlier literature in English.[116]

It is surprising that none of the above-mentioned Finnish or other works on the Winter War has devoted much attention to the various facets of Finnish military effectiveness. They are often focused only on some aspects of the phenomenon. The authors have generally neglected to explain how it was possible for the Finns to achieve and maintain the level of military effectiveness needed to sustain war and ensure their national survival. Therefore, this study aims to fill that gap and provide a thoroughly researched historical analysis of the performance of the Finnish

armed forces in this conventional total war. It will also utilize many hitherto unexploited Finnish and Russian archives, and introduce this material and the fruits of scholarship in the belligerent's own and Scandinavian languages to English-speaking audiences.

## Notes

1. See, for example, Chew 1971, *passim*; Engle and Paananen 1973, *passim*; Millett, Murray and Watman 1986, 38; Millett, Murray and Watman 1988, 2; Trotter 1991, *passim*; Gudmundsson 1993, 287; Keegan 1997, 86; Sander 2013, *passim*; and Julkunen 1975, *passim*.
2. *Finland in the Second World War: Between Germany and Russia*.
3. Vehviläinen 2002, 16–45; Korhonen 1971, *passim*.
4. Tuunainen 2012a, 140–2; Vahtola 2015, 60.
5. Jussila 1985, *passim*; Jakobson 1961, 170–2.
6. Tuunainen 2012a, 143–4, 177.
7. Selén and Pylkkänen 2004, 432–56; Alajoki 1975, 168–227.
8. Tuunainen 2012a, 142–3.
9. Manninen 2008, 40–52; Vuorenmaa 1994, *passim*.
10. Tuunainen 2013, 121–47.
11. van Dyke 1997, 135–78; Tiilikainen and Pusa 2005, *passim*.
12. Vehviläinen 2002, 53; Iskanius 2004, 47–51; Sovijärvi 1957, 160–90.
13. Komulainen 2000, 35–51.
14. Palmu 1989, 46–68; Pajari 1971, 223–4.
15. Nevakivi 1976, *passim*; Nevakivi 2000, *passim*; Rentola 2012, 1089–1112.
16. Kilin and Kilina 2010, 76–7; Tuunainen 2012a, 172; Geust 2011, 293; Kantakoski 1998, 284–6.
17. Millett, Murray and Watman 1988, 3; van Creveld 1982, 3; Interview with Allan R. Millett 4 Sept. 2013; Talbott, ed., 1970, 138–41; Nielsen 2005, 76–7. See also Millett and Murray, eds., 1988a-c.
18. Overy 1995, 5–6.
19. Biddle 2006, *passim*, 193; Biddle 2007, 207; Grauer and Horowitz 2012, 83–112.
20. Lyall 2012, 2–38; Lyall 2014, 1–51.
21. Lake 1992, 31; Reiter and Stam III 2002, 70 and *passim*; Reiter and Stam III 1998, 377–89; Biddle and Long 2004, 525–46; Desch 2008, 3–5, 25, 37; Pilster and Böhmelt 2012, 355–71.
22. Bennett and Stam III 1998, 344–66; McNabb Cochran and Long 2015.
23. Desch 2002, 5–47; Desch 2008, 5–7, 24–6, 71, 170, 176; Biddle 2004, 525–46; Beckley 2010, 43–79; Miller 2013, 2–5, 152, 432.
24. Posen 1993, 80–1, 120–2.

25. Huntington 1957, 83–5; Weigley 1988, 345; Janowitz 1960, 349–50; Cohen 2002, xi, 4–5, 10, 173–248.
26. Desch 2001, 3–7, 11–4, 18, 96, 114, 123.
27. Talmadge 2011, 9, 23, 31–4, 46, 290–1, 295.
28. Murray and Millett 1992, 6–18; Mahnken 2002, 17, 162–74. See also May, ed., 1984.
29. Brooks 2008, 34–53.
30. McKercher and Legault, eds., 2000, *passim* and Aster in ibid. 167–71.
31. Imlay 2006, 154; Imlay and Duffy Toft 2006, 249–60.
32. Stam III 1999, *passim*; Reiter 2009, 2–3; Murray 2009, 1–30.
33. Long 2015, 3.
34. Murray and Grimsley 1995, 1–23; Knox 1995, 614–45; Murray 2011, 1–2.
35. Sondhaus 2006, *passim*; Gray 1999, 135. See also Murray and Sinnreich 2014.
36. Posen 1984, 220–44; Kier 1997, 12–4, 27–32.
37. Avant 1994, 130ff.; Snyder 1984, 199; Fair 2014, 278–82.
38. Farrell 2005, 2, 173, 183.
39. Murray 2001, 160–1, 172–3; Murray and Knox 2001, 187–8; Hull 2005, 98 and *passim*; Citino 2005, 306–12.
40. Black 2012, 153–74; van Creveld 1982, 11–7; Barua 2013, 141–62; Pollack 2004, 1–13. See also Talmadge 2014 and Talmadge 2015.
41. Cohen 1985, *passim*; Neiberg 2000, 5; Rosen 1995, 29–30.
42. Rosen 1991, 134–43; Cohen and Gooch 1990, 233–46.
43. Goldman and Eliason 2003, 8–9.
44. Hamburger 1997, 5, 11, 19; Doubler 1994, 269–72; Bickel 2001, 17–8, 43–50; Russell 2011, 16, 209.
45. Jackson 2005, ix; Powell 2010, 186–96.
46. Daddis 2011, 10–8.
47. Gudmundsson 1989, *passim*; Samuels 1992, *passim*; Samuels 1995, *passim*; Muth 2011, 173. See also Ramsay 2002, 205–7.
48. Siebold 2007, 286–95; Pipping 2008, *passim*; Stouffer et al. 1949, *passim*; Shils and Janowitz 1948, 280–315; King 2013, 374; Madej 1978, 233–48.
49. van Creveld 1982, 3–5, 165, 170.
50. Watson 2009, 34, 62, 107.
51. Strachan 2006, 211–27; Newsome 2007, 156 and *passim*.
52. Richardson 1978, *passim*.
53. Fennell 2011, 9–10, 282.
54. Reese 2011, 3–11; Reese 2008, 831–4, 850–1.
55. Jessup 1988, 256, 274.
56. Lewin 2012, 1–16.

57. Lyall 2012, 4–30; Lyall 2014, 1–2.
58. Castillo 2014, xi–iii, 1–43, 216–26.
59. Cushman 1988a, 323, 326–7, 332. See also Cushman 1988b.
60. Murray 2001, 160–1, 172–3; Murray and Knox 2001, 187–8.
61. Watson 2009, 108, 122–3, 139.
62. Barry 2013, 4–7, 177–89.
63. Miller 2013, abstract; Kennedy 1988, 348; Weigley 1988, 342; Jessup 1988, 256.
64. Long 2015, 335–48.
65. Brooks 2007, 2–3, 9–13, 20–22 and *passim*.
66. Dunigan 2011, 33–5.
67. O'Dowd 2007, 46.
68. Dupuy 1979, *passim*; Dupuy and Hammerman 1980, 1, 8, 14; Erickson 2007, 144–56.
69. Hayward 1968, 316–8; Lynn 1996, 21–40; Mansoor 1999, 3, 265; Harinen 2008, 20; Pipping 2008, 72–80.
70. Reiter and Stam III 1998, 259–77.
71. van Creveld 2004, 231, 250.
72. Millett, Murray and Watman 1988, 2–3; Weigley 1988, 364; Murray 1992, 15.
73. Murray 1999, 27–42; Millett and Murray 2010, xiii; Knox 2000, x, 3, 177. See also Murray 2011b, 83–97.
74. Murray 1996, 300–28; Murray 2011a, *passim*; Millett 1996, 359, 367–8; Millett and Murray 2010, xiii–xv.
75. Tynkkynen 1996, 11; Millett, Murray and Watman 1988, 19, 25.
76. Murray 1992, 31; Millett, Murray and Watman 1988, 2, 26–7; Millett and Murray 2010, xvi; Ziemke 1988, 6; Kennedy 1988, 349.
77. Cushman 1988a, *passim*, and Cushman 1988b, *passim*.
78. Elman and Elman 2001, introduction, 165.
79. Ibid.
80. Tuunainen 2006d, 197.
81. Millett, Murray and Watman 1988, 21; Cushman 1988, 333.
82. Reese 2011, 87–93 and *passim*. See also Reese 2008, 825–52.
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85. Desch 2010, 27–9, 32–4, 67, 172.
86. Reiter 2009, 1, 6, 53, 121–30, 214–7; Talmadge 2011, 9, 23, 31–4, 46, 290–1, 295.
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90. Tervasmäki 1978, 38–45; Tervasmäki 1987, 10–61; Meres-Wuori 2014, 65–6, 84–9; Killinen 1983, 55–64, 67–72, 94. See also Killinen 1956.
91. Juottonen 1997, 239–45.
92. Soikkanen 1984, 372–90.
93. Vuorenmaa 1985, 94–5.
94. Selén 1980, 303–14; Nevakivi 1976, *passim*; Nevakivi 2000, *passim*; Tala 2014, 281–7; Osborn 2000, 75–138.
95. Heiskanen 1989, 66–77; Heiskanen 1996, 184–5.
96. Arimo I–III 1986–87, *passim*.
97. Heiskanen 1996, 175–9.
98. Laaksonen 1999, 337–67; Laaksonen 2014, *passim*; Laaksonen 2011, 377–99.
99. Kijanen 1968, 305–6; Jouko 2014, 7; Pajari 1971, 253.
100. Tuompo and Karikoski, eds., 1942; *Talvisodan historia* I–IV 1977–79.
101. Järvinen 1948, 258; Aarnio 1966, 237–8.
102. Tynkkynen 1996, 189; Tillotson 1993, 147.
103. Kilkki 1972, 187–8; Juutilainen 1985, 178–86 and *passim*; Sipponen and Suhonen 1963, 176–9; Karhunen 1974, 329–36.
104. Kronlund, ed., 1988; Leimu 1985; Ahlbäck 2010, 188, 190–1, 289, 293–4, 298, 303–4. See also Ahlbäck 2014.
105. Mälkki 2008, *passim*.
106. Selén and Pylkkänen 2004, 432–56.
107. Ahto 1989, *passim*; Tepora 2015, 197–307; Walzer 2006, 73.
108. Sillanpää 2002, 29–82; Kemppainen 2006, 261–3.
109. Kivimäki 2013, 19–46.
110. Geijer 1955, *passim*.
111. Vahtola 2015, 367–9.
112. Iskanius 2004, 44–58.
113. Petrov 2013, 70–86. For purges see Hooton 2013, 1–105.
114. Petrov 2013, 88–104.
115. Kilin 2007, 83–5; Vehviläinen and Rzesevski 1997, *passim*; Irincheev 2011, *passim*.
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CHAPTER 2

# The Origins of Political and Strategic Effectiveness

## Political Effectiveness: Organizing for War

### *Attempts to Secure a Fair Share*

As Millett, Murray and Watman assert, in order to be effective the military leaders must secure cooperation with the national political elite. For them, the military's political effectiveness is actually 'the effort to obtain resources for military activity and the proficiency in acquiring those resources' that are financial support, sufficient military-industrial base and manpower (in terms of numbers and quality), and 'control over the conversion of those resources into military capabilities'.[1] In this respect the Finnish military fell short.

The Winter War was a total war. In their pursuit of an effective defensive war, it was crucial for the military to secure the availability of Finnish financial, industrial, technological and manpower resources. They managed to mobilize most of the available resources to support the war effort. This, however, did not come easy. After independence in 1917, the emphasis of the Finnish government had been on improving the living conditions of the people that had been divided after the bitter Civil War of 1918. The needs of the Defense Forces were considered secondary to other more urgent needs within society. The passing of social legislation and increasing benefits eventually worked in the military's favor as it enhanced the fighting spirit of the majority of Finns. The undertaken social reforms made society more equal, boosted citizen morale and gave even the poorest something to defend.[2]



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The ability of the Finnish military to fulfill its tasks was impaired by the lack of resources, and it had had to compete with others over scarce resources. The military made plans all through the interwar period and appointed various committees whose pronouncements did not usually result in concrete actions. Even in times of financial austerity, legal steps were taken to make resources available to the military in the event of a war. The senior officers had attempted to secure their fair share of the national budget to meet the military's needs. Yet prior to the war they had succeeded only partially in doing this. The soldiers could not correct the budgets in a system under civilian control. Traditionally the politicians, who did not conform their behavior to the realities of the deteriorating security environment, have wrongly been blamed for shortsightedness. The military leaders' performance was only satisfactory, and the military's political influence was curtailed to some extent because senior officers had failed to articulate their resource needs to political leaders who were not opposed to allocating resources to the Army to develop and maintain military preparedness. Even with clear threat perceptions and knowledge of the capabilities of the only potential aggressor, the officers could not properly communicate their needs of the sinews of war to the political decision-makers who did not completely let down the military but lacked broad political will to commit abundant material resources to defense purposes until it became too late.[3]

The level of Finnish prewar military expenditure and arms acquisitions fluctuated, and it was for long approximately 15–20 percent of the GNP, which was less than in most of the Western European countries at the time. Finnish defense budgets were constrained due to the recession of the 1930s. The War Economy Department of the Ministry of Defense, responsible for purchases, drafted an emergency program in 1936–37 to ensure at least an adequate level, but after parliamentary debates it was approved in a cut version in May 1938.[4]

The share of Finnish defense spending grew to 23 percent in 1938, 48.2 percent in 1939, and 63.2 percent in 1940. Economic potential did not allow more, and output was very small compared to that of the Soviet Union, which possessed virtually endless resources, what Michael C. Desch calls a 'gross mismatch'. The fact that allocations were growing at the end of the 1930s marked a change in the way in which the economy and society were prepared for conflict. The dark clouds gathered over Europe, and for military leadership it was not enough. The situation was aggravated by the fact that larger-scale refresher training had been neglected for financial reasons.[5]

Marshal Mannerheim pointed out to the politicians that more was needed. This resulted in quarrels between himself and the Treasury Secretary Väinö Tanner. Also Prime Minister A. K. Cajander was strongly favoring civilian expenditures over military ones. In August 1939, Cajander gave a widely publicized speech in which he remarked that he is happy that the Army has not been allowed to purchase great amounts of ordnance to 'rot away' in stockpiles. This, understandably, irritated many. As a result, one of the divisions of nine was without heavy equipment, and thousands of soldiers had only been issued a rifle, belt and insignia. Those soldiers were to be called 'Model Cajanders'. When soldiers put on white clad protective clothing, they started to look like winter fighters.[6]

In terms of material preparedness, the Finns entered the war insufficiently armed and ill-equipped. Yet, as Jari Eloranta has shown, compared to many European countries the Finns had invested rather large sums to defense purposes during the interwar period. Many of their weapons were obsolete, and the biggest shortages were in anti-aircraft and anti-tank weapons. None of the services had been able to secure enough from the national budget during the interwar period. The main service, the Army, received roughly half of the total acquisitions. Yet the Navy, which was not to play an important war-fighting role as the winter had set in, had received until 1930 a disproportionate share of almost 30 percent of resources while the Air Forces had to settle for 20 percent. Battleships represented the copying of great powers, and turned out to be too expensive for a small nation. In the 1930s the figures were reversed. Shortly prior and during the war most Finnish foreign trade was concentrated on acquiring material needed for prosecuting war, and exports served to get foreign currency to pay for it. Thus imports were actually part of military logistics. This was made to cover for the mistakes made in defense spending before the war.[7]

### *The Existing Inventory and Domestic Research, Development and Production*

The Winter War was also an industrial war in which it was vital for the military to secure access to Finland's engineering and production capabilities. The soldiers succeeded better in this task than in obtaining appropriations. However, the military leaders and planners could not foresee the demand. The Finns built their own weapons and imported ordnance from various countries. The country's industrial, technical, research and developmental capabilities, ability to communicate their needs, supervision and monitoring

of production and trials and testing activities of the products were organized with mixed success. It helped that the Finns had kept abreast of technological development, and that their country was technologically advanced. The technical competence of the Finnish steel and metal industry was at a high level. The Finnish weapons industry had a reputation of producing reliable and practical hardware. Regardless of small production figures, the quality of military technology was never an issue itself. Appropriate quality control, specifications and standardization, as well as the high-level training of engineers, guaranteed high-quality products.[8]

Yet the Finnish Army lacked modern weaponry. At the start of the war, their stockpiles consisted of many obsolete Russian weapons that dated back to World War I, or to even earlier times. Every soldier could be issued a rifle, but the Army's inventory included some obsolete 0.42 caliber Berdan II rifles from the nineteenth century. Jorma Juottonen points out that to overcome these problems the Finns had initiated various development programs, and experimented with weapons systems, such as rapid-firing weapons and mortars. There was controversy among the soldiers about the caliber of anti-tank rifle that delayed the whole project.[9]

The Finnish military benefitted greatly from the works of some innovative individuals. The most notable of them was the weapon designer Aimo Lahti. His main work was the submachine gun design based on the Bergmann MP18. During the 1920s, Lahti came up with the 9 mm Suomi submachine gun Model 1931 that was accurate and had a high rate of fire. This durable weapon suited the Finnish Army, which consisted mainly of light infantry. The battles in the northern forests proved the usefulness of the Suomi submachine gun, ideal for combat at point-blank range. However, a considerable hindrance to effectiveness at the infantry squad level was that Suomis, due to their high production costs, were in short supply. Lahti also designed a light machine gun, the 7.62 mm Lahti–Saloranta Model 1926, and improved the sights of the 7.62 mm Mosin Nagant rifle. Lahti's other designs included a 9 mm pistol, a 7.62 mm anti-aircraft machine gun, a 20 mm dual anti-aircraft gun and a 20 mm anti-tank rifle.[10]

Finnish field artillery was a mixture of old and new, mainly captured field guns of Russian origin. At the start of the war, Finland had merely 33 field artillery battalions with guns of mainly light calibers. Only four battalions were equipped with heavy artillery pieces. In November 1939, the Finns possessed a total of 502 field guns with recoil systems and 174 without recoil systems. When the war ended, these figures were 647 and

307, respectively. In addition, they had some 800 mortars. A big problem was that the Finnish artillery had less than 300,000 shells, which would last just a couple of weeks.[11]

The Finnish armored units were token forces. The 32 tanks had been purchased without main weapons. On the other hand, during the war Finns obtained altogether 288 tanks and 35 armored cars as war booty.[12]

In 1927, the Finnish parliament passed a law for the development of the Navy. It included the building of two battleships and four (later one more) submarines. Submarines had been constructed in secret cooperation with the Germans at Chrichton-Vulcan dockyards in Turku. Four motor torpedo boats were purchased from England increasing their number to seven. The Navy had six small minesweepers, four gun-boats and a large minesweeper. The wartime plans of the Navy also included the taking of coastal guard and civilian ships, such as patrol boats and icebreakers, which were to be armed. They were to be used in various roles, including escort, transport, liaison and minesweeping missions.[13]

In 1917 the newly independent Finland had inherited the coastal artillery system that the Russians had built in the 1910s to block the Gulf of Finland and to protect the city of St. Petersburg. At the time it was a quite modern system with many strong permanent defenses counterbalancing the relatively weak Navy. It is highly unlikely that the Finns could have afforded a similar system had it not been left by the Russians. In the formative years of their coastal artillery, the Finns strengthened the existing batteries and constructed new coastal artillery installations along the northern shore of the Gulf of Finland. They also built new heavy batteries and created the Ladoga coastal defenses practically from scratch. Some guns were removed from the demilitarized and unfortified Åland Islands and were relocated in the east.[14]

In the Winter War, the latest science and military technology did not prove decisive as the adverse weather conditions and subzero temperatures caused fluids (especially in the recoil systems of some guns), greases, lubricants and batteries to freeze. Therefore, the Ministry of Defense's Chemical Testing Branch had conducted the testing of materials to match the severe demands and circumstances of the Arctic winter. The most significant innovation was a termite box capable of setting a tank on fire. The work of the explosive branch focusing on gunpowder, explosives, detonators, fuels and lubricants was also relevant in the war. Different services and branches had also conducted their own technical research.[15]

The best minds were employed from academia to bolster the war effort. A notable Finnish chemist, A. I. Virtanen, the 1945 Nobel prize-winner, participated in the development of Molotov's Cocktails that were produced in large numbers in Alko corporation's alcohol distillery. In addition, Professor Rolf Nevanlinna renewed the firing charts for artillery, and he and some other mathematical geniuses were also employed by radio intelligence services.[16]

### *The Readiness of the Defense Industry*

The technical preparedness of the Finnish defense industry had improved since the 1920s with the establishment of state-owned gunpowder, cartridge, rifle and gun factories. The Tampella company manufactured 81 mm light mortars that were originally based on the British Stokes–Brandt mortar. Still, the political effectiveness of the Finnish military was diminished by the lack of proper prewar procurement arrangements. This is indicative of the inadequate preparation and management of the effort of gaining access to industrial and technological resources. The plans for economic mobilization were made rather late. In March 1937, industrial districts were established. Good relations existed between the military and industrial circles and a number of companies had contracts with the Defense Forces. Yet only one third of the studied 1500 supplier companies were considered suitable as contractors to the Defense Forces in 1938. Moreover, just 126 out of 500 companies designated for war production had produced anything or received trial orders before the war. After trial orders it was found out that just 24 factories were suited for ammunition manufacturing. The Finnish industrial mobilization was actually conducted after the war had broken out. Few factories possessed the capacity to immediately expand or modify their production to meet the demands of the military. In many cases machines had to be converted. The suppliers did not reach their full capacity in those three-and-a-half months that the war lasted.[17]

There were serious shortages in artillery shell production. The Military Purchase Act of 1938 had been cut down to allow only one shell press for the gun factory, even though the need would have been for three. Further delays were caused because factories were to be relocated in caves. Technological know-how to produce 81 mm mortar shells by casting was acquired from France in early 1939. After the outbreak of World War II in September 1939 hasty actions were taken. The Finns quickly sent their

representatives to Germany to purchase machinery needed in ammunition production. The orders arrived in early October. They also adapted, as the case of producing aluminum parts for Schneider–Remondy fuses illustrates. No one in Finland had the blueprints for the actual devices nor for the tools to produce them. Yet the GWS Company swiftly invoked their designers, turners and filers and changed its production lines to accommodate reasonable production figures.[18]

### *Foreign Acquisitions and Production Under License*

The Finnish industrial and resource base was small, and the production capacity was limited. They could not manufacture weapons and ammunition themselves in sufficient quantities. As the production could not match the need, they turned to Western Europe. Financial constraints affecting acquisitions sometimes changed the way in which services functioned. For example, the purchases for the Finnish Air Forces were influenced by tactical thinking and operational plans. In the early days the developmental work had been done by foreign professionals. Advice had been sought from Germany, France and Britain. In the early 1930s, it was realized that the preparedness of the Finnish Air Forces was questionable due to poor equipment. Reorganizations and operational planning were commenced in 1933. It included a series of tactical-technical experiments.[19]

Fiscal constraints and hesitation in decision-making are illustrated in the case of the Finnish Air Forces in the 1930s. There were debates about whether to purchase sea or ground planes, and later whether to buy bombers or fighters. The proponents of bombers were fond of Douhetian theories of strategic terror bombings. Both were bought. The Air Forces figured that 17 squadrons was a minimum for wartime. A purchase program had taken place during 1934–38. It was a cut-down program to acquire just 12 squadrons. It included a purchase of a squadron a year and the update of obsolete aircraft. Only after 1938, with some increases in defense spending, it was too late because the threat of war had lifted the prices of aircraft and the delivery times were considerably prolonged. The fastest way to purchase new aircraft was to change the bombers (offensive Air Forces) next on the list to fighters. This also marked a shift in the path towards more defensive, fighter-based Air Forces. The new plan included 11 squadrons. The Defense Council approved the purchase in the spring of 1939 of additional fighter planes. But the situation in Europe prevented it.[20]

The Finns were the first foreign customers to purchase the British Blenheim Mk. I bomber plane. In 1936, the Finns ordered 18 aircraft, and in 1938 they obtained a manufacturing license. They also built under license Dutch Fokker D XXI fighters, which formed the backbone of their Air Forces, and Fokker C X reconnaissance and liaison aircraft. The aircraft were constructed at the State Aeroplane Factory. The Finns greatly benefitted from access to the latest Swedish military technology that they could exploit. There was intensive cooperation with the Bofors Company. It concerned mainly 37 mm anti-tank and 40 mm anti-aircraft guns.[21]

### *The Quantity of Manpower: The Field Army and Personnel Replacement System*

The Finns understood that they needed to do everything possible to compensate for the huge manpower advantage enjoyed by the Soviet Union. After their independence in 1918, the Finns introduced a universal and compulsory military service. The National Service Act of 1932 stipulated that the rank-and-file conscripts would serve a period of 350 days and future reserve officers and NCOs 440 days. However, the levée en masse was far from complete; 110,000 able-bodied males had not been trained due to fiscal constraints. Not everyone could meet the standards, and many were disqualified for medical reasons. As a result, at the beginning of the war they could muster just 280,000 men. In early February 1940, after massive requalification, the figure of military personnel peaked at 361,925, which was equal to 9.3 percent of the whole population.[22]

The importance of the Civil Guard organization was notable as the peacetime leadership cadres of the Finnish Army were not enough for nine divisions. Thus the Civil Guard cadres formed the backbone of the wartime army. Every third soldier was a Civil Guardsman. The reservists were called up to fill the ranks. The Civil Guardsmen were incorporated into the Field Army, especially as NCOs. They were, as Kari Selén argues, truly a considerable factor enhancing Finnish military effectiveness at the tactical level. In addition, home defense was in the hands of those freed from service and older generations. The Home Corps took care of the training of the Field Army and its replenishment. This made it possible for the Army to concentrate solely on war fighting. All able men could be sent to the front.[23]

It was imperative for Finland as a small nation to carefully select those to be used in fighting troops. Equally important was to consider the

manpower needs of the civilian sectors. The labor question was solved so that the factories participating in armament production were granted exemptions as some skilled workers were declared essential to the war production. Still there were acute shortages of manpower. Many forms of civilian production were stopped and the war effort was prioritized. Ammunition factories relied on women and other non-combatants. Lotta Svärd, the women's auxiliary corps, took over many supporting tasks thus freeing men to front-line duties. Toward the end of the war both front-line units and war production required additional manpower resources. A practical solution to these shortages was balance transfers. Workers were transferred to war production from construction and wood-processing industries. Eventually this was not enough and other steps were taken to guarantee sufficient human resources for factories vital to defense. However, manpower shortage did not significantly affect defense capabilities.[24]

The fighting units were strengthened by distributing fresh troops and exchanging troops between the home area and the front, as well as establishing new units. According to law, manpower resources were divided into different categories: the standing army, the reserve and militiamen from classes I to III. According to the plans, only the standing army and the reserve would form the Field Army in the event of a war. That meant altogether 25 age groups (altogether 280,000) was the maximum number of men that could be temporarily kept in service. These numbers also included the personnel to be used for replenishment. The first class of militiamen consisted of those men under 45 that were too old for the reserve. The second class were those exempted from service during peacetime, and the third class were those men under military age (20) that had not completed their national service. All these were to be used as second-line reserves. The best were deemed those who had already been drafted but who had not begun their service and those elderly men who had done their service. In addition, there was the trained reserve of older men.[25]

In the planned Finnish replenishment system, every field division consisting of 10–12 battalions had two field replacement battalions (15–20 percent of its strength). At the start of the war casualties were sporadic and reasonably minor, enabling the transfer of reinforcements from the designated replacement battalions that were replenished from field replacement divisions. The casualties of the covering forces in the delaying action period never exceeded 10 percent, which was the criterion for ordering replenishments. However, with mounting casualties in the front lines it was soon realized that the number of troops needed to deter

the enemy were not available, and the system would not suffice. It had to be changed immediately to accommodate the grave situation. The organizational changes were made under pressure and some temporary measures were started. It would have been too slow to form completely new units. The solution was to send the most prepared and ready units to the rescue. The principle of replenishment lost its character as the entire home replacement brigades and divisions were sent to the front to reinforce the Field Army. After the fighting retreat phase in December 1939 the situation was stabilized all along the fronts, but only after the concentration of new forces. The quick action helped to slow down the Soviet advance giving the Field Army better possibilities for future operations. Even though this happened at the expense of replenishment capabilities, in the long run the decision saved human resources as the force ratios were balanced.[26]

One form of replenishment was the establishment of completely new units. This happened continuously to match the superiority of the enemy. These new units were composed of the latest recruits that could not be sent to the front as of yet. Militiamen were the main body to be used for replenishments. However, recruits also had to be used later on. The FHC weighed up the options between the formation of new troops and the personnel to be selected for replenishment, thus causing week-long delays. During that time the front-line units were depleted and their replenishment became a harder task. In addition, their combat effectiveness diminished. The home replacement divisions were concentrated as new formations, and finally the same happened to home replacement battalions to replace the field units, especially in the northern fronts that had to do without other replenishments.[27]

The amalgamation of worn-out units was found to be worthwhile. This way their combat effectiveness was restored. Despite larger areas, the smaller number of units could still fend off enemy attacks. It could not be done without reserves, which often had to be formed from supply units. In February 1940, new infantry units were established from Navy personnel. They did not always have appropriate training, which caused additional casualties, but in those circumstances it was felt necessary. On the other hand, in anticipation of the Soviets landing on the Åland Islands and the Hanko Peninsula, the Finns had kept forces ready. As these fears did not materialize, the majority of those fresh infantry forces were sent elsewhere where they were urgently needed.[28]

Another principle towards the end of the war was to replenish field units by individual men or small groups from the training centers that were the only collecting point in the absence of field reinforcement troops.

The field forces were reinforced in small batches from various training centers. This meant that the troops were no longer regional as was the original idea of the regional mobilization system. Earlier the replenishment men came from the same areas as where the unit's personnel was from. This regional character created cohesion but in some cases heavy casualties were inflicted on men from the same area. The corps commanders were responsible for the reception and distribution of replenishments to the divisions. They did not have the means to send the replenishment to those divisions that were in desperate need of them. There was no organ to do the job, which caused delays in this practice.[29]

The FHC regulated the replenishment actions. Its workload, however, was huge and the supervisory measures proved vague. Military effectiveness decreased in the absence of field replacement battalions, the most important replenishment units, in which the new men could be gradually trained and receive war experience. The replenishment was not balanced even though the intensifying battles would have called for more sure practices. Without designated organs, the divisional commanders were forced to send their reinforcements directly into battle. At the end of the war the training centers took the role of guiding organs. The tasks of the training centers proved impossible due to the continuous need for replacements on the part of the Field Army. The battles raged and the troops were badly depleted. As the war dragged on, the Red Army attacks started to wear down Finnish human resources, and the replenishment situation was becoming critical, although a new generation of recruits had been called up. Tomi Saikkonen argues that Mannerheim's order to move all 14 recruitment battalions from the training center (third-line reserves) to behind the front was daring. They were ready, if the worst materialized, to secure the back lines and fill the holes.[30]

Furthermore, the Finns received help from foreign countries. Some 12,000 volunteers enlisted in the Finnish Army but the majority of them arrived too late see any action. The only groups of operational significance were more than 10,000 Scandinavian volunteers. The 8700-strong Swedish brigade was deployed in Lapland in late February 1940 and it took responsibility of the Salla sector in cooperation with 700 Norwegian volunteers. The Scandinavians freed a Finnish infantry regiment to the Bay of Vyborg area where the situation was becoming critical. The Swedish-Norwegian contingent was supported by an air force detachment with 16 aircraft equaling almost one third of the Swedish Air Forces. Other notable groups of foreign nationals included North American Finns, Britons and Hungarians.[31]

### *The Quality of Manpower*

Paul Kennedy writes that in order to secure a high level of military effectiveness, militaries need to have 'well-trained and motivated soldiers who know how to fight and who have the right weapons to do so'. Moreover, the armies should have in them a kind of 'self-questioning, problem-solving facility'. Imaginative personnel were also a prerequisite for effective action.[32] In this respect, the Finnish Army scored high marks.

The Finns felt that material disadvantages were to be balanced by better training and tactics. They were to be made qualitatively better than their adversaries. The Finnish Army trained the recruits. The Civil Guards were a support organization that took care of its members' physical fitness. They also organized all kinds of military training and exercises for reservists who could voluntarily develop their skills and advance within the ranks. This practice was very practical and it saved the scarce resources of the Army. With their clear training role the Civil Guards were assigned the task of wartime training of replenishment personnel.[33]

Thanks to the Finnish educational system, the Finnish conscripts were easily trained. There was universal schooling in Finland. The exceptionally high literacy rate correlated with learning capacity in the Army. The cognitive skills of the recruits were high, and they could absorb military skills with relative ease. Still the training was primarily made practical (hands-on) and not too theoretical. On the other hand, survival or skiing skills were not taught because the men already knew them. The trainers could then concentrate on military traits. Finland was a largely agrarian society in 1939: almost 78 percent of people lived in the countryside. Thus the majority of the Finnish reservists excelled at basic survival skills and field-craft and could endure the hardships of front life (it was the same for those relatively few Soviet soldiers who came from the northern areas or Siberia). The Finns had a long history of living in harmony with nature. Hunting was a favorite pastime among the Finns, qualifying them in the use of their personal weapons. They were well acquainted with their weapons, and the Civil Guardsmen had their rifles from home. The level of individual marksmanship was notably high and also noticed by Red Army observers during the war.[34]

The Finns had accepted the geographical conditions as a basis for their tactics. All Finnish conscripts underwent the winter training program designed to make everyone a capable winter fighter that could use the terrain. The training instructions were renewed in 1929. The most

effective period of a soldier's training was the basic training, because the men were not used for any other duties. Individual men were the easiest to condition in small-scale maneuvers. The focus was on combat training, field service and shooting practice. Small-unit (squad) offensive tactics and close-quarter fighting were emphasized in both rank-and-file and NCO training. The trainees were to retain their combat effectiveness after marches.[35]

There was a strong correlation between tactical training and military performance: the Finnish tactical effectiveness was remarkably increased by the training system. Yet the effectiveness of training was, to a large extent, an organizational and cultural matter. The point of departure in the Finnish Army's training philosophy was the accepted tactical doctrine. Curiously, a group of Finnish officers and Winter War veterans served as enlisted men in the US Army in 1947. They noticed that 'all winter warfare research, training, and experiments are based on a thorough knowledge of winter warfare tactics'. They added that in prewar Finland, tactics had lead to techniques and organization, not the other way around, like in the United States. In Finland, the preferred offensive tactics guided the material purchases, but tactics had not been dependent upon equipment.[36]

The Finnish training system was able to produce individual forest fighters that could exhibit initiative. They were qualitatively better soldiers than their adversaries. In the Winter War the Finnish troops had better ability to move outside the road network, to camp in trackless wilderness, to orienteer, to handle and shoot with light and heavy infantry weapons and to clear routes on ice and in forests. The Finnish soldiers had been taught to employ tactics designed for Finnish conditions. They were more capable than the Soviet soldiers in utilizing fire and movement and cover and deception to achieve the element of surprise. Moreover, the Finnish trainees had been instilled with a belief in the balancing effect of tactical skill and inferior weaponry against greater numbers.[37]

The refresher trainings were commenced in the mid-1920s for leaders. However, during the latter part of the 1930s, practically the whole Field Army, namely nine divisions and their artillery, was summoned to participate in those realistic combat exercises. Until then, the level of their training had been just satisfactory but the new training periods had a considerable impact on the level of training and on the spirit of the reservists. Specialized winter warfare exercises were organized in 1937 and in 1939. One example was a large-scale winter maneuver in Jaakkima

North of Lake Ladoga, which enabled the Finns' to make use of their experiences from testing tactics and equipment and to make improvements. The Civil Guards had held their own winter exercises since the early 1930s. They also held winter warfare courses based on influences from Norway and Sweden.[38]

Swift training was not always possible. The Air Forces, as Risto Pajari argues, had received numerous new aircraft but their effective use was hindered by the lack of time to train new pilots and mechanics on short notice. During the latter part of the war, training of all replenishment troops was not thorough. The shortest training period was merely two weeks. The value of these practically untrained and inexperienced troops was questionable compared to the seasoned and battle-hardened units. The inadequately trained units often suffered heavy casualties. For example, the 23rd Division that was sent to the Karelian Isthmus was unprepared for the realities of combat, particularly when moving to rear positions. Occasional morale breakdowns also occurred. Although complete breakdowns were rare, some Finnish front-line units had to sustain the whole three months without being relieved. Some units fared better than expected, such as the 69th Reinforcement Regiment, which, without time to rest and with inferior equipment, held its ground for several weeks and succeeded better in defensive tasks at Kollaa River sector than anyone had expected. Still, during the last two weeks of the war, the resources of the Finnish Army were so drained in terms of men and materiel that mere physical exhaustion of the fighting units brought the Finnish defenses to the verge of collapse.[39]

## Strategic Effectiveness

### *Survival at Stake*

According to Millett, Murray and Watman, strategic effectiveness constitutes the highest level of military activity and refers to how to employ the armed forces 'to secure by force national goals defined by political leadership'. It is also about making plans with timing, location, tasks and objectives and their execution. The relationship between strategic needs and political ends is 'a fundamental measure of strategic effectiveness'.[40] The Finns fared quite well in this area. Their national goals had been set and their only strategic objective was national survival.

In their national security policy, the Finns tried to accomplish their strategic objectives by remaining neutral. There had been several orientations in their foreign policy, as well as concluding treaties and alliances. Finland and the Soviet Union had signed a Non-Aggression Treaty in 1932, and it was extended in 1935. They had in vain placed their hopes in the League of Nations but it lacked real ability to mediate or influence Italy or Germany's expansionism (however, in December 1939 the Soviet Union was expelled from its membership as it had invaded Finland) let alone to protect small nations. Prior to the war, the Finns aimed at entering a defense alliance with its Scandinavian neighbors. This Nordic orientation was predominantly aimed at obtaining additional security guarantees.[41]

Finland was badly disadvantaged by its geographical location, namely the 1566 km-long border with the Soviet Union.[42] This made the Finnish geostrategic position quite vulnerable. Finnish political- and strategic-level effectiveness and alternatives were limited because of this major physical factor that was reflected in what they could do. The strategic alternatives and their relation to Finnish national goals had been limited for Finnish decision-makers.

The prevailing views, with minor exceptions, seem to indicate that the Finns made the right choice based on the best available knowledge. It must have been tempting and advisable for them to make the territorial concessions at the time but we cannot know whether this would have satisfied the Soviet leadership. Certainly, the existence of the Finnish Army did not deter war by itself, but by moving the border away from Leningrad, the Finns would have lost the advantage of fixed defenses like the Mannerheim Line at the narrowest place of the Karelian Isthmus.[43]

Clear threat perception, not capabilities, formed the basis of Finnish strategy. Their fundamental strategic objectives were to safeguard independence, sovereignty, territorial integrity, democracy and their way of life. Their political goals, their war aims, were inexorably tied to strategic objectives. By attaining their strategic objectives, the Finns thought they could secure survival—their main political goal. They fulfilled well the criteria of strategic effectiveness because there was a strong consistency between strategic needs and political ends. In terms of vertical integration, the preparation and the conduct of war, the Finns succeeded reasonably well. Their capacity to make plans to fight a war and direct the war effort was generally very good.[44]

All of their plans were aimed at deterring a Soviet attack. Strategic effectiveness was increased because all of their operational plans and actions also stemmed from this scenario. However, the basic assumption that the Soviets would not be able to concentrate on Finland alone was inaccurate. Yet the Finns formulated attainable strategic objectives based on correct strategic vision and operational plans, and devised strategic contingency plans that were aimed at winning time for the diplomats to come up with a solution. The basic question was how to postpone an inevitable defeat. Political goals were set and were reasonably well in line with the Army's capabilities. Still, the Finns had only some realistic hopes of attaining their political goals but no chances of achieving a military victory against the Soviet Union. There was no guarantee of success when fighting alone. Yet, at the end of the war, the Finns, whose defense had not collapsed, did have some strategic choices available to them: accept peace with hard terms, continue fighting or request Franco-British aid. The last option included asking their Scandinavian neighbors to accept the transit of the expeditionary force through their territories (which they did not do) or to make an SOS appeal to the rest of the world. The best bet in those circumstances was to keep alive the intervention offer because the Finnish position was swiftly deteriorating in early March, highlighting the need to conclude the peace agreement soon.[45]

Instead of a passive defensive stance, the Finns had adopted an active offensive-defensive strategy, one similar to the Confederate strategy in the US Civil War. They defended their territory along interior lines, concentrated their forces where deemed necessary and took the offensive when opportunity lent itself. The delaying action period on the Karelian Isthmus was intended to be temporary before larger counter-attacks would be commenced. In some northern sectors, they pushed the front to Soviet soil. This strategy had been decided by taking carefully into consideration the calculations of military planners and incorporating the methods of how the nation's resources would best be employed in the event of a war against the Soviet state.[46]

Nevertheless, the Finnish strategy was slightly unrealistic because it was partially based on false information about the capabilities of the only potential enemy and the nature of the threat. The Finns had failed to gather accurate information on Soviet capabilities and preparations and to predict its actions behind the border in the north. To their surprise, the Soviet Union had made preparations to attack along every road from the Gulf of Finland to the Arctic Ocean, and try to cut the country into two

halves to isolate Finland from land routes to Sweden. On the other hand, the Finns were correct in assuming that the Karelian Isthmus would be the main area of operation. The defense of the Isthmus was, indeed, strategic in nature. Yet there their adherence to holding ground limited their strategic options.[47]

The Soviet Baltic Fleet aimed at enforcing the trade blockade of Finland. The whole Finnish war effort was dependent on its connections to the west to secure access to raw materials and equipment. Therefore, from a strategic viewpoint, it was necessary to assign the Finnish naval forces with protecting the sea-lanes and merchant shipping, deterring landings and laying defensive mines. Kalervo Kijanen rightfully contends that the Navy succeeded in its tasks.[48]

### *Failure Was Not an Option*

Regardless of the odds and some pessimism in the beginning of the war as to whether resistance would be useless, the Winter War was a strategic defense war for the Finns with very high existential stakes. These risks were understood by those directing the Finnish war effort. Their strategic objectives were completely in line with this scenario. They were in line with political goals and were militarily sound. They had devised a strategic plan that had the most promise for success.[49]

The question was how to implement the strategy with the highest effectiveness. When hostilities broke out, prewar strategic plans proved relevant. Nevertheless, the Finnish strategy was a gamble that carried huge risks of failure. Strategic decisions were taken out of necessity, and failure was not even perceived as an option since the consequences of a failure would have been catastrophic. The worst scenario, Soviet occupation, was viewed as a huge disaster that had to be avoided at all costs.[50]

The Finns cherished their neutrality to a point that was harmful to defense preparations. They also aimed at avoiding provocations. Diplomatic correctness and lawfulness also continued in international relations. Adhering to international law contradicted Finnish military aims, and almost put the Finns in jeopardy from the start of the war. The mining of the Åland waters, for example, in international waters was postponed before the Ministry for Foreign Affairs would give permission to proceed. This had a negative impact on naval actions. By then some Soviet submarines had already passed through, later sinking merchant ships. Border villages were not evacuated because the Finns did not want to

provoke the Soviets. Consequently, inhabitants were made prisoners by the advancing Red Army. Moreover, the fleeing evacuees blocked the roads affecting effective military action. Border agreements had also been obeyed and troops were kept out of the border zones prior to the onset of the war. These were partial causes for the failure of Finnish counter-attacks in Ladoga Karelia.[51]

## The State of Civil–Military Relations: Open Communication Channels

It has normally been very difficult for political and military leaders to assess strategic issues and decide on a vital direction in ensuring a high level of military effectiveness. In Finland, national political goals and strategic objectives were selected together by political and military leaders. Vilho Tervasmäki argues that there was interaction between the Finnish civilian and military leaders and an easy flow of information: communication channels were open between senior officers and their civilian counterparts. The soldiers tried to make clear what was possible for the military, and in this way exerted influence on decision-makers who were choosing the national strategic goals. The politico-military cooperation between military and political leadership was generally excellent. Some frictions had existed during peacetime but there were no disagreements during the war. When the war had broken out everyone, soldiers and civilians alike, were working toward the same goal.[52]

In Finland, politicians exercised control over military leadership. The relationship between politics and the armed forces had been tested ten years prior to the Winter War as anti-democratic forces emerged in Finnish political life. The ultra right-wing Lapua movement had close ties to the Civil Guard organizations. The attempted coup staged in the spring of 1932 failed because the president and Army leadership decided to uphold laws and parliamentary democracy. However, laws were passed banning Communist activities as unpatriotic. After 1930, the Army became an even more apolitical actor than before. The Army needed to concentrate on preparing for a war, not on internal threats.[53]

The Finnish armed forces were in the service of a legally elected government, and the peacetime Commander-in-Chief was the democratically elected president of the republic. The armed forces had only a limited domestic role, and few tasks related to countering internal threats, and

even that occurred under strict parliamentary oversight and in cooperation with law enforcement officials. If short service times could not match those of professional soldiers, it was clear to the majority of the people that service times would not be used as a political tool of any repressive regime. The army did not have to worry about internal security (or very little) and thus it could almost totally concentrate on its core mission, that is, external threat and the defense of the country.[54] This added to their military effectiveness.

Senior Finnish officers were considered chief advisors to the political decision-makers, and the policy-makers were receptive to the advice of senior officers who were considered professionals. However, as Kullervo Killinen notes, a certain kind of dualism prevailed and the politicians did not always listen to soldiers. Kari Selén argues that the military were strongly represented in an advisory organ, the Defense Council headed by the President of the Republic. The Council was founded in 1924 (since 1926 it had a sister council on war economy). If the matter on the agenda was not of a purely military nature, members of the Cabinet could attend. The Council's structure was reorganized in 1931 when its role was changed to tackle the question of defense preparedness. Mannerheim was appointed as its new Chairman. Mannerheim had a sense of politics and bureaucracy. It was also agreed that in the event of a war, Mannerheim would be the Commander-in-Chief of the Finnish defense forces.[55]

The status of the Defense Council was elevated as it became the supreme council in defense matters. This had a positive impact on the military's political influence. It was assigned with the development of material, organizational, war economy and morale questions. The Council was tasked with making proposals on how to improve military preparedness, and under Mannerheim also maintained international contacts, namely with Sweden. The members of the Council influenced defense policies for many years. In the autumn of 1939, they discussed Soviet territorial demands. There were debates but Mannerheim demanded unanimous decisions. Its principals belonged to the inner circle of decision-makers. The Parliament and its foreign affairs committee were sidetracked as the inner circle of the War Cabinet made the central decisions. Mannerheim's trustee General Rudolf Walden was the FHC's liaison in the War Cabinet. Even though domestic politics came second to the crisis, major wartime decisions were taken after consultation with the soldiers over military and societal issues. The strategic decisions involved political considerations and reflected history, culture and collective memory.[56]

Most of the Finnish political and military leadership did not believe that the Soviet Union would attack. In the lack of official declaration of war, the Finnish political leadership, facing the Soviet invasion on 30 November 1939, was at first in awe over the question of how to prosecute war. President Kyösti Kallio gave part of his constitutional powers to Marshal Mannerheim thus empowering him to lead the operations. It was characteristic of the relationship between Mannerheim and Kallio that there was mutual trust and admiration. The government did not interfere with fighting and they provided the leadership of the armed forces with all the support they needed by allocating the available resources for the defense effort. Mannerheim kept the key ministers well informed of the military developments at the fronts but he declined to make far-reaching recommendations about the direction of the war. When a high-level government delegation visited the FHC at the end of the war, they asked Mannerheim for advice whether to make peace on harsh terms. The Marshal only gave them a situation report and replied, 'I have explained the military situation. It is up to You, Gentlemen, to draw the political conclusions.'[57]

Imperative to the prosecution of war was that the strategic decisions were worth taking. The decisions made at the top in order to pursue war aims and to improve political and strategic effectiveness could sometimes hinder performance at lower levels. They seem to indicate that the Finns were, indeed, reasonably effective at the strategic level. The politico-strategic process was quite able to make ends meet.

### *Force Size and Structure*

The size and the force structure of the Finnish Army suited its possible use. It had been developed with practically one goal only—to deter Soviet attack. Their force structure, the internal organization and its composition and resources were suitable to meet the potential threat. Yet the odds were badly against them. Imbalance between the strategic plan with the Army's force structure and size partly reduced their strategic effectiveness because the large size of the Finnish territory meant that their numbers were not enough to achieve their strategic goals. To compensate for this they had made methodical plans to deploy their army, and the correct appraisal of the nature of the future war determined the doctrine and force structure. Regardless of the material situation, the peacetime planning and preparation had enabled them to increase effectiveness far beyond their numbers. Moreover, the Finnish strategic concept and war plans were

coherent. The strategic decision was made to concentrate the bulk of the Army in southern areas of operation. It was correctly estimated that these would be the most important for the Soviet military. To complicate the situation of the Finnish leadership, the Soviets, dissipating their effort, sent troops that crossed the border all along its length.[58]

The order of battle was based on nine divisions (see Table 2.1). The largest formation was the army corps. They were comprised of divisions and special units. At the beginning of the war, the Army of the Isthmus was formed to take responsibility for the defense of the Karelian Isthmus. In initial defensive deployment, the forces were distributed among the different commands. The individual battalions intended for the northern part of the country were detached units that had been formed from the Frontier Guard's personnel and reservists from the border areas.[59]

**Table 2.1** The order of battle of the Finnish Army as of 30 November 1939

| *FHC (Mikkeli)* | *Reserves of the FHC* | | |
|---|---|---|---|
| Marshal C. G. E. Mannerheim | 6 division | | |
| | 9 division (–) | | |
| **Karelian Isthmus** | | | |
| Army of the Isthmus | II Army Corps | Covering force (1 division) | |
| Lt. Gen. H. Österman | Lt. Gen. | 4 division | |
| | H. Öhquist | 5 division | |
| | | 11 division | |
| | III Army Corps | Covering force | |
| | | Cavalry brigade | |
| | Maj. Gen. | 8 division | |
| | E. Heinrichs | 10 division | |
| **Ladoga Karelia** | IV Army Corps | 12 division | |
| | Maj. Gen. | 13 division | |
| | J. Heiskanen | | 4 battalions |
| **Northern Finland** | North Finland Group | | 1 battalion |
| | Maj. Gen. | North Karelia | |
| | W. E. Tuompo | Group | |
| | | Lt. Col. | |
| | | E. Raappana | 3 battalions |
| | | Lapland | |
| | | Group | 2 battalions |
| **Southern Finland (coastline)** | | | 7 battalions |
| **Åland Islands** | | | 1 regiment |

*Sources:* Adapted from Ries (1988, 97) and *TSH* 1, 96–134

Two thirds of Finnish total strength was intended for the Karelian Isthmus, and one third for northern border areas. At the start of the war, the regional relative distribution of forces shows that the Finns had 120,000 men (7 divisions) on the Karelian Isthmus, 40,000 (2 divisions) in Ladoga Karelia and 16,000 in northern Finland. In the beginning they were up against almost half a million enemy combatants (later the figure doubled). The Soviets distributed their forces rather evenly along the Finnish border. In reaction to the Soviet all-out attack, the Finns sent two thirds of their reserves to the northern areas even before the decisive battles had begun on the Isthmus. The decision to commit reserves in three directions, thus enhancing operational effectiveness, stemmed from larger strategic considerations. The northern sectors thus also required the bulk of the replenishments before the situation could be stabilized there. The Finns were outnumbered practically everywhere (see page 122) except in the sector of the North Karelia Group (NKG) in Pielisjärvi–Lieksa where they had almost equal number of forces compared to the Red Army. The NKG had to send two of its battalions to strengthen the 9th Division in the adjacent Kuhmo sector. The FHC exercised in its planning and conduct of operations in the north clear point-of-gravity thinking. The defense of the Karelian Isthmus, the main area of operation, would not be weakened in favor of northern areas. These secondary fronts had to manage with merely replenishment troops, and the best reserves were to be directed toward the Isthmus. This, as Anssi Vuorenmaa suggests, demonstrated the ability to improvise. The real operational center of gravity for the Finns was their ability to create and use reserves.[60]

The comparison between Finnish and Soviet divisions reveals that both sides had approximately 600 automatic weapons. However, as Table 2.2 indicates, the Red Army division was much stronger in men (1.2:1), better equipped and had more firepower than its Finnish counterpart. We can also see that the Soviet division, due to its motorization, was in many ways heavier, and not as mobile in Finnish terrain as the Finnish division. The Finns had, for example, skis for all fighting (many men had brought their own skis with them).[61]

Creation of ad hoc temporary units was a typical practice for the Finns in the Winter War. These units, such as battle groups and regimental combat teams, were organized for specific tasks (task organizations). These troops were configured based on the changing situations. This practice of breaking the organizations was particularly exercised in the IV Army Corps where the regimental organization disappeared already at the beginning

**Table 2.2** The organization and equipment of Finnish and Soviet infantry divisions

| | *Finnish infantry division* | *Soviet infantry division* |
|---|---|---|
| Men | 14,200 | 17,500 |
| Rifles | 11,200 | 14,000 |
| Submachine guns | 250 | – |
| Light machine guns | 250 | 419 |
| Heavy machine guns | 116 | 206 |
| Light artillery | 24 | 38 |
| Heavy artillery | 12 | 40 |
| Rifle grenade launchers | – | 261 |
| Light mortars | 18 | 18 |
| Heavy mortars | – | 12 |
| Anti-tank guns | 18 | 48 |
| Anti-aircraft machine guns | – | 32 |
| Tanks | – | 55 |
| Armored cars | – | 10 |
| Horses | 3200 | 6000 |
| Motor vehicles | 46 | 427 |

*Sources*: Adapted from Ries (1988, 94) and Vuorenmaa (1998, 132)

of the war. Often separate battalions, which were capable of independent action, were assigned special missions. The Finns had few reserves, and most of them had to be committed to combat duties by sending them to reinforce units under pressure. Troops to rescue were taken from more quiet fronts. This practice scrambled the orders of battles. On the other hand, in sectors like Kuhmo, by breaking the organizations the 9th Division was capable of continuous effort and thus of maintaining momentum. In addition, delays were often short when the commanders used those units already there. This way they could keep the enemy in a constant state of flux.[62]

The Finnish practice of fast and unexpected redeployments of units led the Soviets astray and occasionally dealt psychological blows. For instance, after the war, the Red Army commanders were wondering how the whole Finnish 36th Infantry Regiment always appeared at the right moment to repel their attacks. In reality, they had only been some elements of the Regiments, companies or battalions that had been the easiest to release. The Finns did not deceive by forming fictional units but, in January 1940, without touching the organizations, they changed the numbers of many divisions and regiments to fool Soviet military intelligence.[63]

## In Search of Allies: The Possibility of Western Aid

Since medieval times Finland had been part of Sweden, and Finnish peasant soldiers had taken part in various military conflicts. Many times military action of various scales had also taken place along the Swedish–Russian border, often resulting in border changes. The Finns took pride in their participation in the wars in central Europe during the Swedish Great Power Era. This is clearly illustrated by the fact that most of the traditions of the Finnish regiments and other military units traced back to the sixteenth- and seventeenth-century Swedish infantry and cavalry units fighting in the Thirty Years War (1618–48). Sweden lost Finnish territory to Russia in the Napoleonic Wars in 1809.[64]

Finland was an autonomous Grand Duchy of the Russian Empire between 1809 and 1917. During Russian rule, the Finnish military had enjoyed a special status. The Finnish Army was meant for the defense of the Grand Duchy. Only once during Russian rule did the Finnish territory see action during the Crimean War in the mid-1850s as the Franco-British naval units raided the towns and fortresses along the Baltic Sea coast. The Finnish Guards of the Imperial Russian Army participated in pacifying the Polish uprising in 1831 and later in wars against the Ottoman Turks in the Balkans. Even as subjects of the Czar, the Finns had never felt themselves Russian. They considered themselves Western. Their laws, judicial system, administration and values had come from Sweden. With Finnish autonomy, they had been granted special privileges and their Nordic system was preserved and largely honored by the Russian Emperor.[65]

The Finnish military of the nineteenth century was a widely respected institution in the autonomous Grand Duchy but it was abolished in 1905 as part of Russification schemes. The population generally felt that it was an unjust measure. It also meant the discontinuation of military traditions in Finland. Moreover, it was one of the factors raising nationalistic sentiments among the population. A concrete manifestation of this was the Jaeger movement, a group of some 1900 voluntary Finnish youngsters who had received their basic training in the Finnish contingent of the German Army, the Royal Prussian Jaeger Battalion 27 (Königlich Preussisches Jägerbataillon Nr. 27). They had seen limited action on the Eastern Front in the Baltic area in mid-1916.[66]

In conjunction with the Nordic orientation, the Finnish defense planners understood that a small nation could not wage an effective war against its huge neighbor that possessed preponderance in every field. Therefore, Finnish leadership sought protection through international arrangements and coalition-building. The Finnish war plans were based on the assumption that Finland would not have to fight alone—which materialized. Political and strategic weaknesses and ineffectiveness are best portrayed in the attempts to integrate strategic objectives with their Western neighbor. Finland tried to find ways to align itself with Sweden, a potential ally with a similar society and democratic values. However, the Swedes were primarily interested in the fate of the demilitarized Åland Islands and esteemed their neutrality. Eventually the Swedes turned down the idea.[67]

During December 1939, outside powers realized that it would take time for the Red Army to complete its occupation of Finland. The French and British governments started to make plans for intervention. Public opinion strongly favored the Finnish cause. The information about the Franco-British plans affected J. V. Stalin's decisions. Jukka Nevakivi notes that the Finnish government never officially appealed for intervention but the possibility of intervention (up to 50,000 troops) has been considered to be a major reason for Stalin's acceptance of a negotiated settlement in a situation in which he could have defeated the Finns (as were allied plans, as Patrick Osborn suggests, to bomb the oil fields in the Caucasus). Henrik Tala argues that French support, in particular, was decisive. However, the scheme to aid the Finns eventually led to the resignation of government headed by Premier Édouard Daladier. The intervention plan also did not have any chance of success because Sweden did not give consent for transit. The main reason for Western intervention plans had been to access the Swedish iron ore fields in the north before the Germans. Mannerheim warned that the intervention would be too little and too late.[68]

The Finns partly achieved their national goals and showed some degree of political effectiveness. The Finns were aware that the Red Army could develop still its operations that had not yet culminated. Therefore, the Finns realized that they could not continue fighting for much longer. But, as Lewin correctly notes, they fooled the Soviet Union about their potential to continue. Finnish options were limited and the situation was aggravated by mounting losses. By keeping alive the possibility of the Franco-British intervention offer, Finnish leadership capitalized on the Western Card that Stalin could not neglect when looking at the bigger picture and the German threat. It is undisputed that had France and

Britain been fighting the Soviet Union in 1940, the situation in the expanding World War would have looked very much different. This helped the Finns to achieve a negotiated settlement. Charles A. Miller adds that with their effectiveness, 'destructivity', the Finns were able to inflict considerable losses on their adversaries. Even though eventually losing, they managed to attain good peace terms.[69]

## Innovative and Fast Mobilization System

It was of strategic importance that the Red Army possessed the capability of launching a surprise attack on Finland without general mobilization. The Finns eliminated this strategic advantage with full mobilization almost two months before the outbreak of hostilities. The decision to proclaim full mobilization and the ensuing concentrations of forces to the border areas to make up the initial deployment was taken by the president upon advice of Marshal Mannerheim as the Finnish delegation traveled to Moscow for negotiations with the Soviet leadership. In order to facilitate fast mobilization, a covering force needed to be deployed along the borders to delay and harass the attacker and to allow the Field Army to be fully mobilized. In fact, the small peacetime standing army mainly existed for that purpose.[70]

This orderly and swift mobilization of the Finnish Field Army would not have been possible with the creation of the Finnish regional mobilization system. The system was an organizational innovation that was strategically important. The reorganization of the Finnish Army began in 1932. The peacetime army had two tasks and organizations: one for mobilization and the other for training and for covering force tasks. The new system was fully operational in 1934. The regional mobilization system was based on the principle that peacetime areas were identical to the composition of the army's wartime organization. As the Field Army had nine divisions, the country was divided into nine military districts, each tasked to form a division. The districts were further divided into 30 precincts in charge of forming infantry regiments. The mobilization organization (the Civil Guard organization) and military districts were responsible for mobilizing the army, whereas the cadres and conscripts would continue training and create and uphold readiness, and, if necessary, be quickly sent to the borders.[71]

The formation of the regional mobilization system had also been conditioned by the railroad and road network. To hasten the concentrations

after mobilization was achieved by placing the mobilization centers near railway stations. Mobilization centers should be such that they could be used for storing materiel. The Red Army had the ability to concentrate on eschewing the territory of Finland because they were not tangled up elsewhere at the time. The units had been concentrated on border areas, where they were ready to repel the invasion. The innovative system was a prerequisite for military effectiveness as it had enabled the fast mobilization and concentration without which the Finns would not have had a chance to perform at all. Later, as Anssi Vuorenmaa argues, the Finns made several strategic-level improvised decisions.[72]

## Conclusion

Looking at the measures to evaluate the political effectiveness of the Finnish Army, one can say that they secured with mixed success, from satisfactory to good, the availability of financial, industrial, technological and manpower resources for effectively prosecuting defensive war. This was possible because the whole nation and politicians were willing to support the war effort. The Finns mobilized their human and material resources, and the military made, both vertically and horizontally, cost-effective use of these scarce resources and translated them into successful performance at the highest levels. The plans had been made in accordance with accurate threat perceptions and net assessments. The Finns had the luxury of preparing to fight just one potential enemy. Despite the high level of technology, the allocations to the military had not been enough to produce a well-equipped army. In addition to the scarcity of materiel, numerical imbalance in manpower and industrial resources, that were becoming drained, severely affected the Finnish ability to wage war. Their improvised replacement system could keep the troops fighting. The Finns could replace the lost materiel by purchases and donations from abroad and by the significant amounts of captured Soviet war booty.

Finland was a 'nation in arms' with women and other non-combatants freeing soldiers to the field. Their replacement system kept the front units fighting. The foreign aid and war booty, and the quality of manpower, to a large extent compensated for their inferior numbers. The Finnish Field Army was generally well trained for preferred tactics and for local conditions, and it was highly motivated. The Finnish division was relatively weaker than the Soviet division in almost every other aspect.

The fundamental measure of strategic effectiveness is the relationship between strategic means and political ends. In this respect the Finns showed excellent performance. It is understandable because the Winter War was a strategic defense war, a fight for survival, and they could not afford to fail in it. The soldiers had easy access to political decision-makers and could influence their decisions. In the face of external threat, the tensions in civil–military relations remained relatively minor. The Finnish Army performed its duties and its leadership remained subordinate to civilian authority, and civilian control was not eroded.

The achievement of the military's strategic objectives were set realistically but were partially hindered by the small force's size and structure, logistical infrastructure and the national industrial and technical base. With late industrial mobilization the Finnish war industry could not reach its full capacity. The industry supplying the army with exhausted stocks had difficulties in meeting increased demand.

The Finns had limited strategic choices. They devised strategic objectives that were consistent with political aims and directed the war effort accordingly. They had adamantly tried to secure their strategic objectives by alliances or coalition warfare with Sweden throughout the war. They eventually failed but continued fighting even to the verge of collapse, and entertained until the end the possibility of appealing for Franco-British intervention. With this option the Finns could affect Stalin's decision to succumb to a negotiated peace instead of pursuing a full victory.

The Finnish regional mobilization system was an organizational innovation that had paramount strategic importance because it allowed for the fast mobilization and concentration of the whole army into border areas. The timely Finnish mobilization deprived the Red Army of the advantage of launching a surprise attack.

## Notes

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17681/5, KA; Tervasmäki 1964, chapter 4; Tervasmäki 1978, 117–22; Sipilä 1995, 59.
5. Tervasmäki 1978, 122; Desch 2008, table 2.3.
6. Kalela 1985, 441–3; Tuunainen 2012b, 68; Nummela 2015, 35–54. For correspondence between Mannerheim and the Secretary of Defense Juho Niukkanen during 1939 see PLN:n ark., T 2862/5–7, KA.
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9. Partanen, Pohjonen and Tuunainen 2007, 141; Juottonen 2000, 7–14.
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16. Perko 2015, 243–5; Nevanlinna 1976, 139–40.
17. *TSH* 4, 242–52; Sipilä 1995, 58–9; Tervasmäki 1978, 86–9; Jokinen 1988, 18–20; 21–6; Mänttäri, Hyytinen and Niskanen 2003, 43–7. See also Sopimukset ilmavoimia tukevien yritysten kanssa. IlmavE:n Teollisuustoston Sal. kirjeistöä 1939–40, T 19409/2, KA.
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20. PLN:n pöytäkirjat 2.9. ja 10.9.1939. PLN:n ark., Mappi 5, KA; Iskanius 2015, 17–19.
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23. Selén 2001, 477–85.

24. *Laki yleisestä työvelvollisuudesta sodan aikana* (16.6.1939) 192/1939; Saikkonen 2007, 22–3.
25. PM:n Järj.tston sanoma 14.12.1939. PM:n Järj.tston Sal. kirjeenvaihto 1939, T 20691/3, KA; Heiskanen 1996, 145–7, 150, 158; Saikkonen 2007, 26–7, 31–2, 37–9; Elomaa 1995, 373–411.
26. PM:n kirjelmä 15.1.1940. PM:n Järj.tston Sal. kirjeenvaihto 1940, T 20691/3, KA; Saikkonen 2007, 25–6, 32–5, 39.
27. PM:n Järj.tston sanoma 7.12.1939. PM:n Järj.tston Sal. kirjeenvaihto1939, T 20691/3, KA; Saikkonen 2007, 36–40; Yrjölä 2010, *passim*.
28. Saikkonen 2007, 36–41.
29. Ibid.
30. Heiskanen 1996, 161–71; Saikkonen 2007, 35–7, 41–2.
31. Poutiainen 1985, *passim*; *Svenska frivilliga i Finland* 1939–*1944* 1989, 39–232; Strømsøe 2000, *passim*; Forslund 2009, 24–179; Sprague 2010, *passim*; Brooke 1990, *passim*.
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63. *J.O. II*, *2* 1932, *passim*; Käkönen 1966, 169; *TSH* 2, 105.
64. Tuunainen 2012a, 183.
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CHAPTER 3

# The Roots of Operational and Tactical Effectiveness

## Services on Their Own: Combat Arms and All Arms Force Integration

Operational effectiveness is, as Murray suggests, the ability to combine and integrate combat arms, and it is often directly attributable to an army's 'ability to coordinate and integrate their action at a decisive point'. It is not, however, just a matter of intraservice coordination and integration and how individual services are able to integrate different combat arms and weapons in their conduct of operations. Millett, Murray and Watman assert that an operationally effective organization 'derives maximum benefit from its components and assets linking them together for mutual support'. Mutually complementary effects are not only achieved by weapons systems but also through the exploitation of weather, terrain, time, surprise, morale, training and the physical capabilities of troops. When a great level of integration is achieved, the more combat power can be generated. Also, the signs of tactical effectiveness are usually associated with the integration of all arms.[1]

Due to the small number of larger exercises, combined arms was in place, in theory, in the Finnish Army. The arms had developed their own war-fighting methods. Joint (interservice) force integration was rare. The conduct of operations was largely based on the cooperation between infantry and indirect fire units to achieve combined arms support. It was basically single-service ground forces arms integration. Navy and Air Forces were



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separate, except for infantry (Army) and coastal artillery (Navy) cooperation. Army–Navy integration was limited because of the freezing of the waters in late 1939. Yet to counter landing attempts along the ice, the Finns employed infantry–coastal artillery cooperation. The most important coastal sectors were all-arms formations that incorporated units from various services. Most of the coastal artillery was organizationally under the commander of the Navy. Coastal artillery personnel had been trained to support ground operations. Support of the ground forces commenced from the beginning of the war in Western and Eastern parts of the Karelian Isthmus. The railroad battery, belonging to coastal artillery, supported the defenders North of Lake Ladoga. Coastal guns smashed the attack formations of the Red Army trying to outflank the Finnish defenses in the Taipale sector along the ice next to the southern shore of Lake Ladoga, and also helped in stopping the advance over the ice of the Bay of Vyborg. There they helped to contain a small beachhead threatening to cut the Vyborg–Helsinki main road at the end of the war.[2]

Ground forces–Air Force cooperation was negatively affected by the lack of Finnish aircraft to fly ground-support missions. The objective of the Finnish Air Forces had been to avoid casualties in order to be able to concentrate all resources and support decisive battles in the main area of operation. Yet during the last month of the war, Soviet air superiority forced the FHC to give Air Forces missions that led to the dispersal of their forces. In the last stages of the war, Air Forces were concentrated on the Karelian Isthmus and in the Bay of Vyborg area where fighter planes flew a number of strafing runs against the unprotected Soviet infantry on the ice of the Gulf of Finland. The bomber forces were sent to attack Soviet formations regardless of casualties.[3]

At the tactical level, the most common form of all arms integration was also infantry–artillery integration. The Finnish artillery faired well in its attempts to support infantry, in particular at the beginning of the war. The lack of heavy fire was one of the main reasons behind the formation of *mottis*. There was a sharp contrast to the Soviet artillery that had practically limitless supplies of ammunition. As the war progressed, Finnish infantry–artillery integration was not always possible due to the chronic shortage of ammunition. Often infantry units were left to their own devices. An illustrative example of this is from the last day of the war when one artillery battery, which had one shell left per gun and no hopes of replenishment, had been given orders not to open fire unless the Red Army attack was supported by more than ten tanks, and then make every round count.[4]

One of the peculiarities in the Finnish Army was the use of two armored trains to support infantry. They were considered artillery installations. Both trains were assigned to the IV Army Corps North of Lake Ladoga where the trains helped the units engaged in delaying action to repulse Soviet attacks, secure railroad sections and serve in anti-aircraft duties. After mid-December 1939, ice started to affect the sea traffic of smaller vessels. Also, the two battleships were in the Turku harbor as anti-aircraft ships.[5]

Tank–infantry integration was nonexistent at the operational level, yet the Finns once practiced this at the tactical level. One Finnish tank company had 15 Vickers light tanks but due to technical problems only eight tanks took part in a local counter-attack at Honkaniemi in late February 1940. It was the first and only counter-attack in which the Finnish tank forces participated in support of the infantry. All in all, the Finnish losses were six tanks. This engagement practically ended the use of Finnish armor.[6]

Specialists within infantry did not always perform their tasks. Instead many units were considered just infantrymen. Engineers, for example, were charged with slowing down the enemy advance and promoting the Finns' own movement by clearing and building routes. With a lack of mines and troops, the engineers were patrolling and repelling enemy attacks. The dismounted cavalry regiments, light detachments and guerilla battalions were, in essence, screening and reconnaissance units, but they also fought like regular infantry, in particular in the northern fronts.[7]

On the other hand, practically all infantry and coastal artillery troops, even Navy units, participated in patrolling and off-balancing guerrilla raids to the Red Army's rear. This type of asymmetrical action was consistent with Finnish military culture. The Finns had long traditions in small wars and guerilla action. The Finnish peasant auxiliary troops along the eastern border of Sweden had waged successful guerrilla operations against the Russian intruders since the sixteenth century. In prewar studies and plans, the guerilla action was aimed at harassing the enemy at its rear and flanks so that it would lose men and would have to tie troops to secondary directions in counter-guerilla duties. The guerillas were to target the enemy command and control systems, cut telephone cables and capture orderlies. They were to ambush the enemy's supply columns, attack its depots, lines of communication and vehicles. In winter, the guerillas were to employ scorched-earth tactics. The Finnish guerilla ski patrols, employing hit-and-run tactics, also saw uncertainty and fear among the Soviets. It was deliberate as one of the aims of Finnish guerilla action was to create havoc and spread confusion and panic among the Soviet soldiers. In addition to harassment, ambushing and destroying, the guerilla units reconnoitered the enemy's defensive positions.[8]

The value of guerilla action was soon realized by the Finns because it could aid in neutralizing the maneuver of large Soviet formations. In the northern fronts, guerilla activity took the form of long-range patrolling. There the Finnish ski patrols had prepared food and ammunition caches in the wilderness. This allowed them to operate for extended periods of time in the enemy's rear areas. The Finnish ski patrols hit and then quickly disengaged without being worried of being pursued. In Lapland, the guerilla patrols inflicted heavy casualties on the Soviets and forced them to secure their connections, eventually forcing them to retreat. In the Pielisjärvi-Lieksa area, the guerilla units conducted altogether 44 patrols in just ten weeks.[9]

## Flexibility in Maneuver Warfare

### *Maneuver Warfare in Practice*

In World War II operational mobility was provided by the Finnish State Railways. The well-functioning railway system reflects the Finns' ability to make the best use of their small resources. General mobilization—special maneuvers—was followed by concentrations of troops to the border areas. The management of railroad traffic was assigned under the Railways Board. The military was to order the transport from it. The transport of the 40th Infantry Regiment from Lapland to reinforce the troops along the Bay of Vyborg at the end of the war was the only strategic-level troop transfer on the part of the Finns.[10]

The Finnish answer to the Soviet Union's attritional strategy was simply maneuver warfare. They employed it at both operational and tactical levels. The Finnish operations were characterized as mobile offensive–defensive operations. Stable fronts were the result of mobile delaying action operations. The Finnish operational doctrine focused on their strengths. With their active mobile approach, the Finns were able to seize opportunities. This way they could sometimes dislocate, dislodge and disrupt their enemy's plans. By continuous harassment and breaking the Red Army's battle array, the Finns succeeded many times in shattering its cohesion and throwing and keeping them off-balance. Thus the Finns succeeded in diminishing locally the Red Army's combat power and superiority. Moreover, by dispersing their own forces and deceiving, the Finns could hide their weaknesses and utilize their own strengths. The Finns aimed at minimizing casualties and avoiding annihilation by refusal to commit large

formations (large targets) to set-piece battles because they could have been easily wiped out in decisive battles. In their own maneuvers, the Finns often applied the Napoleonic maxim of dispersed maneuver, concentrate to fight.[11]

The Finns avoided the Soviet's strengths by hitting their flanks and the rear. There they would sever the enemy's lines of communication and supply and attack its softer spots. The battles were based on fast maneuvers, and as the Finns were taking the enemy's rear it, with limited mobility, could not utilize its superior firepower and numbers. Also, the Finns often aimed at shattering the enemy's cohesion and battle array. By disrupting Soviet command elements, the Finns could suppress the rigid command system and its ability to react and launch counter-measures, and hitting its logistical units in winter sometimes had a crucial impact on the war-fighting abilities of entire larger Red Army units.[12]

The Finnish tactical doctrine, like those of all warring states of the time, emphasized mobility. The Finns stressed maneuver over fire, and the offensive had earned absolute primacy in Finland. The Finns knew that attacks could provide faster outcomes than defense. In the Finnish way of thinking, defensive battle was the time between offensives. The Finns disliked head-on and costly frontal attacks. Envelopments and flank attacks were preferred. Encircling movements were deemed, like elsewhere in Europe, as a means of achieving fast and decisive results.[13]

All Finnish attack methods were aimed at destroying the enemy. According to the Finnish doctrine, frontal attack was possible only if an encircling attack was not possible, and even then the frontal attack would have to include local encirclements. The success of frontal attack was dependent on fire support and infantry–artillery cooperation. In encircling movements, the forces had to be made so strong that they formed the main effort of the attack. The double envelopment movement with two concentric attacks, the *Cannae* idea, was viewed by the Finns as producing the best results, but it required absolute superiority.[14]

Even when on the defensive, the Finns aimed at starting offensives and their operational concepts called for counter-attacks all along the front. On the Karelian Isthmus, an operational-level thrust, nicknamed the 'Fools Collision', was undertaken on 23 December 1939. It failed due to various reasons, namely poor and short preparations in terms of reconnaissance and communications. It also included enveloping action. In its execution, the Finns pitted their strength against the Red Army's strength. Yet the value of the costly attack was to leave the Soviets guessing.[15]

Between Lake Ladoga and the Arctic Ocean the execution of Finnish plans called for an active approach. Due to the lack of troops, momentum had to be obtained and maintained. It was needed to prevent the attacker from advancing deep into Finnish territory. The plans called for attacking Soviet territory.[16]

In the area of the IV Army Corps the staff officers had realized that the advancing Red Army neglected its flanks. They also were studying the failed counter-attack attempts in December. The January operation was a large-scale infiltration where the light-infantry ski troops were exploiting the 'gaps' in Soviet lines to push through and bypass the strongholds, 'surfaces'. The attack was boldly conducted without worrying about the flanks. The penetration was deep and the advance was continued to the shore of Lake Ladoga. The follow-up units took care of the bypassed units, rolled up the front and guarded the flanks of the first echelon troops. With this operation, the Finns surprised the Soviets and cut their lines of supply and communication. The IV Army Corps' offensive operation bears resemblance to the German spring offensive of 1918 (Operation Michael). The infiltration was not planned as such but only as a means to advance to the rear of the enemy.[17]

The Finns were able to stabilize some sectors of the front by employing different methods. On 12 December 1939 Detachment P(ajari) achieved a major victory at Tolvajärvi with an unscrupulous frontal attack. Pajari's troops penetrated the enemy center by directing reserves into the gap in enemy lines. The victory was followed by a pursuit east to Aittojoki, thus following a maxim that once the enemy is disorganized and retreating, it is possible for a smaller force to keep it running. In Pielisjärvi-Lieksa, the North Karelia Group (NKG) conducted long outflanking movements and succeeded in pushing the Red Army regiment beyond the border before Christmas. In Suomussalmi-Raate double operations, the Finnish 9th Division defeated two Soviet divisions in sequence using encirclement tactics. In the first instance the northern encirclement was not complete, allowing a break-out along the ice of Lake Kiantajärvi. The second division was stopped, chopped up and destroyed on the Raate Road. Next the 9th Division was transported to Kuhmo where it began a counter-attack in late January. There, one Soviet division was encircled but the lack of Finnish resources meant that the situation remained indecisive.[18]

In vast Lapland, the Finnish forces were badly outnumbered and were forced to give ground in retrograde movement. There, the Red Army advanced deep. In their delaying action, the Finns inflicted casualties on

the Red Army by attacks and retreated in a timely fashion, sometimes drawing it to a predetermined killing ground. The huge depth of the area allowed sufficient time to bring in reinforcements. As their own strength grew and the Soviet supply lines were extended, it was possible for the Finns to repel attacks and wage successful defensive battles. As a result of active harassment of the Soviet lines they were forced to voluntarily pull back to more advantageous positions in mid-January to Märkäjärvi. Juha Mälkki argues that the execution of Finnish maneuvers in Salla resembles what Basil Liddell Hart called the indirect approach. At the northernmost Petsamo, a Soviet division took the settlement right away.[19]

The fact that the Red Army units were road-bound allowed the Finns to achieve local superiority against the most threatening column and defeat it in detail. Characteristic of their offensive–defensive operations was that the Finns operated along interior lines. In the long history of the art of war, interior lines have referred to the situations in which one side, often the outnumbered defender, had chosen to operate along interior lines. This means that one's lines of movement, communication and supply in a certain area were shorter than those of the adversary's operating outside that area (the chord of the arch versus its circumference). The well-known military theorist Antoine-Henri Jomini strongly emphasized the utility of interior lines that have been associated with the advantage of defending a small, centrally located area in which centrally positioned forces face divided enemy forces that are converging. The belligerent operating along exterior lines had longer distances and larger areas, thus forcing it to spread its troops over a large area. The one along the interior lines had shorter lines of supply and communication and could move faster than the one along exterior lines and target vulnerable spots in enemy positions. The threat was that the attacker that had taken up exterior lines could try to outflank the defender along the interior lines and thus attempt to deal with the advantage.[20]

In the northern sectors, interior lines provided the Finns with offensive opportunities. One can detect certain patterns. They had made their operational plans to hold one separate enemy force with a small force by exploiting natural obstacles. In the meantime, the bulk of their own forces were concentrated against the most dangerous enemy force. After delivering annihilation, all of the forces were turned against the first enemy force, defeating it or forcing it to retreat. In this way, the Finns, who were inferior in numbers, could create local superiority (in terms of time and place) in a certain favorable place and under terrain and weather conditions

favoring themselves. If this was not possible, they aimed at having equal numbers. The interior line operations were typical operational practice for the *motti* fronts. These methods allowed the Finns to effectively use their human resources. Veikko Karhunen explains that the operations in Suomussalmi and Kuhmo were led according to the path of least resistance. They aimed at inflicting maximum casualties on the Soviets while minimizing their own losses.[21]

By maneuvering, the Finns aimed at moving fire and gaining an advantageous position in relation to their enemies. Cutting off the Red Army units was never an end in itself. Instead the objective of the Finns was the physical destruction of the enemy forces. This can be seen in many locations, like Suomussalmi and Kuhmo. In a sense, their methods were a combination of maneuver and attrition. The Finns also kept up the tempo. For example, the operational speed of the 9th Division had been 6 to 8 km a day in Suomussalmi, and half of that in Kuhmo.[22]

### *Flexible Responses*

Even though the Soviet manuals also emphasized flexibility, in Finland independent action, initiative and decisiveness were truly encouraged. The Soviet manuals were strict in their wording, but the Finnish manuals only offered broad instructions as a basis for creative and flexible application. The Finns observed that the Red Army was planning maneuver warfare. Its provisional field regulations of 1936 (*PU-36*) contained new ideas, and it reflected the evolutionary developments of Marshal Mikhail N. Tukhachevsky.[23]

The Finns had realized that the Soviet tactics, which were characterized by technology and preconceived formulas, would not work in Finnish forested terrain. The Soviets also displayed rigidity in scheduling and strict command and control arrangements. The biggest difference between the belligerents was that the Finns were not—at least in theory—using standardized action. The Red Army attacked according to a plan often allowing the Finns to avoid artillery barrages and launch their own timely countermeasures. Moreover, the easily anticipated Soviet combat behavior allowed the Finns to act as the situation called and to utilize opportunities created by the Soviets. The Finns showed a remarkable tendency for tactical adaptation. They varied their actions flexibly depending on the situation, as the Tolvajärvi frontal attack indicates.[24]

In Finnish maneuver warfare, physical mobility was accompanied by intellectual flexibility to outwit the enemy. The Finnish soldiers, from commanders to the rank and file, had been taught to focus on finding the best solutions to combat missions rather than to follow routines. They had been encouraged to improvise. The principles of manuals were not to be adhered to as such but to be adapted to different situations and the realities of combat. Successful action required the use of common sense and imaginative thinking. The common answer was to apply flexible small-unit-based tactical doctrine and initiative against the rigid Soviet methods. By freeing themselves from rigid doctrines and by choosing from many nondoctrinal, practical solutions, the Finns were able to remain one step ahead of their enemies. Flexibility also made it easier for the Finns to cope with friction, uncertainty and unexpected developments.[25]

The design of units (effective task organizations) provided the Finns with operational and tactical flexibility. The Finns, who practiced the economy of effort when possible, flexibly moved their forces within the areas of operation. Holding ground, like the Red Army often did, was not deemed wise if it meant the destruction of whole units. For example, to save human resources, the covering forces were pulled back after just one week of delaying action. This happened at the time when the main elements of the Field Army had been concentrated and were already manning the main defensive position. This way the covering forces retained their combat readiness. The Finns did not always aim at holding their gains because they were seldom ready to execute their missions at all costs. However, in some cases, if it served a larger purpose, the Finns were ready to stand their ground and, in one case, in March 1940, even went for the last stand. This took place on Petäjäsaari Island on the northern shore of Lake Ladoga guarding the entrance to the biggest encirclement at Koirinoja. After overrunning the Finnish defenses on the Island, the front situation changed drastically and the faltering momentum began to pass on to the Red Army in the southernmost area of the Finnish IV Army Corps. There, a combination of mobility and flexibility was a typical feature in Finnish maneuver warfare.[26]

Operationally, on the Karelian Isthmus, the Finnish leeway was often limited. Contrary to other directions, the Finnish defensive doctrine in static trench warfare situations was not overly flexible. The Finnish manuals instructed that the main line of defense had to be in the hands of the defenders after the battle. The Finnish commanders' adherence to rigid defensive tactics and exhibiting stubborn resistance in battles of attrition

clearly hampered, at times, their tactical effectiveness. Their approach to attrition reflected World War I Western Front conceptions. On the Karelian Isthmus, the Finns fought the war of attrition even though they had limited manpower and material resources against the numerical and material superiority of the Red Army. The Finns had developed their own version of German elastic defense. Yet it placed the Finnish weaknesses against the Soviet strengths. The result was that their operational effectiveness was lower than in the north.[27]

Nevertheless, flexible practices were also extended to the conduct of defensive operations. When Soviet tanks penetrated the Finnish lines during the barrages, the Finns could with their artillery and infantry weapons separate the tanks from the Soviet infantry. When the Red Army infantry, in tightly packed formations, was gunned down at barbed wire fences, the Finnish tank-killer teams moved to destroy the armor. By mid-February 1940, the Soviet ability to combine arms and coordinate had improved. The infantry protected the tanks and the Red Army managed to achieve a breakthrough of the battered Mannerheim Line at village of Summa located in fairly open terrain.[28]

Maneuver warfare enabled the Finns to choose the place where they would engage the enemy at its weakest. It was noticed that their infantry attacks succeeded quite well in the Winter War. Offensives up to a regiment's size prevailed every time, especially in forests and when they were directed against the flanks of the Soviet troops. The failures were caused by the inability of Finnish troops to move in open formations, bad orienteering or too optimistic time calculations. Ohto Manninen asserts that in the Kollaa sector strokes by a couple of battalions finally failed if one of them lost its way or if there were no reserves to push through. Yet the effects of the attacks in the forests were felt because the Soviets believed they were encircled. The Red Army also attempted outflanking attacks in Kollaa but they were usually too weak to effect permanent success. Sometimes the Soviets tried battalion-size outflanking maneuvers but were every time defeated by the Finns, often in bitter close-quarter battles.[29]

Due to their inferior numbers, the Finns were compelled to create points of gravity in time and space and to concentrate superior force at a critical point. By massing their troops and coordinating the impact of infantry and artillery locally, they could achieve success. The Finns avoided taking on the full strength of the enemy. Instead they aimed at engaging smaller enemy detachments one at a time. Their *motti* tactics were linked with this idea of defeat in detail, and, in the words of one participant,

'Making little ones out of big ones by cutting, slicing and encircling the enemy.' Vesa Tynkkynen writes that 'to score continuous partial victories, the tactics needed to be flexible, and they needed to be able to swiftly concentrate their forces to a new area'.[30]

## Inferior but Practical Military Technology

To establish a linkage between technical innovation and operational effectiveness it is necessary to look at whether the Finnish Army's operational concepts and decisions were in line with available technology because, as Millett, Murray and Watman argue, an army's 'adeptness at identifying, encouraging, and assimilating useful technologies is an important measure of operational effectiveness'.[31] This measure was relatively well fulfilled by the Finns.

In terms of equipment, the Finnish armed forces were clearly ill-equipped. Even though the Finnish military had aimed at following technological developments abroad, the Finnish operations were not driven by technology. They had noticed the potential of various new weapons but could not afford them. One of their major handicaps was inferiority in firepower. Their weapons were relatively low-tech, designed to offer reliability in adverse conditions. The Finns placed emphasis on human resources using those weapons. This way they sought to increase their combat power. Furthermore, the Finns had chosen not to overly rely on the motorized approach either, because it was unsuited to the terrain and road infrastructure. Instead the Finnish Army relied on horses.[32]

Thanks to persistent developmental work under General V. P. Nenonen, the tactical use, accuracy and concentration of fire were at a good level in the Finnish artillery. Effective use of large masses of artillery in support of infantry was hindered by the forest-clad terrain and range limitations. Observers had inadequate communications. However, sophisticated firing methods resulted in great accuracy, swiftness and effectiveness of indirect fire. The transmissions of fire were swift, and the density of Finnish artillery fire was much higher than the Red Army's organic artillery that usually only supported the designated units. However, most of the Finnish artillery was light in caliber. The key strength of Red Army artillery was its immense firepower against which the Finns could do little. Their ability for counter-battery fire was weak due to the ranges of their field artillery pieces. Few of their artillery battalions had guns with a range of 12 km or more. Toward the end of the war, many of the gun barrels were worn out.[33]

The large-scale use of armor and the lack of anti-tank weapons inhibited Finnish tactics. They used field artillery pieces against Soviet tanks, and they were forced to invent new methods against tanks. The lack of resources was supplemented by a certain resourcefulness: the Finns came up with improvised solutions, namely makeshift weapons, such as Molotov's Cocktails and satchel charges. Sometimes they even jammed small logs and iron bars into the tank tracks, thus immobilizing them.[34]

Unlike many armies, tactical needs dictated technology in Finland. The proper ability to conduct winter operations depended on technical tests and experiments that were aimed at developing the best methods and equipment to suit combat in Finnish conditions. Since the 1920s, the Finnish Army, the Frontier Guards and the Civil Guards had systematically improved their capability to orienteer and bivouac in a trackless wilderness. The Civil Guards, in particular, had obtained experience from tests conducted in Sweden. The fruits of this by the mid-1930s were heated tents, portable stoves, field kitchens and a liquid-filled march compass. Lightweight axes, billhooks and bucksaws were also designed for the Army. Even a machine-gun cooling system to allow the use of snow was invented. The skis were fitted with bindings without heel straps, allowing for quick dismounting. Finnish skiers hauled *ahkios*, the boat-hull deep snow toboggans or sleds. *Ahkios* were utilized to evacuate the wounded, to transport munitions and equipment, and as a firing platform for machine guns. In order to improve over-snow mobility the Finns had systematically lightened the combat pack of the soldiers. With pack-horses, the Finnish Army duplicated the methods of farmers and loggers. In Lapland, the reindeer were employed to haul *ahkios*. The horse-drawn sleighs transported heavy arms and even artillery pieces were fitted with sleighs. The planes also had skis. The results of these winter experiments were kept secret in order to retain the relative advantage of the Finns in this matter.[35]

The above-mentioned coordinated experiments significantly contributed to the combat effectiveness of the Finnish soldiers who could keep warm, wear dry clothes and have hot meals. The clothing and footwear provided them with warmth, offered freedom of movement and allowed them to keep their feet dry. The Finns realized that it was dangerous to overheat in cold weather. The ski technique was to be economical in order to balance heat production, loss and moisture, and protect their body parts.[36]

One of the answers to the Soviet's devastating firepower and air supremacy was dispersal of men and materiel, diversion and fortification

technology. To get cover and multiply their numbers, the Finns chose to take advantage of the terrain, namely fortifications. They knew that on the Karelian Isthmus the fighting would take place on Finnish soil, and therefore fortifications were built. The construction of the main defensive position across the narrowest place of the Karelian Isthmus, later to be called the Mannerheim Line, cost much of the funds. It was understood that the use of terrain saved human resources. The fortification technology provided them with security and the belief in the general superiority of defense. By manning the 130 km-long Mannerheim Line, the Finns enhanced their defensive stance and gained significant advantage. It was a defensive position that included forward posts, forward strongpoints and the main line of defense. The Line's strongpoints and separate machine-gun posts were in defilade as they were using natural and artificial obstacles to conceal themselves from enfilade. However, some sections of the Mannerheim Line were unfinished or obsolete, and did not always allow proper interlocking and enfilading machine-gun fields of fire. Moreover, the anti-tank obstacles were constructed of too-small stones thus not stopping the Soviet armored attacks. They were constructed in the style of World War I, were not so well-entrenched and the trench systems lacked depth. However, Soviet propaganda portrayed it as comparable to the Maginot Line or the West Wall. In fact, as J. O. Hannula has noted, the Mannerheim Line was a poor-man's version comparable to the less impressive French Weygand Line.[37]

The Finnish Navy was technologically advanced, and it was up to its tasks. Due to the shallow waters of the Baltic Sea, submarines could not get to torpedo-firing range of Soviet vessels. In an attempt to prevent Finnish connections west, Soviet submarines headed for the Gulf of Bothnia. The 1930s represented a strong period of technical development for the Finnish coastal artillery in terms of tactics, weapons technology and training. The old firing methods were replaced by up-to-date ones. This work was lead by Lieutenant Colonel Jussi Rikama who had studied in Italy in the 1920s. With many improvements, ranges nearly doubled and the fields of fire became many-fold. New super-heavy and heavy installations were constructed and training was renewed. Interwar cooperation with the Estonians proved useless. At the outbreak of the war, the Finnish coastal artillery had 341guns of various calibers. The improved technical capabilities of coastal artillery were demonstrated in the artillery duels between fortresses and Soviet Navy's vessels. The Baltic Fleet's attacks were repelled by the fire from Finnish batteries that were able to inflict

losses on the Soviet vessels that conducted several dashes against the Finnish fortresses. Sometimes the Finnish coastal artillery fire forced Soviet Navy ships to retreat.[38]

The level of communications technology at the disposal of the Finns was rather high but the equipment was few in number. This problem particularly affected the Air Forces, in which cooperation between fighter and bomber aircraft was made very difficult by lack of radio contact with each other. In the air, the Finns had to cope with what they had because the majority of Soviet aircraft were at least technologically equal to the best Finnish planes. Most of them were faster. The Polykarpov I-16s were faster and more flexible than the Fokkers. The fighter pilots were able to make effective tactical use of their, many times inferior, aircraft. These results owe much to the modern tactical system developed by Major Richard Lorentz. Finnish pilots performed well in dogfights, due to the maneuverability of Fokker D XXI planes. The ground forces were protected against air attacks by camouflage and dispersal. As there was a huge shortage of anti-aircraft weapons, the infantry had to use ordinary machine guns or even rifles against the Soviet planes flying at low altitudes.[39]

## Active Operational and Tactical Plans Suit the Strategic Defense Framework

Millett shows that operational and doctrinal concepts refer to the 'how' of strategy or the way in which the armies execute strategic plans. The FGH had carefully followed the developments of the Red Army. In pursuit of strategic objectives, the reasonably accurate net assessments of the Red Army's capabilities and its doctrinal adaptations helped the Finns to devise operational concepts that functioned reasonably well and were in harmony with strategic objectives and realities. The Finns did not underestimate the military might of the possible enemy. However, in the late 1930s, the Finns had obtained correct information about the Red Army but its analysis had encountered problems leading to some wrong conclusions about its true capabilities.[40]

An active approach was considered by the Finns as a strategic and operational necessity because it would be needed to compensate for inferior numbers. Reino Arimo concludes that the Finns were able to make operational plans that had been designed to achieve strategic objectives. An active approach as part of a defensive strategy offered promising prospects for success in the wilderness. The battlefield immediately after the border on the Finnish side was such that the Soviet Union would be

unable to utilize its superior forces in an effective manner. For a long time, the Finns estimated that at the narrowest place of the Karelian Ishtmus, where the Mannerhein Line was located, the Soviets would not have space to utilize more divisions than the Finns. However, a major shift occurred just prior to the Winter War when the Finns revised their operational plans in 1939. This time they understood that the Soviet Union was capable of deploying more troops against the Finns than they had earlier anticipated. Thus the FGH ordered in October 1939 that the operations on the Isthmus would be defensive and the Army would have a defensive posture relying on the use of fortifications.[41]

In a larger frame, as hostilities broke out, the Finnish operational doctrine rested upon an assumption that the Red Army would attack with great numbers on the Isthmus. To repulse it, the Finns needed to employ an active defensive operational concept. The Finnish operational ideas were not overly complicated. All war plans were aimed at winning time for political leadership. To that effect, the covering forces would commence their delaying action directly from the border. In the meantime, the general mobilization and troop concentrations would take place. Clausewitzian influence is seen in the fact that Finnish operational doctrines saw defensive battles as transitional periods between attacks. After casualties had been inflicted on the attacker and it was exhausted, large-scale counter-attacks would follow. This was done to regain the initiative. The covering-force phase proved useless in the Winter War because the Field Army had been successfully and timely mobilized and concentrated, especially to the Karelian Isthmus, which was a gateway to central areas of southern Finland, and the shortest route for the Red Army's drive toward the capital city Helsinki. Defensive battles on the Isthmus remained with the strategic defensive throughout the war.[42]

In northern Finland, the active operational defensive concept was based on the use of independent battle groups along roads. The Finnish planners kept up ideas of pushing the operations beyond the borders in these areas. By advancing deep into Soviet territory, the Finns aimed at supporting the defensive battles in Ladoga Karelia, the second most important area of operation. The presence of Finnish troops posed a threat to the Red Army's flanks, tied its units, freed own troops and made possible successful operations further south. The logic of these plans was based on 'offense is the best defense' thinking. The operational plans for the north were based on the realization that, due to poor infrastructure, the enemy could not concentrate large forces to threaten Finnish territory or to sever their land connections to Sweden.[43]

The Finnish planners had regarded as a major threat perception that the Soviet troops would be able to advance to the rear of the Army of the Karelian Isthmus through a corridor next to the northern shore of Lake Ladoga. Therefore, the control of the road junction of Suojärvi was considered pivotal. There was additional concern over the possibility that the Red Army could make it to the railway in Lieksa where it was nearest to the border. There were very few roads leading from the border. This was deliberate as the Finns could not afford to allow Soviet troops to advance to the dense road network and connecting roads leading to inner Finland because the separate converging Red Army formations could link up there and the attacker could shift its point of gravity. Thus the offensive needed to be halted in wilderness areas closer to the border. The Finnish fears materialized practically all along the fronts. The Red Army reached the Tolvajärvi defile. The Soviet troops joined forces at Koirinoja junction next to Lake Ladoga and Ilomantsi and Kuhmo municipal centers and road junctions were threatened as well. Further north, Suomussalmi village was lost and two Soviet divisions had plans to continue to the Swedish border and cut the country in half between Oulu and Tornio. The Red Army was also able to advance deep into Lapland.[44]

The operations of the Finnish Navy were tied to land warfare. The Navy mined the waters of the Gulf of Finland. The ships of the Baltic Fleet attacked Finnish coastal batteries but they did not succeed in cutting the vital sea-lanes nor they did conduct any strategic landing operations. The Finns deterred all threats from the sea. All in all, the naval action did not play a significant part in the war.[45]

The preparedness of the Finnish Air Forces had been improved by drawing mobilization plans and operational plans for the Air Forces. The Air Forces were a protective force that was to be mobilized at an early stage before general mobilization. The squadrons were to operate as separate units. As far as aerial war is concerned, the main objective of the small Finnish Air Force was to try to deny the Soviets air supremacy, at least in a certain time and place.[46]

In an ideal scenario, the adoption of feasible tactical systems determines the selection of strategic objectives and plans. This is to say, as Millett, Murray and Watman argue, that alleged tactical ineffectiveness can actually result from the conflict between strategy and tactics and thus be a sign of strategic ineffectiveness. Moreover, strategic effectiveness would be irrelevant if there were not fighting units capable of succeeding in their engagements.[47] In the Finnish case, this was not a problem.

Given the strength of the Soviet Union and the fact that the Finns were overwhelmed, it is somewhat surprising that only on the Karelian Isthmus was momentum passed on to the Red Army, and it happened in the last stages of the war. The Mannerheim Line had held for over two months. At the same time in areas north of Lake Ladoga, the momentum was shifting to the Soviets after three months of fighting. The successful defense in the north did not matter as the war was decided in the south. Besides, the Red Army could fix Finnish troops in secondary directions even though they would have been needed on the Karelian Isthmus.

Yet it implies that Finnish operational and tactical concepts were sound and they fit the strategic framework. The Finnish strategy was based on the realistic idea of what was tactically feasible and suited for combat realities. What was tactically possible shaped the way in which the Finns selected their strategic objectives and plans. The chosen tactical system gave them the ability to win single engagements that served a larger purpose, and boosted their morale. Since tactical effectiveness is viewed by many as a synonym for military effectiveness, it is important to note that the Finns scored many local victories, thus achieving battlefield successes.[48]

## Out of Inferiority: The Fundamentals of Finnish Tactics

Tactical concepts of various Finnish services were based upon demonstrated operational capabilities. Moreover, Finnish operational capabilities were consistent with tactical conceptions. They were not all that different from other European armies. Yet in relation to fire and movement, the Finns strongly emphasized movement. Cover and concealment were also stressed because they were needed to achieve surprise. Timing was of the essence to be able to seize opportunities.[49]

Finnish tactical doctrine, relying on maneuver, was realistic and suited to the combat realities and operational doctrine. There was no dissonance between them. Over and over again, the Finnish Army exhibited the structural and intellectual capacity to conduct mobile operations—but mainly at the tactical level. A small-unit-maneuver warfare doctrine with asymmetrical features increased their chances of success.[50]

Juha Hollanti persuasively argues that the basic assumption of Finnish tactical thinking was that they would always be numerically inferior. Peculiarities, such as terrain and weather, would guide the development of original Finnish tactics, which had to compensate for their inferior numbers. The military strength of the presumed enemy, the Soviet Union,

meant that Finnish tactics would derive out of inferiority. The Finns developed their tactical methods to check those of the Soviets. Given the Red Army's firepower, for example, the Finns knew they did not possess the resources to fight them in open terrain. Success was deemed possible if the Finns could skillfully apply their doctrine in practice and could operate better in the existing, forested conditions. This referred to better tactical skill and qualitative superiority. The Finns aimed at identifying and exploiting the weaknesses of the Red Army tactics and make those vulnerabilities strengths of their own tactics. The Finns had studied Clausewitz who argued that numbers could be balanced by quality. To concentrate superior numbers on a critical point did not require absolute superiority. Instead, relative superiority could be possible through a more effective and economical use of forces. This was creating a point of gravity. The Finnish adaptation of the Clausewitzian notion of defense being the strongest form of war was offensive–defensive at operational and tactical levels, which meant that the Finns should not opt for passive defense but, rather in their defensive campaign, display activeness and fight offensively every time it was possible.[51]

In their Air Forces, Finnish military effectiveness at the operational and tactical levels of war also stemmed from inferiority. The Finns had been, as Petteri Jouko suggests, forced to organize and train their scarce human resources to the best of their abilities. Having well-trained troops, the competent Finnish commanders could use their small resources in a concentrated manner, and could compensate for numbers with the quality of troops. The level of pilot training was vividly illustrated in their demonstrated dogfight successes and downing–kill ratios.[52]

### *The Importance of Surprise*

Another method of prevailing with relatively small troops and multiplying combat power was through the utilization of the element of surprise, the main tactical principle for the Finns. In a military sense, surprise results from such action that the enemy is unprepared for and therefore not well able to respond effectively to, especially if it produces a sudden shock effect. With surprise on their side, the Finns could seize and retain momentum. Finnish tactical effectiveness incorporated the utilization of many opportunities that present themselves (and disappear as quickly) in the changing situations of modern warfare.[53]

The Finnish ability for tactical surprise in terms of the timing, the place, the axes of the attack and its exploitation, the strength/weight of the attack, and modus operandi was not an improvisation but rather a result of longer development. In essence, surprise was achieved through the tactical mobility of ski troops and the utilization of terrain and conditions. Juha Hollanti asserts that the key factors in Finnish tactics before the war had been winter, forest, darkness, surprise and skill. The first three guaranteed surprise but they were not all necessarily needed. Yet the possibility for surprise grew if the conditions became more challenging. Even if surprise was not obtained, the difficult conditions could badly hamper the activity of an unprepared force in a trackless wilderness in winter.[54]

The Finns valued surprise in attacks to a point that they often started them with barrages even if there would have been artillery shells available to support them. Tactical surprise often resulted from the concentration of Finnish troops in unexpected places, normally at the flanks and rear of the Soviets. The many asymmetrical tactical actions by the Finns against the softer targets in the rear surprised the Soviet leaders who did not know what to expect of their enemies. The political commissars had merely warned of mines and stressed that the Finnish snipers, *kukushas* (*cuckoo birds*), hide and shoot from the trees (this wrong myth still lives in Russia!). In addition to not knowing Finnish tactics, many Soviet officers (who were relatively young due to Stalin's purges) and troops were not familiar with their enemy's organization, weapons and training. They were also lacking relevant experience and vital knowledge of the peculiarities of warfare in Finnish terrain and winter weather.[55]

Surprise often resulted from deception and camouflage. The long Arctic nights were advantageous conditions for the Finns. The Winter War coincided with the darkest period of the year. Some of the major battles took place when there were just three to four hours of daylight. Troop movements were hidden as they could be transported under the cover of darkness, while Finnish anti-tank teams often were able to destroy immobilized Soviet tanks in the dark. Aerial reconnaissance was often impossible due to weather conditions. Also, bad weather and blizzards were used to avoid Soviet power, not to give accurate knowledge of their positions to the Red Army and to conceal own activities. In this way, casualties could be minimized and surprise achieved. Surprise was also attained through the means of tactical deception: camouflage, concealment, feints and other diversionary measures, such as dummy positions. Smoke screens were difficult to use in winter. The Finns did not create fictional units as deception but in January 1940, they changed the numbers of divisions to fool Soviet military intelligence.[56]

By acting surprisingly (especially through envelopments) the Finns were able to seize momentum and hold it in many places, or deny it. Sometimes they were able to regain momentum if it had been lost. In northern fronts they also retained freedom of action. Indeed, the Finns exploited their advantages into considerable operational successes in various battles fought along the northern border.[57]

### *Rapid Exploitation of Opportunities*

Exploitation refers to a situation when one side takes advantage of the enemy's withdrawal from the battlefield. It depends on the ability to utilize those opportunities. Millett, Murray and Watman point out that 'therefore, a tactical system that utilizes decentralized decision-making, rapid movement, small-unit initiative, and imagination are basic if a military organization is to convert these fleeting advantages into battlefield success'. On the other hand, they add, timely exploitation is hindered if a tactical system neglects the above-mentioned and has strictly centralized command and control, places great emphasis on fighting set-piece engagements, and favors schedules from the top down.[58]

The first is an apt description of the Finnish tactical system as was in place during the Winter War, and the latter was the kind of action based on preconceived formulas that the Finnish Army aimed at avoiding. The Finns managed to defeat and encircle the poorly integrated Soviet units with higher mobility to exploit this advantage into tactical and operational successes. The Finnish commanders often retained the freedom of action, a precondition for exploiting opportunities when they presented themselves.[59]

Furthermore, economy of effort and economic use of forces required that the Finns retained a reserve for the unexpected, to use for reinforcing or as a decisive force. After momentum had been obtained through surprise and the enemy had been locally broken up by point of gravity, reserves were used to exploit the success. The third major characteristic of Finnish tactics was the timely use of reserves to exploit successes and openings. In addition to committing their reserves at a crucial moment, they had to be directed toward the right location. The Finns found out that in order to be able to emerge victorious in a certain time and place, and to be able to use the reserves effectively, the reserves of the numerically inferior side had to be relatively (in relation to own total strength) stronger than those of the superior enemy.[60]

Due to inferior numbers, the Finns rarely had a chance to experience the energy given by the arrival of fresh reserves. It was more common that they had to create small reserves from their existing forces, often supply and HQ units, and those reserves had to prepare for different contingencies. The establishment of the point of gravity also meant risk-taking and thinning-out as one could not be strong everywhere. The systematic problem in creating reserves was that the larger troops were organized in a triarchic fashion. It made it difficult to divide troops into attacking, fixing and reserve components.[61]

## Strengths Against Soviet Chokepoints

### *Preparing to Battle the Elements*

Climatic conditions and seasonal changes can create advantages and disadvantages or obstacles for military forces. Success in northern operations depended on the ability to adapt to the conditions, to overcome and to exploit them. Northern European armies did not always go to winter quarters but had conducted winter operations since the Middle Ages. Midwinters, before the break-up period, have proved suitable for offensive operations if the attacker has secured its over-snow mobility and logistical support. For instance, the Russian Army started its war against Sweden-Finland in the winter of 1808 because the defense of the reign's Eastern provinces was based on the arrival of reinforcements from Sweden, and with the freezing of the Baltic Sea, boats could not sail. Physical geographical factors, like underdeveloped road networks and vast wilderness areas, shaped military operations in many ways, and topography determined all operations. The terrain constrictions channeled movement, shaped the battlefields and influenced events. Numerous historical antecedents illustrate that ill-prepared armies could face disasters in the winter of the north without proper training, equipment and preparation. 'General Winter', the harsh cold Russian winter weather, has led to the demise of many armies, such as the Swedish Charles XII's attack in 1707, Napoleon's campaign of 1812 and Hitler's Eastern Front in World War II.[62]

In cold regions, the armies have two adversaries: the cold and the opposing force. The effect of the northern environment could be hard on personnel, materiel, organization and operations. Cold weather reduces the efficiency of men and machines. Without good shelter the appalling weather could be fatal for soldiers and make weapons dysfunctional.

Engines, fluids and the batteries of radios would freeze easily. Mobility was also hampered. Cold weather was a major concern for leaders. The winter of 1939–40 was one of the coldest in the twentieth century. Deep snow also had an impact on military action. Although there was not exceptionally much snow then, the Soviet military was unable to utilize its overwhelming firepower in winter. The effect of artillery shells in deep snow was practically nullified, and their fuses and gun recuperators would not always function in the cold.[63]

All this placed requirements on the preparation and training of soldiers and units. To overcome the cold-related problems and prevent noncombat casualties due to cold, the soldiers needed to have the right kind of protective clothing and equipment. Moreover, they had to be trained to adapt their use of weapons and equipment to those circumstances. The acclimatization of the soldiers was also important. They needed to possess relevant survival skills and field-craft, and they had to be physically and mentally fit in order to survive and fight in the adverse weather conditions. Equally important was to train the soldiers to ski and to take advantage of the tactical maneuverability that snow offered. Cold weather and frostbite could be fatal or incapacitate soldiers. Exposure to the elements, in particular the wind-chill factor, for extended periods of time could affect troops' combat effectiveness.[64]

Millett, Murray and Watman write that 'the problem may lie in how well a military organization recognizes the obstacles that the enemy, in its technological capabilities and its operational weaknesses in combat, stand in the way of achieving its strategic goal'. The Soviet planners were partially aware of the trafficability effects of the Finnish terrain, and that they favored the defenders. Moreover, movement was difficult because of the topography. The hilly and forested terrain was broken up by many rivers and streams. Numerous bridges would not hold heavy traffic without reinforcing. The defiles and bridges could not often be circumvented. They anticipated that their heavy materiel could prove a burden for them in such conditions. All this caused many potential chokepoints that the Red Army needed to pass in a very narrow front. The flanks of these long columns were vulnerable against Finnish attacks. Yet the *PU-36* manual superficially stated that winter combat is a special kind of warfare only when it comes to deep snow, coldness and short daylight. For the Finns those conditions were not special but normal. The reality of war showed that the Finnish terrain and weather posed substantial limitations on the actions of the Red Army that was inadequately prepared for war in the

north. Its ability to attack was to be soon depleted and combat power decreased in those conditions.[65]

These possible weaknesses of the Soviets had not gone unnoticed by the Finns. The Finnish defense planners had carefully studied the military geographical factors to arrive at the right insights about the features limiting the Soviet Union's offensive operations. They realized that they would greatly benefit if the Soviet attack would take place in winter. The Finns did not feel that it would be impossible to stop the attack of the Red Army particularly in that season. From the study of *PU-36*, the Finns knew that the Red Army would advance along roads. Its attacks could be easily predicted in an area with few roads and numerous natural obstacles. The Finns estimated that the Soviets could not use their forces en masse in difficult terrain, in particular in areas north of Lake Ladoga. The FGH had doubted the Red Army's ability to employ their doctrine of deep operations because they had not trained sufficiently to execute it. The Finns had also correctly anticipated that the advancing Red Army could not shift its point of gravity due to the lack of connecting roads. Its technology and heavy equipment would become a burden. It was also expected that it would not be possible for the Red Army, forced to advance as separate formations, to push through the border areas. The battles would be fought over certain places, there would be wider fronts and longer distances, and the supply lines would be extended and the Soviets' overall ability to operate would be diminished. The Soviet commanders would not have much freedom to maneuver, and they could not conduct synchronous offensive actions. Their operational tempo would slacken and their operations would take time giving the Finns possibilities to retaliate.[66]

The Finns devised their plans of counter-measures according to these conclusions. The idea was to create advantages by making nature their ally. The exploitation of harsh and difficult forested terrain and climatic conditions was seen by the Finns as their major strength and a 'force multiplier'. Hence the Finns were taking advantage of Soviet problems related to terrain and weather and 'hitting where its hurts'. The effective use of terrain and Arctic weather conditions had been incorporated in their doctrine and training.[67]

The Finnish troops usually chose their positions from an advantageous terrain in which the Finnish defenses were usually concentrated on Soviet chokepoints. By taking up interior lines and defending defiles with token forces, the numerically weaker Finnish defenders were often able to defeat the Red Army formations by concentrating their own forces and creating

local superiority at a critical point. This was accomplished as the Soviets, suffering from terrain and weather conditions, were unable to bring their superior power to bear. The Finnish aim was to achieve big results with small resources, and defeat the Soviet troops in sequence where possible. To take advantage of their own strengths, they had to be placed against the absolute weaknesses and comparative disadvantages of the Red Army.[68]

However, on the Karelian Isthmus, the advantage of terrain did not play as important a role as elsewhere. There, the initial Soviet attacks on the Isthmus had been piecemeal without any possibility for flanking action. Even though massing their troops, the sheer weight of the Soviet attack had not been enough to overwhelm the Finns. During the early stages, the Red Army did not produce a focused effort but rather dissipated their forces all along the long front. In February 1940, after reinforcing their troops and adjusting command structures, the Red Army's offensive was resumed and conducted, as Carl Van Dyke has shown, in a more concerted fashion. The Soviet Union had endless resources and possibilities to develop their operation that had not reached its culmination point. This meant also that by the end of the war, the Red Army's military effectiveness improved, thus turning the odds in their favor. The Finns places their hopes on the coming spring thaw, *Rasputitsa*, which would have prevented the Soviets from sending needed reinforcements to the Karelian Isthmus.[69]

Many oral history testimonies of former Red Army soldiers illustrate the wide range of problems they faced in the Finnish territory and the conditions that reduced their combat effectiveness. As one veteran, who had been stationed in Ukraine, later recalled,

> That war was unusual. I had been at the front for months and lost many comrades but had not seen any Finns, dead or alive.— We were issued skis but none of us could use them. The skis became a burden and soon we left them behind.— We attacked in forests in knee-deep snow and shot in various directions. On the contrary, the Finnish small-arms fire was accurate.— That winter was cold. Our commanders had fur coats but we only had great-coats. We experienced hardship. We slept in the snow where we dug holes. That way it was slightly warmer. There were no blankets. When we attacked we got sweaty and weary. After attacking, soldiers laid tired in the snow. Often some stayed lying and froze to death.[70]

The veteran is talking about the Finnish strengths and differences in preparation. He had noted many abilities that the Finns possessed, such as white camouflage, skiing skills, appropriate clothing and marksmanship,

which the Red Army was lacking. The veteran makes a point about Finnish concealment as he refers to the empty battlefield. The Red Army therefore had problems in deep snow and subzero temperatures, in particular in relation to bivouacking. Forest-fighting has a significant psychological dimension. One frustrated Soviet political officer wrote in his diary on 9 December at Kollaa, 'How fed up I am with sitting in the forest.' The environment was a demoralizing factor for the Ukrainians who even feared the snowy and dark forests of the north (the Finns did not view the forests as a hostile environment but rather as a source of protection).[71]

### *Winter Warfare Through a Terrain-Analysis Lens*

Commanders need to read the tactical situation and the configuration of the ground. Terrain analysis is the process of analyzing a geographical area to determine the effect and hindrance of natural and man-made features on military operations. It incorporates an assessment of the terrain and the tactical advantages offered by different landscape conditions, and shows the connection of battlefield terrain and tactics. Therefore, it clearly demonstrates the peculiarities the belligerents of the Winter War were facing when fighting in northern boreal forests.[72]

In forests, observation and fields of fire were severely affected by contour and vegetation. Although the actual Arctic above the Arctic (Polar) Circle was practically treeless open terrain, visibility was extremely limited in Subarctic boreal forests, many of them old-growth spruce and pine forests. Tangled and dense coniferous vegetation also served as a natural obstacle. The Finnish landscape was characterized by tree-covered hills that, in theory, enabled good observation, yet in practice made it very difficult to detect movement in the forests between those hills. It was different from central Europe where the hill-tops as commanding ground were often tactically important. To observe the actions of the enemy, constant patrolling was needed. Much of the forest-fighting was close-quarter as foliage had an impact on the range and accuracy of fire, and the bullets easily ricocheted off branches. Forests had normally limited fields of fire without removing some of the undergrowth. It was not done completely because the position would have been revealed from the air. However, in order to secure their road connections the Soviet troops often cut down all the trees in the vicinity of the roads.[73]

Artillery had challenges in forests as it was difficult to use range finders and the shells often exploded in tree trunks. Technology was influenced by

geographic and topographic factors. The portable light mortars were handy in hilly forests. They were more useful in dense forests than artillery pieces because the ranges were short and their shells had a high-arcing ballistic trajectory, allowing them to be fired behind hills.[74]

About 70 percent of Finnish territory was covered with forests. There were little cuttings in the border areas, thus giving some cover against enemy fire and great concealment from enemy observation and surveillance. The snow on the ground flattened the terrain and hid the defenders' positions. The same happened with snow-laden coniferous trees. Yet after artillery barrages, the terrain was black also in winter. The forests allowed the attackers to enjoy the advantage of moving undetected and the element of surprise that, in many cases, guaranteed tactical successes. The forests also enabled guerilla action. Casualties could be minimized when the men obtained a degree of stealth by wearing white camouflage suits, and to hide equipment it was painted white. However, the quality of white outfits mattered: the Soviet long snow gowns were impractical.[75]

The Finnish commanders were taught that the forests provided excellent cover and concealment, and that they were the best terrain for offensive action. Forest-fighting was emphasized because it limited the use of sophisticated technology and because it was a familiar surrounding for the Finns. Orienteering was more difficult in forests than in open terrain, and thus it was easy to get lost in thick forests. This resulted in delays in military movement. Yet the Finns, who had excellent compasses, had been trained to find their way better than the Red Army soldiers even in pitch black. Also, the Finnish topographic maps were more accurate and of better quality than those used by the Soviets.[76]

The adverse winter weather, short daylight and particularly terrain along the Finnish–Soviet borders favored the defender as it disrupted the Red Army's formation, tempo and timetables. By being able to select the ground to defend or attack in, the Finns deprived the Soviets from initiative, the possibility of conducting planned offensives and utilizing their firepower and numbers. Even the use of small reinforcing obstacles confused Soviet plans and often made their attacks piecemeal and uncoordinated. Waters were natural obstacles that hindered movement. The broken terrain with many defiles provided the Finnish defenders with many chokepoints, and the depth of area of operations was an advantage for the Finns. On the Mannerheim Line and in defiles, which offered several in-depth positions, the Finns could block the Red Army's thrusts. To achieve its objectives the attacker needed to penetrate them. Water obstacles, such as big rivers, gave

the Finns a chance to fix the enemy and concentrate their own forces on critical points. The hills also turned the direction of enemy attacks.[77]

Finnish engineers constructed defensive positions in places that were not easily outflanked. However, permafrost made it sometimes difficult to dig into. The fortified positions were camouflaged and reinforced with barbed-wire entanglements, minefields and booby traps. As a consequence, they required much effort to clear. The Mannerheim Line, although unfinished and obsolete in many places, was a barrier that gave an advantage of terrain and protection from Soviet direct and indirect fire (cover). In order to obtain additional cover, the Soviet troops tried to use metal shields or sledges hauled by tanks to approach the Finns but they gave no cover from the flanking enfilade or oblique fires. However, in its attempts to breech Finnish fixed defenses, the Red Army was forced to attack one of the strengths of the Finns.[78]

Populated settlements were thought to be battlefields in the Winter War. This assumption was based on the fact that in the north, population centers were often chokepoints like railroad and road junctions that were objectives for converging roads. Therefore, it was often deemed necessary by the Finns to seize and secure them as key terrain giving them a marked advantage. The need to hold population centers and traffic junctions had been reflected in Finnish operational plans.[79]

All armies need certain space and roads, avenues of approach, for movement, troop transport and supply. Narrow gravel roads typical for the border areas were easily jammed. Motor transport was sometimes possible only after significant improvements. Narrow roads also forced driving in long columns that were difficult to secure. The limited number of roads channeled the Red Army's movement into border areas. The Finns could identify the likely enemy avenues of approach by employing line-of-sight (intervisibility between two places) analysis and placing obstacles on these routes. By correctly predicting the enemy's troop movements, the Finns could block its advance. With a limited road network, the movement of the road-bound enemy could be stopped, slowed down, controlled (diverted) and channeled using reinforcing obstacles, such as earthworks, wire obstacles, anti-tank ditches, barriers, downed trees and tree entanglements (abatis), shell craters and minefields on the possible Soviet avenues of approach.[80]

Due to the inadequate over-snow mobility of the Red Army, the engagements in these areas were centered on the roads. From the Finnish viewpoint, it was not wise to spread inferior forces around in large forests.

Rather the troops were employed along the possible Soviet avenues of approach. By doing this, the Soviets' ill-fated attacks were often directed against the strongest defenses of the Finns.[81]

The Soviet Army's added logistical requirements and reliance on roads were recognized by the Finns. By employing feigned withdrawal, the Finns aimed many times at drawing the Soviets deeper into Finnish territory. The Finns knew that this would result in overextended and vulnerable lines of communication and supply. This being the case, the Finns did not need to engage the strengths of the Soviets. They directed their attacks towards the flanks and the rear of the advancing enemy. The exposed flanks also created favorable conditions for encirclements by mobile ski troops. The majority of the Finnish plans were targeted at cutting the Soviet lines of supply and communication, in order to cripple the Soviet troops already suffering from the effects of cold and difficult terrain.[82]

The Soviet offensive doctrine relied on the use of tanks. Although they were relatively easily deployed to the Karelian Isthmus, vast and trackless forests and the sufficient thickness of trees and the deep snow constituted an obstacle to tanks. The tanks were also blind in the forests. Finnish anti-tank action was easy as the Soviet tank wedges were bound to roads. Destroyed armor and trucks caused impassable roadblocks to narrow roads.[83]

The railroads provided opportunities for operational mobility. The Finnish railroad network was much better in the south than in the north. It was important for the Finns to control the axes of the railroad lines. They succeeded in keeping all of the major railroad crossings near the border in their own hands. This especially helped them to transport their troops in a north–south direction. As a consequence, in early 1940 the Red Army made railroad constructions in conjunction with their offensive preparations. They aimed to connect the Kirov (Murmansk) railroad to railheads close to the Finnish border territories in Ladoga Karelia. One of the major impediments to effective operations in the area was the limited capacity of the one-track Kirov railroad for rapid transport of troops or materiel to the front.[84]

When the waters and marshlands froze they were no longer natural obstacles, but rather avenues of approach. Hardly any terrain remained severely restricted. However, in the beginning of the winter of 1939–40, there was little snow that still covered soggy spots, which made them natural tripping obstacles. This made it difficult for the Red Army to advance along its footpaths. Tanks could cross ice-covered lakes; rivers and swamps were avenues for the Red Army to outflank Finnish defenses.[85]

Typically, the Finnish troops moved along man-made roads or trails. In winter, the limited existing road network was not the only possible avenue of approach. Given that the ice was thick enough, ice roads could be constructed along lakes and rivers in order to facilitate off-road movement. These 'winter roads' served as shortcuts. There was even a major truck road over Kvarken, the narrow region in the Gulf of Bothnia between Finland and Sweden. The key to the Finns' success in the Suomussalmi–Raate double operation was, in part, that they had built a supply road on the ice of lakes situated parallel and to the south of the Raate road along which troops were brought near to designated road-cutting points in secrecy. Emphasis was placed on trail-breaking at the last minute to cover the tracks. The temporary roads had to be kept open. The Finns paid considerable attention to ploughing and maintaining the roads for which they had engineers and special designated units, many of them consisting of peacetime personnel of the National Board of Roads and Waterways. Both belligerents extensively used the ice cover of lakes as airstrips.[86]

The frozen wastes of the Gulf of Finland, especially at the Bay of Vyborg, offered the Red Army a new avenue of approach along the ice to the right flank and rear of the main Finnish forces. The opening of this 'ice front' seriously threatened the Finnish supply lines. The Finns could only contain the bridgehead by the end of the Winter War with difficulty. In the central part of the Karelian Isthmus, the Red Army managed to cross River Vuoksi a few days before the cessation of hostilities and created a small bridgehead that the Finns could contain until the war ended.[87]

To deprive the Soviets the advantage of frozen waters, Finnish engineers had made preparations at nighttime. They mined the ice and sawed cracks in them. At places, the Finnish defensive systems were supported by flooding. The Finns occasionally let additional water onto the ice of a lake, thus effectively slowing down the advance of Red Army infantry units. Once they got their feet wet in freezing weather, they would soon get frostbite and lose their ability to fight.[88]

### *The Importance of Over-Snow Mobility*

In winter, the size of the northern battlefield grew considerably. Yet vehicular traffic was not possible along slippery icy roads in winter without clearing the roads first (as much as several times a day after blizzards). The Winter War demonstrated that mechanized and armored units tied to narrow, unpaved gravel roads became a burden to the Red Army. The Soviets often

used a large number of impractical horse-drawn carts, instead of sledges that could have traveled off-road. The roads were not the only avenues of approach: infantry on skis could go anywhere and retain the freedom to maneuver. Over-snow mobility was thus needed in order to operate effectively.[89]

The Finns viewed winter as an aid to operations and an aid to the rapid movement of troops rather than as a hindrance, which was the common conception. Systematic development work had provided the Finns with maneuverability in a trackless, snowy terrain. The mobility of the Finns was greatly assisted by skis and sleighs. Their over-snow mobility gave the Finns a clear advantage over their enemies. As a result, Finnish tactical mobility—with the exception of heavy artillery—was excellent. Without that ability, the Finns could not have practiced their preferred tactics. Camouflaged ski troops were highly mobile and could mount surprise attacks against the exposed flanks and rear of the enemy to cut off communications and supply lines, in turn aiding their destruction.[90]

Even though *PU-36* noted that over-snow mobility depended on training, equipment and the nature of the theater of war, the Finnish winter conditions severely hampered the movement of the Soviets. The fundamental weakness of the Red Army in the Winter War was the lack of winter training and skis. For this reason, their tactical mobility was severely restricted. Skis would have aided their movement, but they rarely had skis, and in cases where they did, they could not use them. At the beginning of the war, there was not enough snow to pose a hindrance to foot soldiers (30 cm of snow was the limit for effective movement). Nevertheless, snow impeded and slowed down the movement of Soviet infantry troops without skis. The men became tired and weary. After some time, their combat effectiveness was diminished. As a consequence, the Red Army units aiming to outflank the Finns were not usually capable of attacks immediately after long marches on foot along paths through the snow.[91]

### *Scorched-Earth Tactics*

For a long time, armies foraged for their materiel in the areas they occupied. In the Finnish border areas, this was not possible because the Finns had plans to destroy or remove all items that could benefit the Red Army. It was felt that that employment of scorched-earth tactics would place pressure on the Soviet logistical support units, in particular in winter. When advancing deep into Finnish territory and with stretched supply lines, the Red Army would be unable to bring in enough materiel in time.

Even short delays in cold weather would have an impact on the troops' ability to fight and eventually stop the advance.[92]

Burning everything useful—including buildings, food, horse feed and bridges—diminished the operational capabilities of larger troop formations in winter. Arctic regions were typically sparsely populated. This made it difficult for the invading troops to find adequate shelter. They had to settle for snow caves, brushwood huts and primitive dug-outs, while the Finns dwelled in heated tents; an advantage without which the Finns could not have prevailed in the north. Behind their own lines, the Finns could use remote farm houses and loggers' cabins to rest. This was a matter of the highest importance in winter because moisture affected the soldiers, and the cold weather highlighted the need for proper accommodation. Lack of shelter in winter often led to noncombat casualties. Nobody could light fires in daytime. When the Soviet soldiers were warming themselves around campfires in the dark, the Finnish ski patrols found them easy targets. Otherwise, the troops tended to fire too high in the dark.[93]

### *Strengths Against Weaknesses*

The opening stages of the Winter War have often been associated with Stalin's huge underestimation. He had anticipated that victory would follow in three weeks when the Red Army reached Helsinki. The Finns had no gross overestimations, yet they generally trusted in their own abilities. The FGH had carefully followed the tactical developments within the Red Army. The Finns did not underestimate the might of the possible enemy. Toward the end of the 1930s, the Finns had obtained correct information about the Red Army, but there had been problems in its analysis, leading to some incorrect conclusions about its capabilities.[94]

Most of their calculations about Soviet capabilities in a possible war in relation to their own were accurate enough. For the northern sector, these evaluations about Soviet combat power proved misleading, but for the south—the main operational areas—they were correct in pointing out how Finnish military capacity matched up to that of the Soviet Union.[95] The assessment of the Soviet ability to wage war influenced Finnish strategic decision-making and, indirectly, the level of preparedness. Thus, assessments increased Finnish strategic effectiveness, as they could design a national strategy to meet the threat of an all-out Soviet invasion. The Finnish strategy aimed to make the best use of limited resources and plan their actions in such a manner as to allow them to use their own strengths and exploit their adversary's weaknesses.

At the strategic level, the Finns were lacking the means to pit their own strengths against the critical Soviet vulnerabilities and weaknesses. Successful mobilization—thanks to the regional mobilization system—prevented a surprise attack. The Finns lacked the means to target enemy weaknesses at the strategic level. That would have required bombers and heavier artillery. The Soviet Union had the capacity for strategic bombing; a major strategic strength aimed at breaking the Finns' will to fight and a true strategic center of gravity for them. However, Soviet strategic bombings failed to influence the resolve of the Finns.[96]

The ultimate goal of the Finnish defensive strategy was to try to wear down the attacker. This included a combination of operational-level delaying tactics—defensive and offensive—at all times trying to deny the attacker the use of certain areas and deprive him of the ability to utilize his superior numbers. Often, the Finns avoided engaging the Red Army in decisive battles because they would have had to pit their strengths against those of their adversary. This would have included the threat of early defeat. However, circumstances permitting, the Finns often allowed the Soviets to advance deep into Finnish territory into disadvantageous positions with overextended lines of supply and communication. A cut-off unit would also be vulnerable to further attacks. All Finnish actions were aimed at exacerbating the execution of Soviet plans. Poor conditions and bad weather would also undermine discipline (discussed in the following chapters) and eventually destroy the will to fight, and finally the capacity to resist.[97]

In contrast, an illustrative measurement of tactical effectiveness is the degree to which an army pits its own strengths against the weaknesses of its opponent. In this respect, the Finns clearly deserve a high mark. The range of weapons and human characteristics employed to impact upon combative power are strengths that effective tactical systems use to exploit the weaknesses of their enemies. The Finns adopted a tactical system favoring lightly armed, small-unit action. Just like the armies of many other small nations, the Finns, who valued individuals above all, had not chosen a tactical system that would be liable to result in heavy casualties. People were their main strength.[98]

The aforementioned is described by Millett, Murray and Watman, who have used the Finnish Army as a sharp contrast to the more rigid British tactical system of World War I. They argue that

> The Finnish tactical system melded the characteristics of Arctic terrain and weather with the skills, small size, and light equipment of the Finnish Army.

> Consequently, they were able to engage the Red Army in depth by utilizing ski troops and deep raids to fragment and destroy enemy columns. The Finns avoided set-piece combat situations in which the more ponderous and numerous Soviet forces could utilize their strengths. So long as the battlefield remained fluid, the Finnish tactical system generated considerable fighting power from relatively few resources. The Soviets were not successful until they pinned the Finns in prepared, static defenses.[99]

Millett, Murray and Watman rightly reiterate how the Finns exploited the weaknesses of the Soviet forces. Their interpretation is a reasonably accurate description, if a little too broad. Indeed, fighting power could be enhanced by exploiting the harsh conditions. The Finns noticed that successful operational art and tactics were based on correctly understanding and appreciating the effects of the northern environment on combat actions. All operations and tactical methods needed to be adapted to the specific terrain and weather. The peculiarities of warfare in Subarctic and Arctic conditions had been the basis for the development of Finnish tactics, and they were incorporated into training. Operational and tactical effectiveness were achieved when the Finnish units applied these techniques to fight battles and achieve operational objectives. By allying themselves with nature and going after the weaknesses of the Red Army, the Finns were able to multiply their numbers and inflict heavy losses on their enemies.

## Adaptations and Innovations

### *Culture Enables Adaptation*

Military effectiveness also depends on military innovation and adaptation. Williamson Murray asserts that military innovations that are commonly evolutionary are faster in wartime than in peace. To be successful, they require imaginative officers, and also a receptive military culture that is not bound by rigid doctrines. He and Brian Bond write that one of the criteria for measuring the effectiveness of military institutions is their flexibility in adapting to changing situations. The ability to adapt is needed to overcome deficiencies and difficulties.[100] When facing a threat, the Finns showed considerable capacity for innovation and adaptation at operational and tactical levels.

According to Millett, Murray and Watman, tactical effectiveness requires that there exists a connection between realistic doctrine and effective training. This means mechanisms to transfer and incorporate recent

combat experience into training. The Finns made a great effort to prepare their troops for the realities of combat. The Finnish training and organization were able to accommodate the conversion of available resources into effective combat methods and best practices. Their training was designed to make their soldiers capable of performing the tasks as called for by their tactical system. Their training system had been adjusted to the tactical doctrine, and it was carefully integrated with Finnish doctrinal conceptions. The fact that training and doctrine were in such harmony suggests a high level of tactical effectiveness. Moreover, compatibility is important. All ranks of various services received identical basic infantry training. This had concrete benefits: at the end of the war, for example, the Finnish Navy men fought as regular infantry and could perform reasonably well at the tactical level.[101]

In order to improve one's effectiveness, one needs to learn from others' experiences. This was imperative because one of the major problems for the Finns was a lack of relevant war experience. The Finnish Civil War was fought in an amateurish, old-fashioned manner. Only some officers, apart from the Jaeger officers and NCOs, had fought in World War I, and only a handful of Finnish officers, NCOs or men had any experience from the French Foreign Legion or the Spanish Civil War.[102]

Nevertheless, the Finns tried to follow recent foreign developments. Assessment of ability to innovate and adapt to the Red Army's fighting methods was high on their list of priorities. The Spanish Civil War provided them with some evidence of the nature of the next war. The Finns kept a close watch on events in 1939. Yet they did not have accurate information on the battles of Khalkhyn Gol or other engagements of the Soviet–Japanese–Mongolian border conflicts. The war in Poland had happened too recently to have had a significant impact on their plans. However, its lessons were not directly applicable to the conditions of the Arctic battlefield. Some lessons were, however, gathered. A key protective measure was the dispersion of units and materiel. The Finns had learned how the Luftwaffe had destroyed the bulk of the Polish Air Force in the airfields. They also knew that the Soviet Air Forces possessed the capability for mass bombings. Therefore, Finnish aircraft were dispersed to many fields and hidden in the forests. Dispersion of the batteries—a noteworthy tactical improvement—increased their survivability and lowered casualties. Heavy coastal artillery was camouflaged and dummy-gun emplacements built. As a result, Soviet air attacks were quite ineffective. The Finnish air surveillance system was not completely ready when the war began, but through ad hoc arrangements, it functioned with considerable effectiveness.[103]

Part of the problem was that that the Finns had a large inventory of obsolete weapons dating back to World War I or earlier. Still, the Finnish services tried to adapt their operational concepts to available technology. There are many examples of equipment being borrowed from civilians to be used in military action. In the Bay of Vyborg, for example, the Finns came up with a plan to utilize ice breakers in an anti-tank role. The ice-breaker *Tarmo* was fitted with anti-tank weapons, and the plan was for it to break the ice in front of the advancing Red Army. This mission was not conducted before the cessation of hostilities. Various prototypes were employed in actual battles from the start of the war. Alongside the make-shift weapons, some untested anti-tank weapons were used on the eastern part of the Karelian Isthmus. In *motti* warfare waged north of Lake Ladoga, the Finns improvised siege-craft, such as a sling for throwing satchel charges inside the encirclements. A prototype 120 mm heavy mortar was tested against a pocket at Uomaa. They fired concrete exercise mortar bombs among the Soviet troops. It did not have any effect other than causing them to feel anxiety and fear. When storming one *motti* in Kuhmo, there was an innovative use of an anti-tank mine that was detonated on the roof of a dug-out. The planes also had shelters. Furthermore, when the Soviet Air Forces battered the Finnish coastal artillery positions, they retaliated not only with their anti-aircraft weapons, but occasionally also with their six-inch guns! One 105 mm field artillery battery also used its ordinary cannons to fire at Soviet bomber planes. Curiously, the Air Forces converted one Douglas DC-2 civilian airliner into a bomber, and also used recon planes for bombing missions.[104]

The Finns could balance their lack of technology with the right kind of field-craft and skills for forest warfare in winter conditions. Their culture enabled adaptation. Their practical solutions to tactical problems or new practices were actually cultural responses or responses to functional circumstances that had developed over a long period of time. Many of the new ways of doing things and innovations on offer were based on forest work and the habits of loggers. Logging was a typical additional income for many small farmers, who were numerous in the Finnish Army. Sometimes, for example, the Finns fought with cold steel. They disliked standard-issue bayonets and used their own *puukko* knives, which Finnish loggers and farmers always carried in civilian life. They found them handy in close-quarters combat in the dark.[105]

The Finns were not slow in adopting new technology either. Inventions occurred on the front, from the grassroots. For example, one engineer,

Lieutenant A. Kostiainen, came up with the technological innovation of a ski-track mine, long before the German *Schu-mine 42* was ever produced. The Finns also used homemade anti-tank mines that used wooden boxes.[106]

### *Wartime Learning: Dissemination of Tactical Knowledge*

The members of the Finnish Field Army had been training according to manuals printed between 1927 and 1932. However, that training literature in which the tactical doctrine had been codified was not up to date, and the Finns entered the war with old manuals. Only the manual on delaying action had been renewed. *Motti* tactics were not mentioned in field manuals, suggesting that it was a wartime innovation. References to winter combat were scattered across doctrinal publications. This did not matter, as the role of training literature was merely normative in the Finnish Army and the Civil Guard Institutions. In the absence of doctrinal publications, new doctrine and evolutionary developments in tactical methods were taught to the conscripts through hands-on practice. The substance had been adjusted to the reality and was not overly theoretical.[107]

The tactical use of ski troops had been portrayed in manuals since 1922, when Erkki Hannula's guidebook *Jalkaväki suksilla* (Infantry on Skis, 1922) instructed soldiers to conduct rapid surprise ski-trooper attacks against the flanks and rear of the enemy that kept to the roads. The results of the Finnish coordinated experimental and developmental activities of the 1920s were published in *Talvisotakäsikirja—T.S.K.K.* (Winter Warfare Handbook) in 1928. All the relevant tactical experience was published in Kustaa Tapola's *Talvitaktiikkaa* (Winter Tactics, 1929). The Civil Guards had put out their own guide, *Talvi ja suojeluskuntain sotilaskoulutus* (Winter and Civil Guards' Military Training, 1933). *Talvisotaopas* (Winter Warfare Guide, 1939) presented the tactical opportunities winter offered. To retain a relative advantage, the winter publications were classified. As the war broke out, a condensed version of the tactical winter manuals was issued in early December 1939 under the name *Sotilaan talviopas* (A Soldier's Guide to Winter). The manuals mentioned that general tactical principles were the same all year round. Still, winter warfare required specialized training and preparation. Troops and their leaders had to be accustomed to winter conditions because the unprepared side would encounter serious difficulties. The authors generally agreed that battles should be waged without skis.[108]

In order to optimize their effectiveness, the Finns sought to develop by applying the lessons they had learned. There had been no unified body responsible for the development of tactics in the Finnish Army. Shortly prior to and during the war, the Päämajan Taktillinen toimisto (the High Command's Tactical Office, HCTO) assumed that role. It was a lesson-drawing organ that absorbed and analyzed experiences. Its small staff also conducted fact-finding missions to different sectors of the front. The HCTO was not able to develop long-term tactical methods. It could not generalize or draw far-reaching conclusions from the troops' experiences, yet the lessons gathered became lessons learned as the changes were approved. This process led to the refinement of operational and tactical doctrines. It was needed because the Red Army was improving its performance. To make it more useful, this was done in comparison to the Soviet combat methods. Vesa Tykkynen argues that the HCTO could convey a rather accurate picture of Soviet tactics during the war.[109]

During the war, recruits and soldiers were trained in training centers and military schools. The novel war-fighting methods were disseminated within the Field Army by officer visits organized by higher echelons of command. Those officers recounted and demonstrated what experience their units had received. Moreover, Finnish field commanders gathered to hold negotiations to discuss how to adapt. The HCTO was notified, and it distributed them as circulars to the whole Army. Maneuver warfare in the north came naturally and normally required no special measures. The positional warfare characteristic of the Karelian Isthmus was a stranger type of war for an army trained to fight a maneuver war. The commander of the 21st Reinforcement Division, Colonel Niilo Hersalo, instructed his subordinate leaders for stationary war. Hersalo's booklet was modeled on the German manual *Führung und Gefecht der verbundenen Waffen* (1921). The booklet also included some recent lessons from December 1939 and the impact of forests on combat.[110]

Most of the activities of the HCTO were related to the training of troops. After mobilization in October 1939, the peacetime cooperation between Army and Otava Publishing Company intensified. The two printed various handbooks, manuals and instructions. The printing machines worked day and night, and most of the publications came out within two days. Most of them were edited versions of unfinished manual manuscripts that were published as abridged guides or pamphlets. Altogether, over 40 publications were issued, half of them before the war. Among the most important were 11 tactical guides that came out between

December 1939 and February 1940. They offered detailed information about the enemy's tactics and weaponry. These tactical guides were based on documents, prisoner interrogations and personal observations. In addition, the HCTO issued 59 other guides during the war, most of them concerning anti-tank action and patrolling and guerilla warfare (for example *Sissiopas*, 'Guerilla Guide', 1939). The Finns also captured Soviet manuals. The most relevant were swiftly translated and copies distributed to various HQs and troops.[111]

The tactical guides were classified and not to be taken to the frontlines. For security reasons, the most important tactical lessons were passed on to front commanders only as official secret memoranda and oral orders. Moreover, the HCTO sent the highest echelons secret tactical instructions based on lessons learned from various sectors.[112]

## Motti *Tactics: An Example of Tactical Innovation and Adaptation*

One good example of innovation and adaptation was *motti* tactics, meant to achieve big results with small losses, indicating a high level of tactical effectiveness. In their operations north of Lake Ladoga, the Finns cut off and hemmed in from every side the Red Army units that kept to the roads. These encircled units were divided into smaller segments, or *mottis*, to be destroyed piecemeal. This tactic is generally known as 'defeat in detail'.[113]

The *mottis* were formed in the area of the IV Army Corps in Ladoga Karelia because the Finns were able to cut off roads, but had insufficient forces and little firepower to destroy the Red Army's forces that could consolidate their defenses. The *mottis* were byproducts of Finnish maneuver warfare. There, the Finns aimed to achieve one major encirclement at Kitelä; all the others of more than a dozen smaller *mottis* were 'accidents'. Most of the *mottis* were unwanted because they prolonged the lines and tied down troops needed elsewhere.[114]

Because it was impossible to route the pockets at once, the Finns waited for the combined effects of cold weather, combat fatigue, hunger and sleep deprivation due to constant harassment to slacken Red Army discipline and lead to apathy. However, the Soviet troops were controlled by fear, and they often held out. Only one *motti* surrendered. The Finns were surprised at the motivation of the Red Army's soldiers. Roger R. Reese explains that the Soviet army had seriously low morale and indiscipline due to heavy battle and non-battle losses. Despite that, Reese argues, 'none of

these factors escalated to the point that they threatened to destroy the overall military effectiveness of the Soviet forces'.[115]

The necessity of saving human resources prevented the Finns from storming the *mottis*. The solution was to concentrate forces to defeat one of them at a time. This could be done as the encircled units remained mostly passive. They stayed put, and on one occasion, a medium-sized *motti* of thousands of Red Army soldiers was guarded before destruction by only a platoon of Finnish ski troops. There were variations in dealing with the *mottis*. Sometimes the Finns tried to take them by storm, leading to heavy casualties. In some other cases, the Finns allowed the defenders to break out into deep snow and then pursued them in the forests. It was, however, soon realized that the German stormtroop infiltration tactics, as a doctrinal solution from World War I, provided the Finns with a cost-effective method of dealing with the encirclements. The camouflaged Finns knew how to use the terrain. Often they crawled inside the snow to get to jumping-off positions. They also employed deception and conducted diversionary attacks. They copied the Soviet signals to capture the bulk of supply drops from the air. Reconnaissance had been thorough and the defenders had given away the location of their heavy weapons. The stormtrooper squads, equipped with submachine guns, hand grenades and satchel charges, penetrated quietly inside the *mottis* and surprised those within by attacking the defensive positions from behind. This was possible if they breeched the defenses on the outer perimeter. The utilization of stormtroop tactics kept their casualties to a minimum.[116]

The prerequisite of effective *motti* battles was that the outer perimeters stopped the Soviet units from coming to the rescue of the besieged. Normally, this could be accomplished, and the Finns also defeated flanking Soviet ski troops, who rarely made it to reinforce the encircled. The most famous incident was the destruction of Colonel Dolin's 1800-strong ski brigade in the forests of Kuhmo.[117]

In *motti* warfare the Finns also demonstrated that they were not bound by their doctrine; they could learn and change their ways, and had the ability to adapt to changing situations depending on the circumstances. H. M. Tillotson notes the Finnish ability for tactical adaptation in *motti* warfare to outwit the Red Army. The application of stormtroop tactics rested on innovative individuals, namely junior leadership tackling tactical problems on the spot. One of them was Major Matti Aarnio, who exhibited innovative best practices from below. He had taken courses in Germany, Poland and Hungary before the war. Aarnio invented various

dummy devices and 'Trojan horses': log shields on sledges behind which cannons or anti-tank guns could be taken to direct firing positions to take out machine-gun emplacements or tanks dug into the ground, somewhat similar, as Antti Juutilainen argues, to Jan Žižka's Hussite wagon forts of the fifteenth century.[118]

Antti Juutilainen describes *motti* tactics as 'the ability to create conditions in which the enemy can be encircled and subjugated by rapid movement and is annihilated in battles characterized by the calculated and economical use of own scarce resources'. He adds that the Finnish tactics were original to some extent, and very practical. Vesa Tynkkynen maintains that the Finnish outflanking and encirclement tactics were not new tactics. Rather, they were an application of prewar Finnish tactical methods. Yet, Tynkkynen continues, the envelopments and *mottis* implied that these Finnish tactical methods were effective.[119]

## Effectiveness in Numbers

The ability to inflict heavy losses on the adversary—the loss ratio—is an indication of military effectiveness, particularly at the tactical level. This tells you how successfully you have managed to pit your strengths against the enemy's weaknesses. The resource-based metrics illustrate the massive odds the Finns were faced with. At the beginning of the war, the odds were very badly against the Finns, even 1:20 in men in many places in the north. For example, in spite of being outnumbered and outgunned, the 12th Division stood its ground on the Kollaa River sector. In taking the Western Lemetti *motti*, the Finns, utilizing stormtroop tactics particularly effectively, decimated the Soviet defenders and achieved an exceptionally high kill ratio of 1:122.[120]

The question of Soviet losses is controversial. Juri and Veronika Kilin's estimate of the 'irretrievable losses' (fallen, missing and dead from wounds) of the Red Army is 138,551. The number of wounded is 206,538. The total losses amount to 345,089. Roger R. Reese gives 131,476 dead and missing, 264,908 wounded and injured, 132,213 frostbitten, and 5486 captured; a total of 534,083. The overall number of Finnish casualties was approximately 27,000 killed (including civilian fatalities and those soldiers who died of their wounds within a year after the war) and 44,000 wounded. Moreover, in the coldest month, January 1940, the Finns suffered some 5000 casualties from frostbite, 2000 of them severe. Even the lower number of Red Army casualties equals some 70 percent of their initial strength

at the start of the war. Counted in this same fashion, the Finnish overall losses were some 27 percent of their opening strength (76,000 out of 280,000). Despite their superior firepower and resources, the overall Soviet casualties were, absolute figures apart, 3.2 times higher than they had been able to inflict on the Finnish Army. All in all, the Soviet losses killed in action were some six times higher than those of the Finns.[121]

Reese points out that the willingness and ability of Soviet soldiers to fight even in desperate conditions was central to military effectiveness. For him, in the Winter War their effectiveness was clearly higher than what earlier research suggests. The Red Army soldiers often fought ferociously even in hopeless situations. The numbers of surrendered soldiers were relatively low. The *mottis* could hold out if the chain of command remained intact, but encircled forces were destroyed and soldiers taken prisoner because disintegrated leadership and organization put soldiers in the position of having to choose either to resist for no evident purpose, or to save themselves. Besides, Reese keeps battlefield performance separate from military effectiveness. Reasonably small numbers of Soviet soldiers surrendered. Altogether, some 6000 Soviet prisoners were taken by the Finns (22–23 fallen to every prisoner). The Soviets captured approximately 900 Finnish prisoners (30 fallen to every prisoner). The Soviets generally exhibited a great willingness to accept casualties, but the ratio of casualties to prisoners of war reveals that the Finns had even higher commitment to fight.[122]

The Finns could inflict harsh casualties on the Red Army because they were better marksmen than the Soviet soldiers. Sniper Simo Häyhä at the Kollaa River sector is credited with over 500 kills, making him one of the most effective sharpshooters in history. He used a Civil Guard model standard issue rifle with plain iron sights.[123]

During the Winter War, the Finns lost many of their own weapons, such as 25 field artillery pieces, over 5500 rifles, sub-, light or heavy machine guns (almost 500 of each), some 170 pistols and six anti-tank rifles. However, these losses were replaced manifold by large quantities of materiel seized from the Red Army. Most of this materiel was retrieved from the *mottis*. As can be seen in Table 3.1, the seized materiel included huge quantities of small-caliber weapons, but also considerable amounts of heavy equipment.[124]

Relative armor losses were significant on both sides. At the beginning of the war, the Finns had just ten tanks that were ready for battle, out of 32 in total. They lost 60 percent of their operable tanks in just one engagement. The Red Army employed a total of 6541 tanks. It lost over 54 percent

**Table 3.1** Captured Red Army weapons

| | |
|---|---|
| Rifles | 33,637 |
| Automatic rifles | 3012 |
| Sniper rifles | 88 |
| Pistols and revolvers | 396 |
| Submachine guns | 239 |
| Light machine guns | 3076 |
| Heavy machine guns | 1768 |
| Anti-aircraft machine guns | 20 |
| Anti-tank guns | 125 |
| Mortars | 94 |
| Artillery pieces | 138 |
| Tanks | 288 |
| Armored cars | 35 |

*Sources*: Asemateriaalitilanneilmoitukset 1939–40. PLM:n Tväl.os:n ark., T 18419/1, KA; TSH 4, 298, Kantakoski 1998, 286.

(3543) of them, mainly on the Karelian Isthmus (3178). About 2000 were destroyed by the Finns, and the rest were mechanical failures attributable to the harsh temperatures. The Finns could retrieve many tanks and replace their own armor losses with the captured Soviet tanks, numbering 288.[125]

The Finnish Navy had 190 ships and 363 motor boats. In comparison to the Soviet Baltic Fleet, the Finnish Navy was badly inferior in numbers. The Soviets had, for example, two battleships, one cruiser and 17 destroyers, 52 submarines and 650 aircraft. The Soviet submarines sank five ships, only one of them Finnish. They lost one submarine. The merchant ships working for the Finns traveled in convoys and were effectively protected by escorts. One escort ship was destroyed in a depth-charge explosion. The Finnish coastal artillery sank one destroyer.[126]

The Finnish Air Forces had a mixed bag of aircraft. The Finns entered the war with only some 80 modern (or close-to-modern) aircraft and with 37 obsolete planes. The number of operable aircraft never exceeded 130. During the war, the Finnish Air Forces flew 5993 sorties. By the end of the war, the Air Forces of the Red Army and the Baltic Fleet and Northern Fleet had some 3700 aircraft. They had flown 100,940 sorties. The Finns could perform just 5.9 percent of the number of missions that the Soviets could, and drop 0.8 percent of the bombs dropped by the Soviet Air Forces (218.4 tonnes of bombs compared to 25,750 tonnes). The Finnish aircraft losses were 62 planes, of which 47 were in battles. A total of 71

aviators were killed, including nine foreign volunteers. The Soviet Air Forces lost at least 980 aircraft; approximately half of them were combat losses. The Finnish Air Forces claimed 207 shootings-down and the anti-aircraft forces another 314, and the rest were accidents. In the Winter War, altogether 789 Soviet aviators were killed or went missing. Hence, the Finns were far more effective in the air war than the Soviets, which is illustrated in the loss ratios in materiel (1:15.8) and in men (1:11.1).[127]

The level of training of Finnish aviators was high. The most successful of them was Lieutenant Jorma Sarvanto, who shot down 13 planes, scoring an unofficial world record with his Fokker fighter by shooting down six Soviet bombers in merely four minutes. Eight other Finnish fighter pilots downed a minimum of five enemy planes.[128]

The Soviet Air Forces conducted bomber missions against 700 populated areas in Finland. One of the main objectives was to damage the morale of the Finnish people, the main Finnish moral center of gravity. The result was contrary to this plan. Despite the bombings, material damage was relatively small, with some 2000 buildings destroyed and 4700 damaged. Over 950 civilians were killed, 540 severely wounded and 1300 lightly wounded. The Soviets dropped about 60 explosive bombs for every dead civilian. The workings of the Finnish railroad transportation system were vital to the Finnish Army's operational mobility and supply. It was affected by air attacks, but the Soviets could not neutralize it in a decisive manner. During the war, 237 Finnish locomotives and 1800 carriages were damaged by bombing or artillery fire. However, the amount of destroyed Finnish railroad equipment was significantly lower. Only six engines (0.6 percent) and 1274 cars (4.8 percent) were completely destroyed.[129]

## Conclusion

The Finns had some difficulties in employing combined and all arms. Their most effective arms integration occurred largely within the context of ground forces' indirect fire support. The Finnish operational effectiveness was best reflected in their near outstanding mobility and the flexibility of their organization. The Finnish Army did not favor technological determinism. The Finns had problems related to firepower, but their weapons and equipment were practical and reliable. The available technology suited their operational concepts very well. The Finnish active operational concepts and

tactical approaches were sound and in line with their strategic objectives, and there was also consistency between their tactical concepts and operational capabilities. The Finns favored maneuver warfare on the offensive, and their main tactical principle was the element of surprise. They also adopted many classical Clausewitzian and Jominian principles. Their superior over-snow mobility in trackless terrain enabled them to turn this strength into operational and tactical successes. The Finnish training system produced individual forest fighters capable of performing the preferred small-unit tactics. Their training had been realistic and suitable for the realities of actual combat. The guerilla action also stemmed from this, and it served its purpose and contributed to Finnish effectiveness, especially in the north. Their high level of preparation allowed them to leverage their own capabilities on the Red Army to gain an advantage. This way, the Finns could pit their own strengths against the enemy's weaknesses.

Since the Finnish tactics drew from inferiority, the Finns had made serious attempts to maximize those areas in which they were strong and minimize their weak areas. All in all, the Finns focused on their strengths (over-snow mobility and knowledge of the area in particular) to take advantage of the enemy's weaknesses. The Finns made winter, forests and darkness their allies and eliminated the obstacles caused by cold weather and deep snow, systematically making them advantageous conditions. This way, they could benefit from the harsh and difficult terrain and climatic conditions, especially those geographical factors—chokepoints—that hindered the Red Army's offensive capabilities and freedom of maneuver. By targeting Soviet vulnerabilities, like long-exposed flanks and the rear areas, the Finns used their own strengths to succeed in exploiting the weaknesses of the Red Army, and thus could inflict heavy casualties on it while keeping their own losses to a minimum.

Finnish training and organization were able to convert available resources into effective combat methods and best practices. The Finnish Army, reflecting Finnish culture, could change its ways under fire. It exhibited considerable capacity for wartime learning, innovation from below and adaptation to changing conditions. Many of the novel tactical methods were based on foreign tactical influences that were, however, applied to existing conditions. The kill ratios in men and materiel and the Finnish overall performance clearly suggest a high level of operational and tactical effectiveness.

## Notes

1. Murray 1988, 107–8; Millett, Murray and Watman 1988, 21, 26–7.
2. Tynkkynen 1996, 38–9, 90–1, 192, 388; Rannikkopuolustusjoukkojen sotakokemusyhteenveto 1939–1940. PvPE:n Koul.os:n ark., T 8039/5, KA; Tiilikainen and Pusa 2005, passim; Rikama 2007, 53–4; Väliaho 1989 , passim; and Väliaho 1995, passim.
3. Iskanius 2015, 21; Lentokenttäasiat 1939–40. Tsto II/LeR 2:n E:n Sal. kirjeenvaihto, T 13430/9–10, KA; Vuorenmaa, Anssi, 'Paine kasvaa', *Sotaveteraani* 1/2012, 22–3.
4. Ahto 1987, 143, 149; Niiniluoto 1982, 84; 1.–3./KTR 2:n spk. 13.3.1940. Spk:t n:ot 1882–4, KA.
5. Talvio 1986, 198.
6. Kantakoski 1969, 81–7.
7. Kev. Os. 22:n spk. 23.12.1939–11.1.1940. Spk. 2192, KA; Saarinen 1975, 200; Timonen 2000, passim.
8. S. Häkkisen kertomus Sissipataljoona 1:n toiminnasta 1939–40. V AKE: Sotatoimikuvaukset 1939–1940, P 3167/1, KA; Luettelo vihollisen tappioista ensimmäisen sotakuukauden aikana (31.12.39 mennessä) P-KR:n toiminta-alueella. Liite P-KRE:n kirjelmään 1.1.1940. Tsto III/P-SRE:n Sal. kirjeistöä 1939–40, P 1727/7, KA; *Taktillinen opas* IX 1940, 8–9; Heiskanen 1996, 115–20; Tynkkynen 1996, 64; Palokangas 2014, 110–33.
9. S. Häkkisen yhteenveto koskien sissitoimintaa 29.1.1941. PvPE:n Koul. os:n Sal. kirjeistö 1941, T 17651/6, KA; PM:n Takt.tston kirjelmä yhtymien esikunnille 17.1.1940. III AKE:n Op.tston Sal. ja yl. kirjeistöä 1940, P 895/11, KA; Sissitoimintaohjeet. Tsto III/P-KRE:n Sal. ja yl. kirjeistöä 1939–40, P 1727/8, KA; *Taktillinen opas* VI 1939, 10–2; Tähjä 2007, *passim*; Kosonen 2004, 96–271; Palokangas 2014, 116–33; *TSH* 3, 204–5. See also *Taktillinen opas* V 1939, 12–4.
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CHAPTER 4

# Professional Leaders and Citizen Soldiers as an Effective Fighting Force

## Background of the Officer Corps

The Jaegers—the nucleus and leadership cadre of the Finnish White Army—arrived from Germany in 1918 to fight in the Civil War (also called the Finnish War of Independence) between Finland's legitimate government's White Army and the rebellious Red Guards. Some 1260 Jaegers participated in the war fought in early 1918. Altogether, some 400 Jaegers were promoted to the officer ranks, and approximately 660 of them became NCOs. There were also different officers in Finland in 1939. Some Finnish officers had been trained in the Imperial Russian Army before independence. In the mid-1920s, the Jaeger officers practically replaced those that had been trained in Russia. During the interwar period, many Jaeger officers rose to senior ranks and became the backbone of the Finnish Army. They are credited with developing the Finnish defense capabilities.[1]

The Russian-trained (Mannerheim and V. P. Nenonen) were rare exceptions among the 25 generals of the Winter War. The Winter War was characteristically a war of Jaeger generals and colonels. Over 700 Jaegers took part in the war. Approximately 100 Jaeger officers held key positions, from regimental commands to the FHC. At the start of the war, all commanders of higher all-arms formations were Jaegers who had completed their general staff studies in either France or Sweden. All divisional commanders were Jaegers too, and almost all regimental commanders. Despite their age, altogether 83 Jaegers served as battalion commanders, and 65 as company commanders.[2]



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Every applicant needed to meet the qualifications and pass the entrance exams to the Finnish officer training school, Kadettikoulu (Cadet School). The officers came from a large pool of educated youngsters who had, since 1930, all passed the final examination at the end of their secondary education, thus qualifying them for university studies. This guaranteed that the officer candidates had high intellectual capacity and proficiency in academic skills. Due to universal conscription, it was easy to pick out the most suitable ones. All the future officers had undergone the same basic training as the reservists of the citizen soldier army, and at the time of admission, they held the ranks of second lieutenants in the reserves. This way, all leaders had a chance to understand informal organizations and to develop their own leadership styles.[3]

No real power elite existed in Finland in the 1930s, and family background was not enough to guarantee a career as an officer. Even though many officers were from higher social classes, an officer's career was open to the wider Finnish population, and a number of them were from peasant backgrounds. The officer's career was viewed as a 'social ladder', and that of a true calling. They saw their profession as real work, not just a sign of social status and hierarchy. The officer's profession was respected and regarded as a profession of specialists with a code of self-regulation. The officer corps had a common value system, and they came from patriotic homes. They had a strong professional and organizational culture, and also strict formal and unofficial norms.[4]

The Finnish staff system was modeled on the German-style staff system, which emphasized high standards of performance that were fostered and spread among the officer corps by means of education and indoctrination. The spirit of the Jaegers prevailed in the military schools. The officers were constantly evaluated based on high standards. The system of selection for responsible positions was based on individuals' achievements. The selection of officers to responsible positions was done accordingly, and the incompetent ones were screened out in the process. The officers were awarded and promoted only on merit. These practices nurtured solidarity and the feeling of justice among the officer corps. It also contributed directly to military effectiveness. However, very few were promoted to higher ranks during the war (a couple of colonels were promoted to generals and lieutenant colonels to colonels).[5]

## Military School Curricula

During the two-year course of the Cadet School, the officer candidates were instructed in the use of platoons and companies. The young officers were also taught the basics of how to lead battalions and regiments. The teaching was a combination of theory and practice. Most stress was placed on studying tactics and manuals and on combat exercises. The officer candidates were trained to be champions who led by example from the front. They had to excel in everything they were to expect from their subordinates. All of them had undergone the same basic training as their men. Therefore, they knew how to lead. The cadets were also taken on tactical trips to the Karelian Isthmus, the future main area of operation. They were evaluated for character and scholarly abilities. The training was hard, and the physically weak or otherwise unsuitable were screened out.[6]

When beginning an officer's career, the candidates absorbed the principles they would later adhere to in their command activity. The officer's ideal was set forth in *Kenttäohjesääntö I* (Field Manual Part I, 1927). The military leaders were to be strong-willed, have a direct character and be absolutely fair-minded. They should also have the skills of professionals, along with physical and mental stamina. A strong will was considered the most important trait, because that way determined leaders could achieve success by imposing their will on the enemy and force them to abandon their objectives. Willpower was to be shown in the manner in which they gave orders and in their public appearance. In combat, the leaders were to display mental and physical courage, and to be steadfast and sure to keep their troops under their control in critical situations. Moreover, they were instilled with a strong sense of duty and responsibility.[7]

It was characteristic of the Finnish command culture that commanders were expected to exhibit initiative, make bold and swift decisions, and carry them out with a clear point of main effort. It was felt that even a bad decision was better than no decision at all. Indecisiveness was regarded as negative. The commanders were also expected to stick to their decisions. Quickly made, faulty decisions could later be flexibly altered or changed completely.[8]

In addition to theoretical studies, officers' skills developed through experience and additional training. The most important venue for field infantry officers to supplement their studies was the Taistelukoulu (Combat School). Most of the exercises held there during the 1930s concentrated on offensive warfare. In addition to combat training, leadership

and all arms were important topics. The School organized three-month lieutenant courses intended for future company commanders. The attendees were introduced to infantry support weapons. The tradition of self-education and learning also prevailed among the officers and NCOs of the Finnish Army.[9]

## General Staff Officer Training

There was a high degree of military professionalism in the Finnish Army, and especially in the early 1920s when many officers had received their general staff training in foreign countries. In 1924, Sotakorkeakoulu (the War College) was established. Those wishing to become general staff officer candidates had to pass the entrance exam to enter the two-year course, and only about half of the applicants were enrolled. Getting in was not any guarantee of graduation, because 10 percent of the students dropped out. The War College was like a joint military school as the student officers represented different arms and even services. Only in 1937 did the Air Force officers separate, when the Air Branch of the War College was started. The first of its students graduated just before the Winter War began.[10]

Tactics and operational art were the most important subjects at the War College. Maneuver warfare was taught the most until 1937–38, when more attention started to be paid to the defensive. The student officers also studied and analyzed lessons from military history. The major teaching methods at the War College included lectures, map and field exercises, war games, written assignments and visits to maneuvers. In seminars, student officers were encouraged to be independent and free-thinking. The seminar participants learned to assess situations and to find the best solutions for each of them in discussions. The instructors' solutions were not considered to be the only acceptable ones. This improved officers' judgment and decision-making abilities.[11]

There was no tactical rigidity in the Finnish Army; Finnish officers were not expected to follow any set rules and methods. This was done to allow innovation and adaptation to outwit the enemy. The Finnish War College did not necessarily train officers to excel in staff posts, but to have problem-solving prowess. The War College produced both methodical staff officers and imaginative field commanders for operational billets who were able to find creative solutions to tactical and operational problems. In order to achieve surprise and to impose their will on the enemy, they were

encouraged to exhibit initiative and take risks. They could also put theory into practice. A great majority of the Finnish general staff officers had been trained as offensive-minded commanders.[12]

The Finns followed the Prussian commander-centered staff work tradition. The student officers and War College graduates were obliged to speak up and voice their dissenting views. Yet, once the commander made the decision, the staff officers were to obey, and not to question or criticize. A harmonious relationship and mutual trust was supposed to prevail between the commander and his second-in-command. It was felt that cooperation could be secured if they knew each other before assuming their assignments. They could be opposite kinds of people, but it was deemed best if they shared an educational background and upbringing and were roughly the same age. The two shared the responsibility for decisions. The second-in-command needed to be an independent actor who was the commander's first advisor. It was feared that a young and capable second-in-command would try to lead himself. Yet *Esikuntaopas* (HQ Manual, 1939) emphasized that the staff was a machinery that assisted the commander and worked according to his will and intent.[13]

As the officers made contingency plans, played war games, structured forces and wrote doctrines, they could assess and foresee the operations and the possible result. The War College courses traveled to the planned areas of operation, namely the Karelian Isthmus and Ladoga Karelia. This gave the future wartime field commanders, who had acquainted themselves with military geography, a considerable advantage. Leading operations in those peculiar conditions and terrain required a degree of local knowledge. Most of the field exercises were held in those same areas. The visits of War College courses were also a form of reconnaissance. Many student officers wrote their final thesis focusing on the benefits or disadvantages of a certain terrain in different seasons. In many theses, the authors compared the Finnish and Soviet operational capabilities on the Karelian Isthmus or along the border areas further north. This applied research helped to develop tactics. Most Finnish wartime commanders could lead without maps because they had served in the garrisons located on the Isthmus, adding to their local knowledge. Some of their troops had the same benefit. Besides, thousands of reservists had taken part in large maneuvers on the Karelian Isthmus in August 1939, and after mobilization in October 1939, they had seven weeks to get to know the terrain before actual hostilities broke out.[14]

A major handicap for the Finnish officers was that in their training they used units at full strength in men and materiel. In actual war, they usually could not afford that luxury and would have to settle for much less. The Winter War also revealed the problems in practicing and achieving combat arms. The Finnish officers had not been, as Wolf H. Halsti notes, practicing the command of large troops. There had not been enough exercises, and those assigned to mid-level command posts had been able to practice a commander's post only about 0.4 times a year. Captains had commanded battalions just three times every two years. However, many officers had participated in smaller war exercises with Army units, the Frontier Guards and Civil Guardsmen. Some of these exercises were held in winter. A big winter war exercise was held in 1937 in Ladoga Karelia. It gave many lessons and revealed many problems that could still be corrected in time. Moreover, experience was obtained from the January 1939 war games concerning fictional operations on the Karelian Isthmus. The scenario proved quite correct when the real battles began. Yet the movement speed of the troops had been estimated in the exercise to be overly fast. The order techniques had not been perfect: one could not tell what the commander's intent had been.[15]

Not all the wartime commanders had completed the requirements of the War College. Those who took the commander course at Suojeluskuntain Päällystökoulu (Civil Guard Organization's Leadership School) had also acquired professional military competence. The Civil Guards had strong German tactical influences. A German, Major Wilhelm Brückner, taught at the Leadership School between 1925 and 1935. In addition, German training literature was translated, and original manuals were also used as German was a lingua franca in the Baltic Sea region. The training literature was based on approved manuals, but the chapters concentrated on practical cases. Thus, they were easier to absorb than in actual manuals. Furthermore, self-study was encouraged, and Civil Guard periodicals contained practical tactical assignments.[16]

## Reserve Officer and NCO Training

As conscripts, the rank and file served for 350 days, whereas future leaders served for 440. After common basic training that everyone went through, some conscripts were selected for reserve NCO training, and the reserve officer candidates were selected from amongst them. By social background, the Finnish reserve officers were mainly secondary school graduates and

represented the middle and upper-middle classes. The officers often came from cities and the enlisted men from rural areas. There were many university students among the reserve officers. Finnish reserve officers were a heterogeneous group, but they were patriotic and highly motivated. The officer training further socialized the candidates to the military-cultural concepts of honor and duty.[17]

The aim of the reserve officer training was to train practical junior leaders for the Army. During the latter part of the 1930s, teaching of general theoretical subjects was decreased, as most of the men were already educated. The durations of the courses in Reserviupseerikoulu (Reserve Officer School) had been five or even seven months until the mid-1930s, but during the latter part of the decade they lasted three-and-a-half or four months. The curricula of the school included just 18 percent theory and 82 percent practice (in the late 1920s the figures had been 48 percent and 52 percent). Offensive action was clearly more emphasized than defense. The courses familiarized the reserve officer candidates with basic combat training at platoon level. The graduates had the tactical and technical competence to lead platoons. The officer candidates had a chance to practice by leading new conscripts at the end of their service. In spite of being assigned to many similar duties as active duty officers in the Winter War, the reserve officers were distinguished from them by the color of their insignia.[18]

As in the German Army, the role of a skilled regular NCO corps was considered vital in the Finnish Army. The officer corps and NCOs were to set an example in terms of outstanding martial and intellectual qualities as well as moral and physical courage. Finnish tactical doctrine demanded that all military leaders should be able to exhibit initiative in combat situations. The Finns never undervalued the importance of well-trained and professional NCOs, who were assigned at squad and platoon levels. In the Finnish conscript army, it had been regarded as important that future leaders would be from the same social classes as the conscripts themselves. This principle was fulfilled by those selected for regular NCO training. A majority of them were farmers' sons or from middle-class families. The basic requirement for accession was the completion of Kansakoulu (elementary school).[19]

The regular NCO training was very practical. Tactics and shooting practice were emphasized in training before the Winter War. The aim of regular NCO training was to teach prowess in leadership skills and infantry–artillery coordination. Specialized training for different arms was

provided by field units and services. In the early 1930s, the NCO training system was further developed. Approximately half of the professional NCOs came to serve in the covering forces, and the rest elsewhere in the Field Army. They were particularly skilled at various maintenance duties. There were specialized regular NCO schools for different arms and services. By the Winter War, some 80 percent of the NCOs had received appropriate training. As a consequence, during the 1930s, the level of professionalism among the NCO corps grew steadily. Reserve NCOs were trained to be instructors and wartime squad leaders. Their task of keeping up a high level of cohesion was crucial.[20]

## Officers as Independent Thinkers

There was a high degree of professionalism and intellectual capital within the Finnish officer corps. Organizational learning was facilitated because the Finnish Army had a culture of independent thinking through its various echelons. Changes sometimes rested on the shoulders of imaginative individual officers, who were largely responsible for major steps within services and arms. These enterprising young officers brought ideas from foreign countries. Under General V. P. Nenonen, inspector of artillery troops, the firing techniques and tactical use of the field artillery were systematically developed during the interwar period. All artillery units gathered for summer, and later winter, camps for this purpose. With the exception of Nenonen, who had been trained in the Imperial Russian Army and who was an undisputed reformer of the Finnish artillery, these dissenting ideas were voiced by the younger generation of officers. State-of-the-art modernization of the Finnish coastal artillery took place under Major (later Lieutenant Colonel) Jussi Rikama. He and Major Richard Lorentz (later Lieutenant Colonel), who was responsible for coming up with new fighter tactics, were theoreticians but also imaginative and innovative mavericks who exhibited bottom-up dissent. Rikama had studied in Italy and Lorentz in France. The developer of the Finnish anti-tank units was Captain I. A. Lehtinen, who had received influences from Sweden. In the lunch room of the FGH, there was a table of young officers that soon became a discussion club. These 'Young Turks' were captains. In 1939, one of them, Sulo Susi, translated Erwin Rommel's book *Infanterie Greift An* under the name *Jalkaväki hyökkää* (Infantry Attacks).[21]

Professional ethos did not mean that the officers were unanimous. Open discussion was promoted and debates were tolerated. Many officers,

who were independent thinkers, were full of ideas about how to develop tactics to match the fighting methods of the Red Army. Participants generally opted for the use of common sense. This unconventional, innovative thinking was mirrored in debates in professional periodicals, such as *Sotilasaikakauslehti* (Military Journal), which soon developed into an important discussion forum. The aim of these writings was to learn mainly from others' experiences, often those of the Germans and the French in World War I. The authors followed carefully the developments in the Soviet Union, and the impact of Red Army's military art on Finnish tactics. As Bickel argues, the articles published in professional journals meant that lessons were distilled and passed along in an informal fashion.[22]

An active spirit and offensive mindset were reflected in views of discussants because they knew that passive defense would inevitably lead to failure. Some of them represented dissent by the junior leadership attempting to propose solutions to tactical problems. The authors, like the Finnish officer corps in general, were confident and displayed even a naïve trust and belief in their own chances. The contributors' common view was that the suitable use of conditions, weather and terrain would make it possible to stop the Red Army. One of the most influential contributors was then a major, the French-trained Valo K. Nihtilä, who taught general tactics (later operational art) at the War College. From the mid-1930s, he started to stress defense but kept up the need for an active approach. In the Winter War, Lieutenant Colonel Nihtilä served as the chief of the High Command's Operations Branch.[23]

The authors often took up themes such as the impact of winter, forest and darkness. The viewpoints in this winter discussion were mostly technical, and coincided with the winter experiments, including movement, equipment and bivouacking. The discussants covered not only the benefits but also the challenges posed by winter. Snow was seen as a hindrance. The skiing skill of the Finns was emphasized as it was a tactical advantage. The impact of forests on combat was also discussed from the mid-1920s. The Finns followed Swedish forest warfare experimentation, and some even studied the forest battles of Argonne fought in the fall of 1914. The authors agreed that forests allowed the element of surprise if the troops had been sufficiently trained as forest fighters. The same held true for night action.[24]

The Finns knew that the emulation of foreign influences could not be undertaken without critique. The 'Finnishness' that comprised borrowed tactical ideas and general principles was to be adjusted to local northern

forest conditions at different levels of war. The point of departure for the development of Finnish tactics was that their inferior numbers meant they could not consider frontal attacks in open terrain. The central features were the effective use of terrain and the qualities of individual men.[25]

None of the tacticians challenged the utility of the lessons from the past. The ability to fight off-road in rough and difficult, trackless, afforested terrain in uninhabited areas had been viewed as a central factor for centuries. Peasant ski troops encircled and defeated a strong Russian enemy in the battle of Joutselkä in 1555. This battle was used as a textbook case of Finnish tactics. The conscripts were given history lessons about it. The forest-fighting and guerilla activities of the Finnish Jaeger units of the Swedish Army of the late eighteenth century were also regarded as typically Finnish even though they were products of their time. Finnish tacticians were searching for the formula for victory in history. Many, knowing the Soviet road-bound tactical methods, opted for double envelopment movement through difficult terrain. Joutselkä was compared to the battles of Cannae and Tannenberg. The Cannae-type attacks soon formed as model solutions in military schools. Before the Winter War, envelopments and outflanking maneuvers were becoming ends in themselves, thus confining, to some extent, Finnish tactical and operational thinking.[26]

## *Auftragstaktik* as a Main Command Principle

Millett, Murray and Watman have noticed that effective militaries stress the use of initiative and independent-action operations at any time of the day without contact with HQ or flanking units, and rapid movement that is a product of capable front-line leaders.[27] This holds very true in the Finnish case.

The effectiveness of Finnish command and control rested on a command culture borrowed from the Germans. The most important Finnish command principle was the German system of decentralized command (*Auftragstaktik*) that the Jaegers had brought with them from Germany. The FHC did not maintain too tight a control over operational, let alone tactical details. The subordinates were able to retain freedom of maneuver and could operate with their superior's intent in their minds. The Finns often employed mission tactics at various levels. In a highly fluid situation, the higher command echelons did not interfere in the activities of lower-level leaders. This system was based on trust and emphasizing the personal responsibility that was demanded of every soldier. It suited forest warfare,

as small-unit actions could not be planned too carefully. The subordinate leaders could act independently in a self-regulatory manner. The ability to react and sustain momentum was imbued and flexibility was added. This was possible because all-level leaders knew the overall plan and could execute it accordingly following the commanders' intents. Delegation and freedom of action were part of this practice, but they called for well-trained subordinates. Everyone knew what was expected from them. An ordinary private who was trained as an individual fighter should have been able to perform the task of one or two above him in the hierarchy, that is, to substitute for a vice-squad leader or a squad leader.[28]

In the IV Army Corps, the regimental organization disappeared almost immediately. It made regimental and divisional commanders sometimes troopless or commanders of smaller detachments. Battalions engaged in independent action in the spirit of *Auftragstaktik*. In Ladoga Karelia, the organizations were often broken, and various ad hoc regimental combat teams and battalion task forces were formed. The Finns often lacked reserves, and if they had an enemy they had to be committed. The detached units sometimes suffered because their new commanders would use them in costly missions differently than their old units. The Finns often pulled troops from the least threatening sectors. This scrambled the tables of organization. Sometimes it was done needlessly, affecting the command. The ability to create and use reserves was an operational center of gravity for the Finns. In cases when reinforcements arrived in smaller batches, the commanders were not always able to seize the momentum, but rather reacted to enemy actions. In northern Finland, some command echelons violated the principle of mission orders and directly led small units that were subordinates of their own subordinates.[29]

Examples of Finnish leaders following the higher commander's intent were the specialized *motti* commanders. The *motti* front in the area of the IV Army Corps was so complex that it could not be led from one command post. Therefore, because securing the unity of command was important to pursue the objectives, the Finns had introduced the idea of a separate overall single commander, to whom had been delegated reasonably large powers and all available resources in that area. Typically, they were ordered to act against individual *mottis*. This practice was similar to the World War I German *Kampftruppenkommandeur*. Antti Juutilainen notes that those appointments were not usually determined by age and seniority, but rather by merits and qualifications. Many *motti* commanders developed into true professionals, whose ideas for combat techniques and tactics were disseminated for wider use.[30]

In Finnish command culture, initiative was the norm. Reiter and Stam III argue that one of the factors of democratic advantage is that battlefield effectiveness is at a high level because the military leaders are open-minded and have more initiative and risk-taking ability than those in autocracies.[31] This really was the case for the Finnish junior and mid-level military leadership in the Winter War. To employ *Auftragstaktik* in the spirit of a superior officer meant that the independent decision-making role of battalion commanders was emphasized. They could read the battlefield and employ a type of situational leadership.

## The Chains of Command and Command Performance

The FHC, located in Mikkeli in southeastern Finland, was responsible for translating Mannerheim's strategic directives into orders and transmitting them down the chain of command in a timely and coordinated fashion. The members of the FHC had a professional ethos, and senior officers possessed generally excellent executive abilities, thus contributing to Finnish operational effectiveness. The activities of the FHC revolved around Marshal Mannerheim, and the unity of his command was not compromised in any way. Yet the role of Quartermaster-General Jaeger Colonel A. F. Airo (who had studied in France and later became a Major General) was central in the workings of the FHC. Airo is rightfully credited with leading the operations with substantial support from Lieutenant Colonel Valo K. Nihtilä. The FHC was a well-functioning HQ that put the nation's resources to effective use. Toward the end of the war, the view of situation was, as Lasse Laaksonen demonstrates, many times distorted in higher HQs, the effect of which was that some orders were late and unrealistic.[32]

Chains of command and the workings of the FCH were not always perfect. The case of aerial defenses clearly illustrates problems and confusion. The FGH had made most of the plans for the use of air and anti-aircraft units in war. Yet from October 1939, the aerial defense troops were created by the Commander of the Air Forces Jaeger Major General Jarl Lundqvist. The planning and execution of air warfare-related matters were concentrated in the Air Force Office of the FHC (part of the Operations Branch). There was some overlap of duties with Lundqvist's own staff. The FHC's active role is explained by Marshal Mannerheim's wish to keep all units and things in his own hands. Thus, Lundqvist and his staff had just a limited influence. They merely forwarded orders and did not function as an operative planning staff.[33]

The establishment of new command echelons eased the burden of the FHC. The decision-making process was speeded up by centralizing command in one pair of hands, giving the new front HQs more leeway and a greater role in operational planning. Initially, the area of Jaeger Major General Viljo Tuompo's North Finland Group (NFG) comprised approximately half of Finland. This was too large, and after two weeks of fighting, the FHC established a new echelon, the Lapland Group (LG), for the Salla and Petsamo directions. It was commanded by Jaeger Major General K. M. Wallenius. The area of the IV Army Corps was also changed at the beginning of the war by forming for the directions of Tolvajärvi and Ilomantsi the Group Talvela (GT) under Jaeger Colonel (later Major General) Paavo Talvela, who in late February 1940 was sent to the Karelian Isthmus to command the III Army Corps. At the end of the war, new command echelons were created to be in charge of the battles around the Bay of Vyborg. Those were the Coastal Group and the Hamina Group.[34]

Often the victories of the Suomussalmi–Raate operations are mentioned by only referring to the 9th Division. It is forgotten that FHC's operational leadership and the NFG as higher command echelons participated in the analysis, planning, preparation and conduct of those operations. They considerably contributed to the successes by allocating resources to the frontal commander Jaeger Colonel Hjalmar Siilasvuo. The Commander of the NFG, Tuompo and his staff, for example, assessed the nature of the enemy and their probable objectives, made the operational-level decisions to determine the mission of the 9th Division, and organized logistical support. The FCH sent in additional troops. Together, they made accomplishing the mission possible.[35]

It was not an easy task for the Finnish higher command echelons to execute their operations. The various HQs were normally alert, and they could make swift decisions, react to sudden changes in situations and effectively execute their decisions. Yet in the latter stages of the War, it was difficult for them to obtain a realistic view of the swiftly deteriorating situation. The leadership of the IV Army Corps, for example, was not always up to their tasks. They were often surprised by changing conditions, and made miscalculations but managed to seize the momentum of attack, influence the enemy's plans and inflict heavy losses on it. The IV Army Corps command was able to stabilize the situation in Ladoga Karelia for two months. Its main accomplishment was that it safeguarded the rear of the Army of the Isthmus. All along the long northern fronts, the Finnish commanders of larger formations were active and avoided preconceived

formulas. Thus, in the words of Raimo Heiskanen, 'they could accomplish their assigned missions flexibly'. It was possible at those location because there was enough space to use the troops. The various commanders on the Karelian Isthmus and parts of Ladoga Karelia did not have the same luxury. The plans of northern leaders show that they aimed for decisive action, hitting the flanks and rear of the enemy to cut it off and to destroy its forces. It was a more difficult job to lead maneuver warfare in the north than to lead positional warfare in the south. Yet all commanders of the northern front were able to accomplish their operational missions. In some sectors they halted the Red Army, while in other sectors they defeated it and forced it to retreat. Although the Karelian Isthmus was the main area of operation, with the all-out attack of the Red Army, successful defense of all sectors was essential in the context of the whole war.[36]

The Finnish field commanders had various staff that, on the Karelian Isthmus, were at full strength with professional officers, but in the north they were often undermanned and improvised. Sometimes, they had just a couple of general staff officers or none at all. The HQs functioned in various ways. The procedures of the staff work depended on the commanders' leadership styles and could adjust their workings accordingly. Not all HQ organizations adhered to the traditional line and staff organizational standard model; in some cases they were small, informal and flexible organs. For example, the 9th Division HQ was originally intended as a brigade HQ with a handful of officers, and even this being the case, most of its trained officers were not used as desk officers, but instead as field commanders or liaison officers among the troops.[37]

The command activities were further complicated due to a serious lack of resources. The lack of radios in the 9th Division during the Suomussalmi–Raate double operations meant that the commander and his second-in-command had to go outside and make important decisions based on the sounds of battle! Information management was hampered and receiving orders took time. In the 9th Division, this was solved by using warning orders. There, the maps were quite inaccurate and too few. It did not matter, because many of the men were fighting in their home area, and local policemen and loggers were used as guides in troop movements.[38]

The Finnish officer corps was up to their wartime tasks. Better-educated officers were in the southern fronts, whereas the northern sectors had to manage with less-trained officers, who succeeded equally well. In the northern areas, some commanders had been discharged or had been in the reserve for a long time and thus lacked the relevant skills. The commanding

officers in the north were mostly Jaegers close to 50 years of age, many of whom had not studied at the War College. Some of the commanders, like Lieutenant Colonel (later Colonel) Erkki Raappana, the Commander of the NKG, utilized his intuition when making decisions. To be successful, this required a good knowledge of the terrain and of the capabilities of their units and individual subordinates. Of course, the impact of luck and chance could not be ruled out completely either, nor the existence of friction.[39]

At the level of Finnish battlefield (tactical) leadership, Pertti Kilkki has calculated that the average age of battalion and artillery battalion commanders in the Winter War was almost 41 years. Successful commanders had been a couple of years older, giving them authority. Kilkki notes that military education of the commanders had been heterogeneous and just 70 percent of them had formal competence. Most of them distinguished themselves, and very few officers were replaced. The commanders' successes correlated with their participation in continuation courses. On the other hand, Kilkki writes, many intangible factors account for commanders' effectiveness. The company commanders were central, and sometimes they had to make battalion commander's decisions. They could even influence the events of entire sectors of the front.[40]

Olavi Sipponen and Martti Suhonen assert that company and battery commanders, who, on an average, were eight to nine years younger than battalion commanders, were central figures in the Winter War. Many of the company commanders were reserve officers, often the closest to the men whom they knew before, because in many cases they were schoolteachers or local chiefs of Civil Guards. They were, in many cases, champions and 'earthy father figures' with high mental endurance and a sense of duty. They proved that they had a capability for sacrifice (altogether 1140 Finnish officers fell), and as their trait was known, they could also enhance cohesion in their units. The higher commanders led the troops, but the company and battery commanders led people from the front and lived with them but distanced themselves from the rank and file a bit. The commanders followed attitudes and behavior through their subordinates and in discussions with their men, who obeyed orders if they were told the reasons why. The importance of the company-grade officers lay in the fact that they motivated and instilled a fighting spirit (which was usually high in the first place) in their subordinates. To pick up on Cushman, the last skill was the most important of them all. In addition, the company commanders excelled in their tasks, used common sense and even humor, and exhibited a high level of mental endurance.[41]

The leaders needed to understand the cultural and national characteristics of the Finnish men in order to lead them and improve the effectiveness of their subordinates. Juha Mälkki argues that junior officers, both young active-duty and reserve, acted as 'linchpins' between the official and unofficial soldiers' organizations. Those officers who could combine the norms of both organizations could usually generate enough discipline and fighting power to fulfill their tasks.[42]

If the officers showed courage, or even uncommon valor, they were usually highly respected and trusted by their subordinates. The Finnish reserve officers led by example. The deaths of courageous officers were honestly grieved by their men. The popular leaders were expected to lead their men into battle, share their dangers and sleep in the same dugouts or tents as the men. The well-liked company commanders were those who had gained the confidence of their subordinates by their ability for practical judgment. The real authorities among the men were those commanders who had the lowest possible casualties in fulfilling the tasks, and the feeling that the commanders cared for their men and their sacrifices was most important for soldiers' performance and motivation. There were numerous examples of Finnish commanders who tried to save the lives of their men and showed their tactical competence by making their plans by favoring outflanking maneuvers instead of frontal attacks.[43]

Veikko Karhunen demonstrates that tactical-level effectiveness was increased by Finnish front junior (reserve) officers who served as platoon leaders and, to a large extent, as company commanders. They suffered proportionally the highest casualties, too. According to Karhunen, well-trained reserve officers, 'who were the secret weapon', utilized the best qualities of the Finnish soldiers, and used common sense and continuously exhibited innovativeness and adaptability. He argues that the Finns simply sought to avoid the strengths of the Red Army, while using their own strengths in attacking their enemy's weak points. Finnish military effectiveness was, Karhunen maintains, due to the fact that they were able to inflict heavy casualties on the Soviets while minimizing their own losses (the 'law of least resistance').[44]

Leading by example from the front took its toll. It resulted in very high casualty rates among the junior officers. Mannerheim noted in his order of the day for 13 March 1940 that the military's success was due to the skills of its soldiers and officers, especially reserve officers, who all did their best, but who also suffered very high casualty rates.[45]

## Problems of Command

Millett, Murray and Watman point out that officer–officer relations matter in military effectiveness. The Finnish officers were close-knit because they knew each other well. Their Army was small, and the officers changed posts after a couple of years. The fact that the military schools were practically joint schools eliminated much of the interservice competition. Professional and personal relationships between officers of different branches were generally good. Parochialism was rare. There was, of course, healthy competition.[46]

Personal conflicts and feuds burdened commanders and had an impact on command and control. There were occasional personality clashes, intrigues and rivalry between some of the senior Finnish officers that eventually influenced the operational and tactical effectiveness in a negative way. They did not, however, have a considerable impact on events. Bad chemistry was a particular problem in the NFG. General Tuompo gave his subordinate commanders a large degree of freedom, but still they took the liberty of executing their orders in their own way. At Suomussalmi, the two responsible commanders failed to communicate and the entrapped Soviet division managed to escape back to where it had come from.[47]

Clear mistakes were made by the Finnish commanders throughout the war. Normally, they were associated with unrealistic time calculations. For example, in early December 1939, the FHC ordered weary troops to counterattack in Suojärvi and gave them too little time to prepare. Even if the troops were able to make it in time, they were not ready for attacks. The march speeds were further affected by weariness, deviations from the routes and harsh winter conditions.[48]

Leading from the front did not always occur, because higher commands were situated in cozy buildings behind the front. In some sectors, the commanders moved to their forward tactical command posts to be closer to their troops. Yet many commanders were rarely seen on the front lines, even though it would have boosted the morale of the troops. The lack of personal contact between the commanders and their subordinates in the field made it difficult to supervise their performance and give guidance.[49]

Supervision of lower commands was sometimes organized by representatives from the higher echelons. For example, the FHC sent Lieutenant Colonel Nihtilä to instruct the IV Army Corps leadership in the execution of a major offensive in early January 1940. Nihtilä had great power, and he managed to convince the Corps Commander Jaeger Major General

Woldemar Hägglund and his subordinates that the most sensible attack would be directed against the Red Army's flank from the north. Nihtilä's visit could have turned counterproductive and could have led to an atmosphere of distrust, just as had happened to Lieutenant Colonel Richard Hentsch, who was dispatched to the Marne in September 1914. Unlike Nihtilä's successful role, Hentsch's actions led to a disaster as he ordered the German general retreat.[50]

At the beginning of the war, most Finnish military leaders were inexperienced. Some of the commanders failed for various reasons, and some of them were changed and substituted by new men. In Ladoga Karelia, some troops panicked and retreated after encountering tanks, and counterattacks failed. The responsible commander, Jaeger Major General Juho Heiskanen, who had a bad rapport with Mannerheim, was fired. On the Karelian Isthmus, the covering forces retreated more quickly than had been originally planned. That and later differences of opinion between Mannerheim and the Commander of the Army of the Karelian Isthmus, Jaeger Lieutenant General Hugo Österman, led to the latter being replaced in February 1940. A small number of mid-ranking officers were relieved of their commands for incompetence, severe fatigue or alcohol abuse. Six of them were older Jaeger officers. In the IV Army Corps, more than 40 percent of leaders were changed, mostly because of being casualties or for medical reasons, and one regimental commander for not being flexible enough. Some active-duty officers who had had many of their men killed were relieved of their commands. Heavy responsibility was placed on the shoulders of commanders. Yet only one mid-ranking commander lost his nerve, and psychiatric casualties among the leaders was almost a nonexistent phenomenon.[51]

## Combat Motivation of Citizen Soldiers

### *'The People's Army'*

Millett, Murray and Watman argue that a major prerequisite of combat power is that the tactical systems foster strong and resilient bonds, and that there should be exceptionally high unit cohesion and a very high level of trust between different levels within units. According to them, good inter-rank relations increased social cohesion further. If the tactical system is, they add, in line with the military's approach to morale, unit cohesion and relationships between officers, NCOs and other ranks, this usually correlates with high-level tactical effectiveness.[52]

The Finnish Army leadership had deliberately aimed to develop these characteristics by encouraging stable unit affiliations and small-unit memberships, and recognizing skills and actions by promoting and rewarding its members. The Finnish Army fostered cohesion and strong bonds among its ranks. The procedures that Millett, Murray and Watman regard as ideal describe the situation in the Finnish Army. Combat motivation was greatly fueled by the fact that their brothers in arms were, in many cases, their relatives. Thus, it is fair to say that they were fighting for their families and comrades. The Finnish tactics emphasized small-unit action, rendering an explanation focusing on a primary group a viable one. It matters much more under those conditions than technological sophistication.[53]

Universal conscription and the citizen soldier army were considered to constitute the cheapest and best system for defending Finland's large land area. The Finnish Army was successful in generating popular support for it. As the Army was broad-based, it reflected the political views of the whole Finnish population. The war effort did not require the militarization of civilian institutions and values, and the membership of most of the Finnish armed services was civilian. In this, Finland resembled the United States.[54]

Murray and Millett consider that the key factor either enhancing or retarding military effectiveness has been connected with the influence of general cultural values. Cultural factors and national characteristics are important when trying to understand the combat motivation of citizen soldiers, and one should examine how soldiers share common values and norms. It was not a difficult task to achieve commitment, because Finland and its culture were at the time rather homogenous. In practice, the Finns spoke two languages and adhered to two religions (a large majority of them being Finnish-speaking Lutherans, and a minority members of the Greek Orthodox Church). The Finnish Army was a citizen soldier reservist organization that was, indeed, an integral part of Finnish civil society. In this 'people's army' all the regions, social classes, political groups and professions were represented. It was a symbol and guarantor of Finnish independence. The Finns had found national conscription extremely useful, since it helped in forging a close relationship between the Finnish state and its (male) citizens. The Army drew upon the traditions of the winning side in the Civil War, the White Army of 1918, and by the end of the 1930s, the attitude in Finland strongly favored its armed forces. Anders Ahlbäck writes that the Army was viewed as the 'men's school' intended for the protection of loved ones.[55]

To account for the combat motivation of the Finns, it is necessary to discuss the role of religion. At the time, the two churches were major cultural factors. Finnish war burials were different from most of the other countries. The bodies of fallen Finnish soldiers were evacuated to their home parishes and buried in designated military cemeteries that became national places of mourning in which they were publically honored and commemorated. Funeral services were held for missing soldiers, too. Altogether some 85 percent of bodies were recovered. To emphasize the common cause, the Finns pursued equality at death. Officers received the same burials with military honors as the enlisted men. Some priests served as ordinary officers; 12 of them fell.[56]

Cultural characteristics shaped the effectiveness of the Finnish Army, and they offer insights into the deeper nature of 'Finnishness'. There are cultural reasons for this. Lawfulness had been considered by the Finns as the basis of societal life. Swedish legislation formed the basis of Finnish, Nordic democracy. Finnish civil society had started to find its shape even before national independence. Democracy and social justice were considered essential features. The Finns placed great trust in the authorities, such as the police, the church and the Army. A majority of Finns were law-abiding citizens. *Sisu* (perseverance and mental toughness) is a characteristic that is often associated with the Finns. They were trustworthy and serious people, still capable of teamwork and serving the larger national causes. In a reservist army, the basis for combat motivation stems from the national will for defense. The Finns were easy to mobilize because they were proud of their young independence, freedom and sovereignty. The majority of the people considered their home country worth defending for the simple reason that the state took care of its citizens' basic rights. To strengthen the feeling of security, citizens were ready to invest to help their society. They felt that had many rights but, in return, also obligations, like military service. Citizens had rights, but also the obligation to defend the country, its constitution, people, Nordic society and its values. Protestant ethics also meant that the citizens and the citizen soldiers generally had a strong sense of duty when they understood the necessity of resistance. It is no surprise that practically all Finnish reservists replied positively to the call to arms (with the exception of just some 160 men), or acted even before. This is illustrated in the way that thousands of volunteer fortification workers went to the Karelian Isthmus during the summer of 1939. Jukka Kulomaa concludes that in the Winter War the problem of desertion 'practically did not exist'.[57]

Finland in the late 1930s was a politically stable country, but it was still a somewhat politically divided society. Political divisions had been the legacy of the bloody Civil War of 1918. In 1932, there had been an attempted coup by anti-democratic right-wing forces, including some Civil Guardsmen. This coincided with the birth of similar extremist movements in many European nations. In his radio message, the President of Finland, P. E. Svinhufvud, ordered the rebels to return to their homes. Thus, he united the people under a parliamentary democracy. The Army did not take part in this breech of internal security. The situation was gradually getting better following that incident. Yet the Communists were considered unpatriotic. The Finnish Communist Party had been established in Moscow in 1918. Its internationalist activities were curtailed by legislation in 1930, after which its members were arrested or went underground.[58]

The combat motivation of the Finns is impossible to comprehend without mentioning the process of national reconciliation, as described by Timo Soikkanen, which was felt at the micro level. Just over a year after the Civil War, a majority of the Finnish people, most of whom had fought on the Reds' side, had the possibility to influence national politics, become candidates and vote in elections. Most adult citizens, men and women alike (Finland was the third country in the world to give women the vote, in 1906), excluding criminals, the Communists and military personnel, had the right to vote regardless of their wealth. Representative parliamentary democracy meant that the Social Democratic Party (the losing side of the Civil War of 1918) was already the largest group in parliament in 1923. It was also in government during the interwar period. The Finns cherished the personal freedom that was characteristic of the Nordic countries. There had never been a feudal system nor serfdom like in Russia. Since 1918, tenants had had the chance to purchase their farms.[59]

### *High Morale and Camaraderie*

This section uses Jonathan Fennell's categorization of factors affecting the multidimensional phenomenon of morale. It is a broader question than simply studying troops' fighting behavior and their willingness to engage the enemy. The measurement of rates of desertion, sickness, surrender and breakdown among the troops show that the Finnish Field Army passed with excellent marks. There were hardly any deserters or cases of self-mutilation, and relatively few prisoners (0.25 percent). Breakdowns

occurred occasionally, but they did not turn the war in the Soviet's favor. At the start of the war, some fresh reservist regiments panicked when they encountered tanks. In the later stages, some units disintegrated on the Karelian Isthmus; it most often happened to those who had only received two weeks' training or were replacement troops (23rd Division) sent into decisive battles. They often suffered high casualties. Ville Kivimäki has argued that psychiatric casualties were more common among older family men than among young, unmarried soldiers.[60]

The Finnish troops generally trusted their weapons and the other military hardware at their disposal. They made the best use of them, even many makeshift weapon inventions. They witnessed the Red Army's inability to take advantage of their technologically better weapons. The Finns captured the Soviet weapons in large numbers, and used them effectively against their previous owners.[61]

The morale and motivation of the rank and file was significantly affected by the professional officers and NCOs, who had a professional ethos as described above. The level of Finnish training was higher than that of the Red Army, and the Finnish soldiers were qualitatively better than their adversaries. Both the leaders and the citizen soldiers had a high sense of self-worth. This favorable opinion of themselves was further promoted when they realized that by working together they could achieve success.[62]

The Finnish Army's support units provided its fighting troops with sufficient supplies of food and water. The front-line troops had a chance to read and hear news from home by radio and in newspapers (the units also had their own papers). The soldiers were able to maintain quite frequent correspondence with their loved ones through the field postal service. The support of the home front was a matter of the utmost importance. A majority of the Finnish troops were outdoorsmen who came from the countryside. Most of them were in good physical shape, and had been accustomed to the discomfort of life on the front. The soldiers were provided with various welfare provisions to mitigate that discomfort and boredom. Canteens and dugout saunas were popular, the latter having an impact on hygiene conditions. Some fighting units were on the front line for three months without any possibilities for rest and recuperation. The effectiveness of the supply systems and transportation directly affected the troops' morale and ability to fight (these matters are discussed in more detail in Chap. 5).[63]

There was hardly any doubt in the minds of the members of the Finnish Army as to why they were fighting. The strategic goals and objectives were

clear to everyone: their national independence was at stake. A majority of the soldiers had a strong belief in their cause, and were willing to make sacrifices even if they were in conflict with their own interests. Their common cause and group cohesion were great sources of the combat motivation and endurance exhibited by the Finnish soldiers. However, in terms of cohesion, it cannot be labeled in any of the four militaries as described by Jasen J. Castillo. The Finnish Army displayed strong battlefield performance like professional militaries, and also strong staying power when facing defeat, like messianic/authoritarian militaries. The stamina of the Finns is difficult to account for, and an outsider such as B. G. Geijer from Sweden could not do it. The Finns apparently felt the defensive war was justified. The sympathy from foreign countries strengthened their belief in their cause. Their resistance intensified toward the end of the conflict, especially that of the Karelian reservists from the border areas, which had become battlefields, who fought hard for their home regions.[64]

Due to the reasons explained above, the 'people's army' did not need to inculcate this matter in its soldiers. Indoctrination was practically not necessary to motivate the soldiers and explain their stamina in combat. The role of ideology as such was not overly significant. Nationalism had been nurtured in a newly independent young nation state. The Finns were not generally ideologically committed soldiers, and their patriotism was not open. Wolf H. Halsti describes the patriotism of Finnish soldiers on the front as a kind of atavistic feature—a state of existentialism. Instincts replaced rational thinking. The home country, even though a distant term and rarely in the minds of the front-line soldiers, was alive for them. Patriotism and a belief in a common cause are important motivating factors, but they are rarely conscious motivators on the battlefield. In the Winter War, the fighting spirit of the Finns remained high because the men trusted their political and military leaders, and because the Finns believed in the just cause of their national defense.[65]

Before the Winter War, Stalin had made a grave error: he anticipated that the Finnish leftists would welcome the Red Army as a liberator and thus refuse to fight. However, most Finnish socialists regarded the Soviet bombings of Finnish civilian targets as unjust. Integration within society took place as the political dynamics changed. It was important that the leading Finnish social democrats gave their strong support to the war effort. The leftist soldiers fought side by side with others for their homes and next of kin. The labor unions encouraged their members to fight for the national cause, and the socialists were allowed to join the Civil Guards.

The industrialist and workers' unions agreed in January 1940 that from then on they would negotiate wage levels and work conditions. The ability and will—and reliability—of the men of the 11th Infantry Regiment, who came from the working-class areas of Helsinki, were questioned because many of its reservists were Communists and they came from families whose fathers had fought on the red side in the Finnish Civil War two decades earlier. The regiment was like a small society because there were also more educated soldiers, and for that reason clashes were expected and the morale was suspected to be low. Soon it was realized that the regiment, which was sent to the Karelian Isthmus, performed well and fought as any other regiment did. This happened after leftist reservists noticed the real aims of the Soviet Union, and that it was not the 'workers' ideal state'.[66]

The Finnish public school system had socialized the young male Finnish conscripts to citizenship. During the interwar period, there was defense education in normal primary and secondary school curricula. Saara Tuomaala writes that 'education embodied and realized national ideas and goals'. The Army also gave supplementary civic education to the conscripts. They were indoctrinated with strong images of the enemy through nationalistic anti-Soviet propaganda. According to Anders Ahlbäck, the civic education provided to the conscripts by idealistic officers and military educators urged that total war required 'strong-willed, self-propelled and self-disciplined soldiers who fought for their nation out of their own free will and patriotic conviction'. The primary goal of the Finnish military education was to educate dutiful citizen soldiers to serve their country to protect their next of kin and the people, not go to war for their military or political leaders' sake. The threat perceptions were thus collectively shared, and resulted in a closing of the ranks in the face of Soviet invasion. The moods were important ingredients of morale. The term 'the spirit of the Winter War' was part of the national ideology, and an offspring of Finnish nationalism. According to Sinikka Wunsch, 'the spirit of the Winter War' had started to form already earlier, perhaps in 1938, when newspapers reported aggressive developments in the Soviet Union. It emerged in a strong fashion on the eve of the war during the period of special maneuvers in the fall of 1939, and it was further developed during the war. Sampo Ahto notes that the concept epitomized the unfaltering and perseverant determination to defend national and personal freedom against the attacker. The mood was gloomy at the end of the war, yet the spirit of not giving in was still strong.[67]

A major strength of the Finnish Army was that it had close connections to civilian society. The true strategic (moral) center of gravity was the Finnish people's strong will to fight. Had it broken or been weak, the whole defense would have collapsed. Understandably, at the tactical level, the center of gravity was the skilled and motivated individual Finnish soldier. This strength could not be influenced during the war, but beforehand, it was possible to prepare them through training. If a recruit was strongly motivated, he was highly receptive to training. The effects of these centers of gravity on the Red Army were undisputed. They also greatly assisted the Finns in their defensive measures. In the end, the Red Army was unable to overwhelm and break the Finns either physically or morally.[68]

This is not to say that the Finnish people were completely unanimous. There were some conscientious objectors, mostly for religious grounds. A small number (only some 200) of hard-line Communist activists, who might have worked for the Soviet cause, were detained as a preemptive measure. In the Winter War, underground Communist resistance against the Finnish war effort was marginal and disorganized.[69]

The quality of leadership (as discussed above) deeply impacted upon morale, as did the well-functioning, almost fraternal inter-rank relations. The Finnish commanders were responsible for the combat effectiveness of their men. This could have been, as Cushman notes, decreased if they had not taken care of their men and their needs and protected the equipment. The leaders needed to uphold and develop the fighting motivation, skills and discipline. The weapons needed to be protected from the elements and enemy fire. To preserve their combat effectiveness, it was vital to arrange for supply and rest. The work of field chaplains and connections to the home front were needed to boost morale. The commanders were responsible for the physical shape of their men, continuous training, preparing for the next mission and for fortification. Their spirits could be raised through recreation and through thanks and decorations. By relevant methods, the leaders could foster the social cohesion that was important in motivating the men. Strong social cohesion fostered the endurance and sustainability of the Finnish soldiers, and it mitigated stress and helped them to stick together in combat situations.[70]

Cold weather placed additional strain on the men's mental stamina and fortitude, and to uphold morale, the leaders were responsible for preventing psychiatric and other non-battle casualties, such as casualties to frostbite. This was not always necessary, since Finland was an agrarian nation in the

1930s. Most of the civilian soldiers of its reservist army were physically fit for front-line duty, and life on the fronts was not all that different from forest work, a very common source of additional income for farmers in the wintertime. The soldiers were familiar with the terrain and weather conditions and could protect themselves against the cold. However, winter often increased march times, and the leaders were ordered to make sure that no troops were left exposed to the effects of cold weather for extended periods of time. Sometimes, the officers failed to protect their men from frostbite. In the cold January of 1940, in particular, the Finns also occasionally suffered significant non-battle casualties.[71]

At the beginning of the war, many had doubted the Finnish possibilities for success. Yet after the delaying action phase, some of the counterattacks began to produce results. The Finnish Army emerged as victor in Tolvajärvi (12 December) and Suomussalmi (28 December) and pushed back the advancing Red Army. These victories—the first in the series—restored confidence and significantly boosted the morale of the whole Field Army and the home front.[72]

The Finnish soldiers were difficult to lead, and their approach to discipline was somewhat unique. During peacetime, the conscripts had been strictly disciplined but this had slackened during the refresher training. The Finnish Army did not have very much saluting or formalities, especially during wartime. The military hierarchies and practices were quite similar to civilian life. Many military units resembled lumber camps. The citizen soldiers did their share but, at the same time, opened their mouths to complain, gripe, grumble and moan. They would dig in because fortifications provided for the safety of the group. Yet, in regard to other duties, soldiers most often lingered and shirked. They had to be supervised to have them complete some tasks in the first place. For Knut Pipping, who studied the social structures and the soldiers' system of informal norms in a World War II Finnish infantry company, this kind of seeming laissez-faire of the Finnish Army, which might appear as severe disobedience, insubordination and complete disregard for authority, in fact fitted the Finnish mentality well. The Finnish approach to discipline also constituted one of the most important factors that promoted cohesion and a willingness to fight on. The officers understood that they had better tolerate the relative lack of discipline of the citizen soldiers and instead utilize the Finnish social and cultural qualities (there were strong tendencies to avoid hierarchies and to emphasize a special 'democracy' in social relations). For their part, the soldiers, who had been allowed to have their

own informal rules and norms, knew that they had personal responsibility for their conduct and military tasks. Actually, deviations from formal military discipline by the Finnish citizen soldiers increased their morale and improved their combat performance.[73]

In sum, the Finnish Army may have seemed undisciplined, but instead the discipline was self-imposed and informal in nature. The citizen soldiers felt that they were fighting for a just cause, and thus carried themselves with a high level of military élan. The majority of the soldiers identified with the national interest and the country's welfare. When the home front remained united, it gave the citizen soldiers a reason to fight on. Fear could be controlled and rational action taken with the promise of survival. Disciplinary problems were rare; draconian measures and harsh punishments were seldom needed.[74]

The Finnish front-line soldiers demonstrated a particularly strong camaraderie and feelings of solidarity. The wartime catch phrase 'no one is left behind' was reality in the true sense of the word. Often, many brothers in arms risked their own lives in attempts to recover the dead bodies of their fallen comrades from between the lines. This was in sharp contrast to the Red Army, where the dead were left lying and buried much later in mass graves. The Finnish practice of bringing back the dead meant that the Soviet soldiers rarely saw enemy casualties. This had an influence on their morale. The majority of the Finnish soldiers fought to obey orders, to avoid occupation and for their comrades in arms.[75]

The Finnish troops had a generally high level of integration within their immediate group. The regional mobilization system (area system) meant that reservists came from the same villages and towns as others in their unit. It was also intended to create cohesive and solid units in which the officers and the rank and file were used to working together. The regional mobilization system led to primary group cohesion, strong bonds, solidarity and loyalty toward their brothers in arms (many of whom were next of kin). As a high level of cohesion existed, the Finnish front soldiers bonded in a fashion that their will and commitment to others, the organization and mission were sustained. One of the key strengths of the Finnish military was the group dynamics, which owed much to the way young recruits were successfully merged into the units. This resulted in unit integration.[76]

The leaders could promote cohesion, but they needed to be aware of informal social norms. Juha Mälkki asserts that there were two different military communities and traditions in the Finnish Army. The professional

soldier army (the 'gentlemen' of the officer cadre) and the citizen soldier army (the 'lads') were accomplishing the same task. Tensions existed between the 'gentlemen' and the 'lads', but they were able to function together. The special maneuvers in October–November 1939, an intensive resocialization period, created them as cohesive units.[77]

Pipping argued that the front soldiers promoted a high level of peer solidarity, and therefore kept them fighting. They had developed commitment and a certain kind of compliance. Yet they tried to follow their own rules and obtain as large a degree of freedom as possible in their duties. The unofficial structure of the company and the informal norms were produced and followed by the front-line soldiers themselves and hence were, to a large extent, accepted. The men's basic needs were provided for by the company. Combat effectiveness was produced while performing their assigned tasks; the members of the company had a special way of complying and fulfilling the organizational goals. The Finnish soldiers felt some feeling of kinship with other soldiers serving in the same sector. However, others were regarded as strangers and outsiders. Regimental spirit was not easily detected as most of the Finns served in smaller units. Competition between different arms fostered *esprit de corps*. Some troops took pride in their traditions. The two Finnish dismounted cavalry regiments, for example, venerated the battles of the Thirty Year's War in the seventeenth century. In addition to maintaining strong and resilient bonds, they had stable unit affiliations: units from certain areas had different unit colors, special insignia or painted helmets that were used to distinguish them. Altogether, over 200 unofficial badges were used that the soldiers wore with pride.[78]

The company was further divided into formal military groups (such as squads and platoons), rank groups, age groups, local groups (e.g. the men manning the same stronghold), home district group, and finally, so-called 'mess kit' groups. The latter—the buddy teams—were informal groups of two to four men sharing their cooking and similar practical tasks. Each soldier, being simultaneously a member of all these groups, had a specially designated role. For Pipping, the units in which they served defined soldiers' identity, and squads were every man's main membership group. Moreover, their happiness, security and life depended on the man-to-man relationships within the squad. Since the platoons had many common functions, the soldiers' behavior was also shaped by their membership in platoons. The men had common tasks that were difficult to escape from, because work inside the unit was regulated by informal control mechanisms

(namely intragroup control). Wolf H. Halsti adds that the primary group had become a centerpiece of the world, a substitute for family.[79]

On the matter of courage, Pipping concluded that the soldiers, who were continuously under lethal threat, seemed to display certain indifference toward dangers. Yet they had a certain approach to risk-taking that Pipping calls 'the economic principle in the behavior of combat soldiers'. It refers to soldiers' will to make their life in the front as comfortable and as safe as possible. Some degree of courage was expected from all, who were expected to do their part. Anyone who failed to comply to the norms (for example deliberately stayed behind or exhibited cowardice) was ridiculed. Yet, this did not concern the mentally weak who were looked after without being excluded from the group. The soldiers disliked those who placed the whole squad in danger. Self-sacrifice was not expected from anyone, but if by taking risks, one could improve the collective safety, he was thanked by all. The members of the anti-tank teams, who often displayed uncommon valor and placed themselves at great risk to help others, were highly admired.[80]

Even though the Finns aimed to save lives, they exhibited some willingness to accept casualties. Casualty rates did not affect the resolve of the Finns. If so their sacrifice would have lost its meaning. The Finnish soldiers could trust they would not be left behind even if they fell. Recovery of wounded or fallen, regardless of casualties, was an unviolated norm. The mood changed, but morale remained unbroken. With mounting losses, some Finnish troops were no longer under proper control during the last days of the war. Nevertheless, a great majority of the troops retained their high morale until the cessation of hostilities. Thus, an examination of the Finnish Army's morale through Fennell's categories reveals that the morale was high in every aspect.[81]

## *QUICK LEARNERS AND INNOVATIVE THINKERS*

The professional officer corps had a military ethos and integrity that allowed them to take an intellectual approach to problems. The Finnish officers had translated the lessons of World War I, the Spanish Civil War and other conflicts into the northern setting. This led to the development of feasible operational and tactical doctrines. The commanders had been taught to be adaptive as well as to be capable of independent and imaginative thinking. The Finnish organizational culture allowed adaptation and innovation. The officers exhibited considerable flexibility, creativity and

ability to adapt under fire. They could think for themselves, exhibit initiative and take advantage according to the situation. The officers had a huge capacity not to work by the book, but instead to find practical solutions and develop best practices. This confirms the conclusion by Richard Overy that a well-led but numerically inferior combatant can compensate for its handicap by better fighting skills. The Finnish officers considered individual soldiers to be a strength. The leaders could handle their men and lead them to use their own strengths, which were then utilized in operations. The leaders exploited the talents of their subordinates. The tactical use of Suomi submachine guns demonstrates this point. It was not felt useful to distribute Suomis evenly to every infantry squad; rather, officers concentrated those effective weapons in the hands of the most capable individual fighters who could exhibit initiative.[82]

The use of common sense and flexibility was encouraged, as well as 'bottom-up' improvisation. The Finnish military leaders made use of German tactical concepts and ideas but applied them to the local forest conditions. Continuous discussions and reassessment of combat methods took place even in the heat of battle. Many negotiations were held between junior officers to disseminate experiences and openly discuss alternative tactics and to circulate new ideas. The *motti* commanders' meetings, for example, allowed the local leaders to exchange experiences and pass on information about novel ways to innovate and adapt. In search of best practices, they favored recent experience and skills. *Motti* tactics demonstrate that the Finns were flexible and could exploit their initial successes and sudden opportunities if they presented themselves. This way, they were able to increase their operational and tactical effectiveness.[83]

## Conclusion

The Finnish armed forces were intellectually well prepared for the Winter War. The selection criteria for an officer's career were stringent. Theoretical officer and NCO education was relevant, and they had learned their practical skills in battlefield tours, wargames, exercises and maneuvers. They were familiar with the battlefields. Even though inexperienced in leading large formations, the Finnish officer corps was well trained and competent. Most of them distinguished themselves or were at least up to their wartime tasks. Only a few commanders were replaced. Most of the Finnish military leaders possessed an optimistic faith in their own capabilities,

which formed a strong psychological basis for their later successes in combat. The Finnish officer corps had a professional ethos and integrity. Their promotions and awards were based only on merit. There were some personality clashes and bad chemistry, but their impact on the conduct of operations was not all that great.

The regional mobilization system produced cohesive units, and good inter-rank relations were a source of high cohesion and morale. The Army favored stable unit affiliations, small-unit memberships and strong and resilient bonds among the members, and it tolerated the informal social norms of the citizen soldiers. The officers had regular contact with their men and took care of their needs. The front-line leadership shared the hardships with them. The Finns were difficult to lead, largely because of their unique, self-imposed discipline. Yet the leaders rarely had to use disciplinary measures. This was possible because they understood the role of the human element during war and the sociology of combat in general, and could instill a fighting spirit into their subordinates. The result was increased mutual trust and enhanced battlefield effectiveness.

Culture mattered a great deal in Finnish military effectiveness. The Finnish Army was strongly supported by the home front because it was not separate from its wider societal context, but rather a 'people's army'. The Finnish soldiers exhibited audacity and willpower on the battlefield. They had a clear cause, but they were not overly ideologically committed or patriotic. Instead they fought for their families and comrades. Many also had religious conviction making them fulfil their duties. Despite mounting losses, their morale remained high, they were ready for sacrifices, and breakdowns were rare. Thus, the Army fought hard and avoided disintegration, even on the verge of total defeat.

One of the main strengths of the Finnish Army was that its members had human capital and could use initiative, creativity and common sense. The leaders—and many men too—were quick decision-makers who were able to find creative and practical solutions and convert their insights into successful results. This allowed them to overcome problems in a realistic fashion and do things the right way. The members of the Finnish Army (not just the rare independent-thinking maverick officers) were, unlike their enemies, able to innovate and adapt to the realities of combat. Flexibility and distrust of preconceived ideas was a rule among Finnish military leaders. They avoided fixed patterns of action to outwit the enemy. Moreover, the Finns possessed the right kind of tactical skills. The officers led their men to use their own strengths. A certain kind of

insight-seeking organizational military culture explains the intellectual preparations for their wartime innovation and adaptation capabilities. Thus, the quality of leadership and troops was a key ingredient of Finnish military effectiveness.

## Notes

1. Lauerma 1966, 962–5; Tuunainen 2014b, 91–2.
2. *Vakinaisen väen upseeriluettelo palvelusvuosijärjestyksessä 1.1.1939* 1939, *passim*; Kemppi 2011, 209–11; Lauerma 1966, 962–6.
3. *Asetus Kadettikoulusta* (3.10.1930) 306/1930; *Suomalainen upseerikoulutus 200 vuotta 1779–1979* 1978, 182–206.
4. Ibid., *passim*; Tuunainen 2012b, 38–41.
5. Cushman 1988a, 331; Partanen, Pohjonen and Tuunainen 2007, 171–8.
6. Tynkkynen 1996, 27; Tuunainen 2012b, 39–42.
7. *K.O. I* 1927, 17–8; Grünn 1931, 17; Ruutu 1980, 91.
8. *K.O. I* 1927, 17–8.
9. Ahto 1977, 48; *Suomalainen upseerikoulutus 200 vuotta 1779–1979* 1978, 476–509. For reserve officers' self-training guides see Hersalo 1935, Hersalo 1939, Huhtala 1940, Lindeman 1939 and Roos, Ekman and Susi 1939. For reserve NCOs' training literature see Huhtala 1935, Huhtala 1937, *Jalkaväen aliupseerin* (*väliaikainen*) *taisteluopas I–11* 1939 and 1934 and Visuri 1935.
10. *Suomalainen upseerikoulutus 200 vuotta 1779–1979* 1978, 301–2, 307–9; Tilander, ed., 2009, *passim*; Iskanius 2015, 17.
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CHAPTER 5

# The Logistics and Maintenance of Effectiveness

## War Effort First

Roger R. Reese states that that an army's will and ability to sustain battle are the key to military effectiveness.[1] Sustainability specifically requires a well-functioning logistical system. Modern armies depend upon support, and in order to be effective, logistics must be employed in a profitable fashion. In this area the Finns also succeeded quite well.

Although the needs of the Finnish Army were prioritized, there was a question of how to maintain wartime living standards. The scarcity would be imposed on the whole nation. It meant supervising food supplies and rationing food. To bolster the war effort, it was essential to plan the logistics in cooperation with the civilian authorities. Municipal boards were founded for requisitioning civilian horses for the Army, civil defense, fatigue duty and the rationing of food, liquid fuels and so forth. The areas near the borders were designated as military administration areas in which the civilian authorities were obliged to obey the orders of the soldiers. The local police were attached to the military.[2]

A majority of Finnish industries ceased their production while, for example, ordnance factories continued to provide for the needs of the Army. The maintenance of military effectiveness required protecting munition factories from bombings. Civil defense measures were only half-ready at the outbreak of the Winter War. There were altogether 80,000 people in the civil defense corps. The preparedness of the industrial facilities was generally better than elsewhere, with the exception of some major cities.



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The civil defense authorities had been able to establish connections with area centers for aerial defense, which meant that they could receive warnings in the event of air raids. The situation of shelters was poor. Civil defense could limit and reduce the effects of bombings. The Army also prepared for gas warfare; every company had a specified officer. These fears did not materialize. The constant air raid warnings interrupted the work in camouflaged munitions factories. In late December 1939, an order was issued that work would be halted only when a real warning came. The work in important factories was compared to front-line duty.[3]

The country's dislocated industrial production was barely able to support the war effort, with the exception of artillery shells. One of the reasons for this achievement was the relatively short duration of the war. Another was that, despite the Soviet naval blockade, the Finnish Navy could keep the sea routes open. The land connections to Sweden were also open, and later an ice road over the Gulf of Bothnia was opened for truck traffic.[4]

The war effort was considered so important that ordinary people donated their jewelry. For example, since Spring 1940, 315,000 gold wedding rings were exchanged for iron rings. Altogether, almost 2000 kg of gold was obtained to pay for air defense. Donations and humanitarian aid also kept on coming from abroad. In Sweden, centers for the assistance of Finland were founded and through them came money, foodstuffs and clothing. In Norway, backpacks and ski boots were collected for the Finnish Army. In the United States, people raised money for the Finns. The Olympic medal-winning runner Paavo Nurmi toured North America to increase sympathy for the Finnish cause.[5]

## Manufacturing Capacity and Domestic Production

Finland was self-sufficient in copper but needed to secure access to other strategic minerals and raw materials in order to keep up the required wartime industrial output. The achievement of the military's strategic objectives was hindered by the limited logistical infrastructure and the national industrial and technical base. The stockpiles would only last weeks, or a maximum of a couple of months. As noted, the Finnish war economy was organized late. After the outbreak of hostilities, production numbers could not be raised swiftly, and stocks were depleted. On the other hand, the Finnish industry's capacity did not even reach its production peak during the war—it took a full year for some factories. Taking

measures to expand production was difficult after the hostilities had broken out. The war industry could thus respond only partially to the wartime industrial needs. Because of insufficient technical preparations, the ammunition production capacity was just 25 percent of the anticipated need.[6]

The production figures for rifle-caliber weapons were rather considerable, but the numbers of heavier weapons manufactured were modest. The Finnish factories could produce just 105 anti-tank guns, 272 light mortars and 44 anti-aircraft machine guns. The production figures for small arms cartridges were enough to fulfil the demand, but only some weeks' worth of artillery and mortar shells could be produced. The production figures for heavier calibers never matched their consumption. The most difficult was the manufacture of artillery cases, fuses and mortar primers. The Finns were better at producing shells, but they had a chronic shortage of fuses. This was due to limited production capacity. However, through adaptation and the conversion of machinery, the GWS Company managed to produce over 430,000 Schneider–Remondy artillery fuses in three months. Similarly, mortar bombs were made in sufficient quantities, but there were not enough fuses for them. At the end of the war the mortar bomb stockpiles were practically all depleted. The ammunition for heavy weapons could be made to last only through strict regulatory actions. However, the failure to produce enough munitions did have a negative effect on the nation's military effectiveness and resulted in increased casualties.[7]

## Acquisitions from Abroad

The domestic war industry had been capable of producing shells for only their most important heavy calibers. For all the other shells, the Finns were dependent on munitions imports. The problem multiplied during the war as many foreign countries sold or donated surplus-model artillery pieces to the Finns. They were a mixed bag of calibers, and the Finns also had to get ammunition for them.[8]

Therefore, during the war, the Finns made continuous efforts to acquire ordnance from foreign countries. High-ranking military officers, envoys and diplomats traveled to Western countries to negotiate and try to purchase weapons and materiel. The Swedish materiel assistance was very significant. The Swedes also dispatched troops and gave humanitarian and economic aid. The next biggest donors were Italy, France and the United Kingdom. The numbers were substantial: over 77,000 rifles, 100 heavy

machine guns, 5800 light machine guns, 7500 pistols and over 40 million rounds for them, and more than half a million hand grenades. There were also heavy weapons: 216 mortars, 168 anti-tank guns and 100 anti-tank rifles, 188 anti-aircraft guns and 312 field artillery pieces of various calibers, and 265,000 mortar bombs and over 1.4 million shells of various types and calibers. Some assistance, like many of the US-made items, arrived after the war.[9]

The Finnish aircraft industry was busy repairing the existing planes, and was unable to manufacture any new ones. In early 1940, shipments of almost 140 aircraft to Finland took place. The most notable of these acquisitions were 22 Bristol Blenheim bombers and 30 Gloster Gladiator fighters from the UK (partially donated by South Africa), and 32 Fiat fighters from Italy. The delivery of the Fiats was delayed because Germany, bound by the Molotov–Ribbentrop Pact, did not allow them to be transported through its territory. Besides, when the other planes arrived, the pilots and mechanics had to be trained. Therefore, the number of operable aircraft never exceeded the figure of 130.[10]

The Finns were lacking anti-aircraft guns. During the war, the Finns received some 200 new weapons from different countries. The captured Soviet-made, four-barrel anti-aircraft machine guns were fixed. In addition, some Finnish cities and industrial facilities bought themselves individual anti-aircraft weapons for their protection.[11]

To supplement for their shortages and replace their own weapon losses, the Finns captured tens of thousands of weapons from the Red Army (see Table 3.1 on page 124). The captured materiel constituted a very significant help to the Finnish materiel situation. It was particularly important that the Soviet calibers were often the same as the Finns had been using. This enabled the front-line troops to immediately use the captured munitions. One consequence of this was that the Finns rarely had shortages of small-arms ammunition. In addition to functioning weapons, the Finns received scores of damaged ordnance that could be used for spare parts. The Finns had a special organization for retrieving and fixing captured materiel. Captured crippled armor was, for example, transported to be fixed at the Army repair shop.[12]

## Support Systems

Williamson Murray asserts that logistical support to provide troops with clothing, equipment and rations is crucial to the conduct of military operations. Millett, Murray and Watman add that, in order to perform effectively,

an Army's operational and tactical systems have to be consistent with its support systems. The Army's operational capabilities need to be supported by intelligence, transportation, supply, medical and communications systems. The tactical effectiveness of an Army is decreased if it does not possess realistic support capabilities.[13] The Finns could accomplish all this but, in doing so, they had difficulties.

The common wisdom that 'an army marches on its stomach' holds very much true to the north in the winter, where requirements for supply units to feed men were higher than in more moderate climates. In winter, soldiers require a higher calorific intake than in summer conditions. This could require an increase of up to 50 percent in supplies compared to summer operations. The importance of warm food and drink grew, and larger rations were needed. The men and horses required shelters to be able to survive in windy, cold weather.[14]

Logistical preparation and support were then the key military considerations in winter operations. Repairs to military technology, maintenance of equipment and resupply of fuel, lubricants, spare parts, munitions and other replenishments were, together with transportation, integral parts of the Finnish supply systems. A decentralized network of repair facilities and storage-distribution installations had been set up at railheads to supply the fighting Army. The Finnish operational and tactical systems had evolved over time, and the developers had paid careful attention to logistical requirements and the demands that combat places on the troops. Their tactical system had been made consistent with the available technology and logistical and supply systems. However, they had some failures, like the large-scale counter-offensive of 23 December 1939 on the Karelian Isthmus, which illuminates the logistical problems. The preparations had been hasty due to limited time.[15]

## Intelligence

Correct net assessments were aided by intelligence. The Finns started their reconnaissance missions already before the war. For example, it was important to find out about any bigger road or railroad construction activities near the border. The information was gathered from agents, refugees, the Frontier Guard, official sources and from military attachés. Strategic intelligence appraisal by the FGH was done reasonably well: it identified the enemy, realized the nature of the next war, but failed to predict the timing of the Soviet invasion. The initial failure of strategic intelligence concerned

the Soviet plans to divide Finland into two halves. The intelligence failure concerning the Soviet preparations in the north at the strategic level did not matter in the end, because it proved to be that successes in collecting accurate tactical invaluable intelligence were much more important. Intelligence was incorporated in their strategic and operational plans. Intelligence and reconnaissance activities were conducted by the field commands to increase the effectiveness of the planning processes and the execution of operations at tactical and operational levels. The action plans they developed were based on intelligence that had been used to make an accurate diagnosis of the situation based on operational insights.[16]

Finnish military intelligence was aimed at generating information about the intentions and capabilities of the enemy. The enemy's plans were important so that Finnish commanders could adjust their decision-making and devise their own plans that could be pitted against the enemy's plans and seize the momentum. The Finns used various methods to collect information about the enemy, its quality, strength, equipment, movements, morale and combat effectiveness. Terrain intelligence was conducted to identify the characteristics of the battlefield. That way, it was possible to channel the battles into areas that were more advantageous for their own troops and tactics than those of the enemy. The most common ground reconnaissance methods were patrols, visual observation, listening observation, aerial reconnaissance, interrogations of prisoners and the study of captured documents.[17]

In order to standardize reconnaissance methods, a *Tiedusteluopas* (Recon Guide) was published, but it was circulated only in November 1939. The practices had not been sufficiently planned, and there were many untrained intelligence officers. Divisions did not have their own reconnaissance units, which created a grey area between the FHC's and frontal units' patrols. The situation was aggravated by the fact that light detachments, responsible for reconnoitering, were used as common infantry.[18]

Ski patrols were dispatched on a daily basis all along the fronts. Some of them conducted reconnaissance in force. Before *mottis* were formed, the Soviet positions were thoroughly reconnoitered. The Finns benefitted from the effective action by their radio intelligence services. The Finnish *motti* commanders received intercepted, deciphered and translated messages from encircled Soviet commanders in a matter of hours. It was helpful to the Finns that sometimes the Soviets did not bother to hide their radio messages. Similarly, the Finns tapped the telephone lines and

listened to the enemy's conversations. Thus, the Finns were able to prevent outbreaks in advance because they had obtained information about the intentions of the besieged. To disguise their own messages, the Finns purchased a Swedish Hamelin cipher machine in October 1939.[19]

Air reconnaissance photography was considered useful by the Finns. The bombers of their Air Forces flew 11 recon missions deep into Soviet territory already in the summer of 1939. Later during the war, the slow Finnish reconnaissance aircraft could only fly in the dark. The results were reasonably weak. During the war, air reconnaissance photography served as the 'eye of the field artillery'. The artillery personnel interpreted the stereo photographs taken by the Air Forces. The interpreters were primarily identifying Soviet artillery firing positions because they had not been trained in larger operational analysis of the images.[20]

Maps were vital in reconnaissance, but neither aerial reconnaissance nor maps revealed the hidden features and real trafficability of the terrain in winter. The existence of topographical and aerial maps provided the artillery with an ability to use chart range. The Army cartographers in the topographic units produced new maps of the border areas. However, there was a 'black hole' without maps concerning northern Finland. Moreover, there were not enough maps.[21]

The Russian language had been taught at Finnish military schools, and higher HQs employed translators. Many Finnish officers had sufficient language abilities to interrogate Soviet prisoners. Information pertinent to ongoing operations could be immediately utilized without delay. More comprehensive inquiries were made later. For example, Ukrainian prisoners of war were quite eager to answer any questions. Sometimes they drew accurate maps of the *motti*'s defenses. The *motti* commanders were interested in the morale of the encircled and the state of the inter-rank relations. The captured documents were sent to the FHC to be translated.[22]

In addition, planning staff and artillery and Air Force units, in particular, needed accurate meteorological information. For that reason, small metrological stations were established. Fourteen stations provided ballistic weather information for field artillery to make proper firing calculations. The coastal artillery had six more weather stations and the Air Forces had ten. Additional information was received from various general meteorological stations manned by Lottas or civilian personnel and from observation posts manned by the Army. The civilian meteorologists issued weather forecasts that were broadcast over the radio twice a day. Better forecasts (including cloud cover affecting visibility and the threat of planes freezing)

were available upon request, and they were transferred ciphered. In addition to light and visibility, it was also important for the performance, health and morale of the troops to learn about winds, precipitation, temperature and humidity.[23]

## Transportation and Repair

Effective supply depends on transportation systems. The Finnish transportation system was a mixture of military and civilian components. The majority of the horses and motor vehicles had been requisitioned from civilians. Moreover, the Finnish State Railways became part of the Defense Forces. The railroads provided the operational mobility for troop movements. The railway capacity was, as Markku Iskanius points out, often strained and serious crises were narrowly avoided.[24]

Major train stations and trains were protected by anti-aircraft units, but their number was insufficient, and the weapons were often machine guns. Harassment of railroad transport by the Soviet Air Forces was continuous. The stations close to the front lines in Vyborg were within range of Soviet artillery. The disturbances to traffic and damage to the railways came from bombings, especially in the southern part of the country where the railroad network was the largest. The Soviet Air Forces failed to destroy the key bridges, and transport could be carried out often without harassment because of poor flying conditions. The weather improved and the days became longer. The handling of traffic was affected toward the end of the war. Traffic became impossible in broad daylight in southern Finland. The routes were changed and the traffic was diverted. Also, other attempts were made in advance to overcome the difficulties and prevent the effects of bomb attacks. Changes were made to timetables, speed restrictions were instituted and new trains were taken into use. Moreover, directives and instructions concerning movement, loading, blackout and camouflage were issued.[25]

With the problems accumulating, the management of military traffic exhibited abilities to deal with unexpected developments, and by doing so it increased its effectiveness. Yet it was stretched to its limits during the last weeks of the war, often exceeding its capacity. Solutions were found to the associated problems, and the potential transport crisis was avoided.[26]

Success was achieved because the railway districts and railway engineering troops repaired the tracks and signaling communications and kept the trains moving. The interruptions normally lasted for merely five or six hours,

during which time the movements were suspended. Breaks in communication normally took a longer time to repair, and this had an impact on the management and control of traffic. The management of military railroad transport movements was, to a lesser degree, interfered with by organizational problems, that is, unclear lines of authority, unrealistic transport plans, over-optimistic timetables, the lack of rolling stock and railway equipment, the inexperience of railway transport officers, a rigid system of requisitioning and notification, and the blackout. These kinds of defects in the Finnish organization caused occasional interruptions to traffic, congestion, delays and confusion over loads.[27]

Militarily, the most important railroad was the old St. Petersburg line running through southern Finland to the rear of the troops in the Karelian Isthmus. Military movements were divided into different logistical areas, medical, food supplies and fodder, and ammunition traffic. During the war, more than one-third of all movements of provisions and ammunition traveled along the line in question.[28]

Motor transport was difficult in extreme weather. There were just 53,000 motor vehicles in Finland in 1939. The Army requisitioned two-thirds of all suitable vehicles for its use. One-sixth of all the buses were also taken for military duty; they were often converted to ambulances. The cargo capacity of the trucks was only 1.5 tonnes on average, and the driving speed was very low. Trucks were concentrated on the Karelian Isthmus, where the road network was dense. The maintenance of motor vehicles was a challenging task because many were in bad condition and they used a wide variety of cars from different manufacturers. Their repair became difficult, since it was sometimes impossible to get spare parts. In subzero temperatures, radiators had to be filled with antifreeze, grease changed and vehicle engines needed to be started and kept running frequently to ensure their functioning. The effective repair was further hindered by rationing orders. The storage facilities for fuels had been largely moved to the western coast of Finland. The imports were slow and complicated as the oil was first shipped to the ports located on the western coasts of Sweden and Norway, and then taken by train to the Baltic Sea coast and shipped from the Swedish ports to Finland. There were, however, few ships that could sail in the ice.[29]

The main mode of transport was the horse. All units—not just supply and transportation units—employed horses. The sledges of horse-drawn supply convoys of the baggage-train companies took loads of 300 or even 400 kg. At the start of the war the Army had 4700 horses of its own and

requisitioned some 60,000 horses—20 percent of the total number in Finland. The Army did not take a farm's only horse. The horses proved invaluable in the forests where there was no place for motorized vehicles for various reasons.[30]

Smooth transport called for the maintenance of supply roads. The Finns had specified units for building and maintaining roads and bridges and for ploughing the roads clear of snow. The Army Corps had road-repair platoons. They functioned in close cooperation with civilian contractors. The trucks drove with dimmed lights. To conceal troop movements, they were mostly done at night, and in offensive operations the units were moved to jumping-off positions at the last minute to prevent them from being compromised.[31]

In the Air Forces, the ground organization's maintenance crews kept the planes flying. The mechanics often had to work in heated tents or under the open sky in darkness and severe weather. Yet the Air Force's wartime organization was amended with field maintenance platoons enabling a flexible use of different airfields in the event of war.[32]

## Maintenance and Resupply of Ordnance

A great deal of equipment needed to be winterized. Weapons needed proper maintenance in the cold. The Soviets used petroleum lubricants that often jammed their weapons. The Finns went for a mixture of alcohol and glycerin or none at all. To avoid freezing, the weapons had to be kept inside the warm shelter. Many technical devices had not been designed to operate in freezing temperatures. Special measures were taken because radio batteries froze easily.[33]

Ordnance maintenance was based on the network of ammunition depots and distribution centers, of which the most important were the 20 munitions stock companies. The resupply of artillery munitions was a troublesome task. The shortage of shells was not the sole problem. The supply task was demanding, as the Finnish field artillery used 18 different types of guns with eight different calibers.[34]

## Provisions and Government-Issue Equipment

In terms of food, there were three central storage-distribution centers. They cooperated with the state dairy company to transport milk products. Mills received orders, but the production of bread proved difficult.

Potatoes would have frozen, and to supplement it almost all of Finland's pasta production went to the needs of the Army. The flow of provisions was secured by supply units. They could provide the soldiers with sufficient combat rations throughout the war and they fulfilled diet and nutrition requirements. However, sometimes there were delays in sending warm food to the troops, in particular in the later stages of the war when they were on the move. Moreover, during the winter it was sometimes difficult to find fresh products.[35]

Model Cajander was not merely a negative thing. Soldiers with their own clothes were, in many cases, in better positions than soldiers wearing tight-fitting supply uniforms in extreme cold. Furthermore, the civilians collected protective and warm clothing for the front soldiers. Many gave their fur coats and shoes. The women's organizations knitted woolen socks and mittens and made white camouflage suits. Furthermore, the Finnish heated, 20-man tent proved invaluable in maintaining the troop's combat effectiveness in cold weather. However, the Army had only half of the tents that it needed, so cardboard tents were often used instead.[36]

## Medical Service

The Finnish medical troops faced difficult times in the Winter War. Preparations had already been undertaken before the war. Altogether, 43 civilian hospitals were converted to war hospitals. Another 26 field hospitals were placed in schools and other public buildings. There were 28,000 beds in the hospitals at the outset of the war, and the figure grew to 35,000 beds by its end. The medical evacuation personnel were soldiers, and the military doctors were often reserve officers. Many of the nurses were members of the Lotta Svärd women's auxiliary organization. The Finnish Red Cross also considerably assisted by providing nurses and donating supplies. Other Scandinavian countries sent medical crews, and there was also a Friend's Ambulance Unit (FAU) that had British crews. Some of the cars had been donated by the Canadian Red Cross, but the FAU functioned under the British Red Cross. The Finns were short of medical supplies, but many supplies were received from civilian storage. Additional supplies were acquired during the war by raising the capacity of the Finnish medical industry. A large shipment of medicine from Switzerland, including morphine, eliminated the lack of that valuable drug.[37]

Exposure to extreme cold could cause accidental hypothermia, and soldiers could even freeze to death. Boots that were too tight caused many cases of frostbite for the Finnish soldiers in the northern sectors. Later, with the arrival of bigger, warmer boots, the situation improved. These dangers posed additional challenges to logistical support units and field medical care. In the war, rapidly evacuating the wounded was sometimes a difficult undertaking. The badly wounded were carried or hauled by *ahkios* to dressing-station tents where they were given first aid. Then they were taken on sledges to battalion first-aid stations, which were often in dugouts. The doctors tended the wounded and sent them to a divisional main-bandaging station by ambulance or horse. From there, they were transported to field hospitals and then by train to war hospitals in the home area. All services had their own medical branches; for example, the Navy had hospital ships. There were also separate veterinary service units for horses.[38]

## Communications

The signal units were desperately lacking materiel, and it was difficult to obtain it during the war. In particular, there was a shortage of radio equipment. There were just 239 field radios, less than 30 percent of the minimum required, and most of them were old. Even though there was almost enough cable, the Finns also only had 50 percent of the field telephones they needed. There were enough telegraph lines, but the long distances to the northern fronts were a problem; there, the HQs and troops utilized the existing telephone lines constructed in peacetime for the Frontier Guards or railroads. The Finns also utilized optical equipment like blinkers, as signal dogs were found to be unreliable. Telephone connections were preferred over radios; however, the cables were often cut in artillery barrages, so light bare wires in ditches along roads lasted better. Wire patrols fixed the lines while under fire. The most common means of conveying messages was the orderly, yet many runners were hit. Many of the signal troops were improvised.[39]

The information management between echelons was aggravated because the lines were often broken or out of order. This was also the case when organic troops were disbanded to form battle groups. Communications were not easy, as small telephone centers were established for their use. With these problems, information from the front line

could be critically delayed, the view of the situation could be distorted, and command was complicated. The poor quality of the communication network and the lack of radios adversely affected command.[40]

## Spiritual Work, Public Information and Propaganda

The field chaplains had established their position long before the war. They were responsible for spiritual work, counseling and evacuation of the dead. The field chaplains (numbering almost 330) also participated in educational work. They were constantly meeting soldiers in the canteens, bases, trenches, tents and dugouts. The field chaplains often gave Holy Communion before battles. They were charged with writing letters of condolence to the family of every fallen soldier. It was a hard task, but greatly appreciated by the next of kin.[41]

The Winter War had religious overtones in Finland; the clergymen spoke about the holy character of the war, about its victims and martyrs. The Soviet Union was compared to an atheist Bolshevik state that prosecuted the Christian Finns. This anti-Bolshevism was seen in popular religious hymns like 'Jumala ompi linnamme' ('A Mighty Fortress Is Our God') sung by soldiers and civilians alike in troubled times. The role of religion grew during the war, and a great majority of people were ready to make sacrifices. Burials of fallen soldiers in the home area became moments of mass mourning and shared grief. According to Ilona Kemppainen, the war dead were elevated to hero status. At Christmas, the field chaplains received particularly pious listeners to their sermons. Everyone was given presents. The soldiers without families were sent packages for 'unknown soldiers'.[42]

The field postal service had a huge importance in keeping up morale both among the troops and on the home front. Strict censorship was used so as not to allow the deployments to be revealed to the enemy. The recipients' and senders' units were only written in code. The Finnish postal service moved letters (free of charge) and parcels meant for the front lines from the homes to one central field postal center in southeastern Finland. From there, the field mail was taken to the fronts in the Army's own supply transport. There were 17 field postal centers along the fronts. Since all mail traffic was concentrated in one central facility, there were serious delays, particularly around Christmas time, and the censors took time, so the front soldiers complained and the field postal system was reorganized

and expanded. Five additional centers and six extra field postal centers were established to facilitate the smooth working of the system. Towards the end of the war, the mail delivery times (up to one week) were also affected by troop movements: it took longer to find the recipients. The soldiers often complained about this.[43]

Public information and propaganda activities were effectively handled in the Finnish Army. In propaganda activities, military authorities cooperated with the government's offices, the foreign service in particular. The State Information Center worked in cooperation with FHC's Propaganda Branch. Education officers were appointed to the bigger units to teach and to organize events and leisure-time activities. Newspapers were circulated and radio programs broadcast to the mobilized army from October 1939. Thus, the soldiers were not alienated from their home areas. Many units had their own front magazines. Welfare provisions were generally well organized in the Finnish Army. At the end of the war, entertainment tours to the fronts featuring famous singers, musicians and actors were organized. Service institutes and canteens and timely payments (reservists only received a small per diem) were also important to many soldiers.[44]

News agencies, radio, newspapers, films and mail were all subject to censorship, which was led by the governmental information center and FHC's Office of Censorship. Enemy losses were stressed, but inappropriate references to foreign policy, military secrets and own casualties were not to be addressed. They were cut or deleted. Already, before the war, the Soviet Union had been broadcasting radio propaganda to Finland accusing the Finns of hostile action and provocations. The Finns declined to retaliate until hostilities broke out. Both combatants used loudspeakers and leaflet propaganda at the fronts. The Finns employed them against the encircled Red Army elements. The Finnish active measures against the besieged were meant to influence the morale and cohesion of their enemies. The Finnish, openly anti-Bolshevik propaganda aimed to point out how futile the defense of the Soviet soldiers was and that they would die in vain in the snowy forests. The minorities serving in the Red Army were often quite recipient to propaganda efforts. Therefore, the Finns highlighted the problems of the Soviet Union, like the lack of individual freedom. They even had plans to train Ukrainian units for the Finnish Army recruited from the prisoners. The Soviet propagandists were unaware of Finnish society and the attitudes of its people. Thus, that propaganda turned against itself and further strengthened the Finnish will to resist.[45]

Since the Winter War was a just cause, it was relatively easy to mobilize the people and society for the war effort by successfully using the traditional image of the enemy. The Finns felt that they were fighting for a just cause, and in some cases they were fighting in their home area. This had a huge impact on their motivation. Their propaganda supplied images of the conflict-ridden history of Sweden/Finland and Russia/the Soviet Union. The Finnish propaganda machinery depicted the Soviets as an arch enemy against whom the Finnish ancestors had already been defending themselves hundreds of years ago. In Finland, the Soviet neighbor was generally viewed, for historical reasons, with deep suspicion and mistrust. In the opening stages of the Winter War, the Finnish enemy image stressed political (ideological) factors, but later it started to focus on ethnicity. The Finnish propaganda also ridiculed and dehumanized the Russians.[46]

Mannerheim's orders of the day were a form of psychological public information, a particularly effective form of influencing the minds of people. The first of the Marshal's orders of the day was particularly effective. He stated that the Finns were fighting for their home, religion and fatherland against an enemy that had been the aggressor for centuries. It captured the traditional conservative values, and reflected the general feelings, of the majority of the people. Mannerheim also pointed to the mutual trust between him and his soldiers. At the end of the war, he noted that the historical task of the Finns had been to 'protect Western civilization'. The orders of the day were concise, clear and repetitive. The role and morale of each soldier and unit and sense of their importance was emphasized as important actors in guaranteeing the survival of the people. Mannerheim's words boosted their morale, invoked patriotic sentiments, and enhanced their fighting spirit.[47]

The Winter War also had, like World War II in general, an ideological dimension. It was waged between the totalitarian and Communist Soviet state against liberal democratic Finland. From the Finnish viewpoint, the war was a highly moral struggle for them, as, in their thinking, they were defending their freedom and democracy. In the war—which the Finns generally considered to be legitimate and morally just—they were defending their rights. In a similar vein, Michael Walzer calls the Winter War 'a paradigmatic example of the necessary defense'.[48]

Even though radio broadcasts were the main tool for spreading nationalistic sentiment, nationalistic and anti-Bolshevik films were also shown

to the same effect. Newsreels shown in movie theatres depicted battlefield debris and Soviet soldiers in captivity to wide Finnish audiences. 'The spirit of the Winter War' was also boosted by popular music. 'The Song of the Athenians' (originally a poem by Viktor Rydberg) was composed as a march by Jean Sibelius in 1899. The lyrics of the march encapsulated the heroism, idealism and the sense of sacrifice of the Greek youth against barbarians. It was originally meant as a protest song against Russification, but was later used as the ceremonial march of the Finnish Cadet Corps. It had also been sung in schools during the interwar period. The sentiment of the song was passed on to the popular wartime 'March Song' written by Nobel laureate Frans Emil Sillanpää in 1939. Jean Sibelius's 'Finlandia' and 'Karelia Suite' were deemed patriotic melodies.[49]

Culture was used as a powerful weapon. The celebrated accomplishments of Finnish Western culture were evoked in propaganda to raise nationalistic sentiment. It worked because the Finns were known for their sculptors, architects, composers, novelists and sportsmen. Frans Emil Sillanpää had just won the Nobel Prize for Literature in 1939. By focusing on the achievements of artists, the view was given of a western European civilized nation and an original country that had earned its independence and that had paid its foreign debts. Internal propaganda was effectively aimed at uniting people and raising their fighting spirit together with information from the church and its religious message.[50]

Jouko Kokkonen argues that sport was a significant source of nationalism for the Finns, who were proud of their athletes. The 1940 Olympic Games were to be organized in a spirit of national reconciliation. The Finnishness constructed through successes in sports contributed to the Finns' fighting spirit. In propaganda, those national heroes were presented as elite soldiers. This simple message was close enough to reality. Many famous athletes went to war and set an example, and many paid the highest price for it.[51]

According to Tuomas Tepora, 'the Spirit of the Winter War' had negative underpinnings, such as fear, selfishness and uncertainty. Toward the end of the war, that spirit—which was mainly manifest on the home front—started to weaken and began to be dismantled. It appeared as if the heroic fight had ended in a shameful peace. Yet the propaganda had been effective, and the people were not even aware of the real situation on the fronts. Even when the casualties were mounting, the public, Dan Reiter argues, had displayed less eagerness for concessions than their leaders. The

peace was greeted as an unjust happening. Flags were flown at half-mast, and people wore black armbands. The peace terms were particularly harsh for the Karelians who lost their homes. The units from those areas expressed great disappointment.[52]

The Finnish strategy was effectively supported by information management. The Winter War was a northern sideshow of World War II; it was a relatively brief episode that could have been badly overshadowed by other developments. Yet it received wide news coverage. It was beneficial for the Finnish cause that the main conflict was still in the 'phony war' stage (which the Germans called the *Sitzkrieg*). The attention turned toward the Finns. This was a considerable backing of information warfare and propaganda. Foreign war correspondents were supervised, and they were invited to official briefings and were given ready-made articles. Sometimes, they were allowed to conduct front visits. Some 300 journalists arrived because Helsinki was to host the summer Olympic Games in 1940. *The New York Times* published 64 editorials on Finland between October 1939 and March 1940, and the same cover story appeared in most of the British newspapers. In *The Times*, on all but one day, the Winter War was a cover story. Positive reports and sympathy were tied to common anti-Communism.[53]

## Results Through Improvisation

Improvisation, a result of limited resources, was the rule rather than the exception in the Finnish military. The Finns were able to overcome their materiel disadvantages by improvising and taking the huge quantities of captured equipment into use. They were able to increase their effectiveness through various improvisations that took place in support and logistical activities. New organizations were formed: some of them concerned the evacuation of people, replacing depleted troops or passing on propaganda. Even the successes of the propaganda machinery were based on improvisation and innovative use of available resources.[54]

Civilian professionals made a huge difference to the Army's logistical support to supplement the insufficient prewar logistical preparations. The role of businessmen was important in supplying the troops. They were placed in charge of many demanding logistical jobs, often with the rank of reserve officer. They were allowed some freedom of action by their superiors, and they were not compelled to act by the book. In some units, like the 9th Division stationed in Suomussalmi and Kuhmo, the supply and logistics were supplemented by local arrangements with the industrialists

of Oulu, where the division had been formed. This cooperation was based on extensive peacetime contact between the military and peacetime civilian society. Moreover, the looming transport crisis concerning railroad traffic was avoided largely due to the transport management abilities of imaginative railroad engineers and transport reserve officers who had been railroad clerks in civilian life.[55]

Since the Finnish Army was badly short of signaling equipment, they came up with innovative practices. The Finns used improvised units especially in communications. Sometimes fire orders were conveyed as blinker messages or by sending a horse or ski orderlies. They were also capable of many technological adaptations to overcome acute problems: occasionally connections were secured by using barbed wire or placing iron or copper wires directly on snow.[56]

## Conclusion

The fulfillment of the Finnish strategic objectives was dependent on its logistical support systems and access to the national industrial-technical base. The productive potential of the war industry had been managed and its manufacturing capacity was satisfactory and limited, yet not overstrained, owing to the relatively short duration of the war. It produced sophisticated products, and the dispersal and relocations of the facilities had diminished its vulnerability. The Finnish war industry had continuous access to raw materials because the Finns managed to keep land and sea connections to Sweden open. However, many items from abroad arrived too late.

Finnish operations were buttressed by supporting activities and quite effective logistics. In terms of supplying the Field Army, the Finns managed reasonably well to make the ends meet their means, thus managing to sustain their military effectiveness. The Finnish Army conducted its operations realistically, and their tactical system functioned in accordance with support capability. The aerial defense and railroad engineers facilitated the smooth functioning of train traffic and avoided traffic crises. The transportation units—especially with their horses—were not overly dependent on the road network, and could follow the fighting troops almost anywhere. The supply, maintenance and repair units could clothe, equip and feed the Field Army and provide it with sufficient provisions (added calories for winter), ordnance, spare parts, fuels, lubricants and field medical services to keep them fighting. However, the stockpiles of heavier ammunition

were never adequate. Despite their initial problems at the strategic level, the Finns' intelligence services managed to provide the various command echelons with vital information. The command was affected by the lack of signal equipment. However, the signal units could overcome problems through their resourcefulness. The Finns used culture and sports as weapons. Their public information and propaganda machinery succeeded in explaining to the citizenry the necessity of fighting, by stressing traditional enemy images. Effective use of resources in cooperation with the civilian sectors and improvisations were characteristic of (as for overall performance) Finnish logistical and support activities.

## Notes

1. Reese 2011, 3.
2. *Laki sotatilasta annetun lain muuttamisesta* (29.9.1939) 297/1939; Hälvä 1990, 77, 91; *Puolustuslaitoksen hevosotto-ohjeet* 1939, *passim*; Tammi 2005, 140–2.
3. *50 vuotta väestönsuojelutyötä* 1977, 374–5, 390–1, 402; Palmu 1989, 92.
4. Paulaharju, Sinerma and Koskimaa 1994, 550–3, 557–8. About the ice road see Grönbacka 2003, 136–65 and Björklund 1991, *passim*.
5. Lappi-Seppälä 1972, 75–82; *TSH* 4, 273–7.
6. *TSH* 4, 297–307; Kinnunen 1967, 53–5; Tervasmäki 1978, 117–22, 486; Sipilä 1995, 60, 69.
7. Sotamateriaalitilanneilmoitukset 1939–40. PLM:n Tväl.os:n ark., T 18419/1, KA; Sohlberg 1989, 33–4, 43.
8. Ampumatarvikkeiden kulutus- ja tilanneilmoitukset 1939–40. PLM:n Tväl.os:n ark., T 18420/1, KA; Tervasmäki 1978, 95–9; Paulaharju, Sinerma and Koskimaa 1994, 523–6.
9. Hankinnat ulkomailta. PvPE:n Tväl.os:n Sal. kirjeenvaihto 1940, T 20206/9, KA; Ulkomaiset hankinnat. PLM:n Sotavarustustston Yl. ja sal. kirjeenvaihto 1939–40, T 7759/6, KA; *TSH* 4, 253–91; Nummela 2015, 46–7.
10. Pajari 1971, 228–37; Geust 2009, 72–122.
11. Kuntien ja teollisuuden it-asehankinnat. PLM:n Sotavarustustston Sal. kirjeenvaihto 1939–40, T 7759/11, KA; *TSH* 4, 298; Toivonen 2003, 50–1.
12. Holmström, comp., 2011, *passim*.
13. Murray 1988, 116; Millett, Murray and Watman 1988, 16, 25.
14. *K.O. III* 1939, 13; Pranttila 2006, 6–11, 19, 24–6; Waris 2001, 65–96; Tuunainen 2014a, 90.
15. *TSH* 4, 332–49; *Puolustusvoimien huolto 1918–1986* 1988, *passim*.
16. Tiedoituksia Neuvostoliitosta 1936–39. YE:n Teknillisen Tarkastajan Tston Sal. kirjeenvaihto 1934–39, T 13378/5, KA; Elfengren, Kosonen

and Laidinen 2010, 26–72; Imlay 2006, 249; Heiskanen 184–5. See also Paasonen 1974.

17. *Tiedusteluopas* 1939, *passim*. See also Lahdenperä 1995.
18. *Tiedusteluopas* 1939, *passim*; Tynkkynen 1996, 130, 229.
19. Taistelukertomus Koposenselän tuhoamistaistelusta 15.–20.1.1940. Liite 419 13.DE:n spk:aan. Spk. 327, KA; Aarnio 1966, 282–3; Juutilainen 1985, 182; Räisänen 1959, 71; Majuri J. Sihvosen kertomus II/JR 27 Kuhmon taisteluissa. Aineistoa Hj. Siilasvuon tekemään 'Kuhmo talvisodassa' 1944, T 2574, KA; 9. DE:n spk. 2.–3.3.1940. Spk. 259, KA; Hakanen 1969, 83–6, 90; Lappalainen 1990, 128, 149; Raunio and Kilin 2005, 210; Järvinen 1948, 160, 214. For captured messages from Kuhmo see Tsto III/PSRE:n Sal. kirjeistöä 1939–40, P 1727/7, KA and P-SRE:n tiedustelupäiväkirja helmi–maaliskuu 1940. Spk. 3373, KA; 9. DE:n spk. vuodelta 1940. Spk. 259, KA; Laiho and Vihonen 2011, 51. See also Pale 1997.
20. Eskola 1994, 109–11; Tynkkynen 1996, 229; Paulaharju and Juhola 2002, 221. See also Kippo 2003.
21. *Sotilaan talviopas* 1939, 3; Paulaharju 1989, 62–73.
22. Tsto II/13.DE:n tiedustelupäiväkirjat. Spk:t 221–3, KA; IV AK:n sotavankien järjestelypaikan spk. 1939–1940. Spk. 136, KA; Mörne 1941, 131; Manelius 1993, *passim*; Er.P 12:n spk. 8.3.1940. Aineistoa Hj. Siilasvuon tekemään 'Kuhmo talvisodassa' 1944, T 2574, KA; Er.P 12:n spk. helmi–maaliskuulta 1940. Spk. 480, KA; 9.DE P-SRE:aan 4.1.1940 (Liite 449/II). Tsto II/P-SRE–V AKE:n Sal. kirjeistöä 1939, P 1726/6, KA; Päiväämätön Selostus 44. D:n toiminnasta Raatteen suunnalla. Tsto II/IV AKE:n Sal. ja yl. kirjeistöä 1939–40, P 1147/13, KA; Sotasaalisasiakirjoja Raatteen tieltä. P 4389, KA.
23. Savolainen 1974, 75–7.
24. Iskanius 2004, 47–51. See also Tuunainen 2002, 109–68.
25. PM:n Huolto-os:n toimintakertomus 26.9.1939–13.3.1940. PM:n Huolto-os:n Yl. Huoltotston (Huolto 1) ark. 1939–40, T 4879/4, KA; Tuunainen 2002, 126–51.
26. Ibid., 141–50; Tuhkanen 1946, *passim*.
27. Rautatievaunutilaisten vihkot ja elintarvike- ja ammusjunien seurantavihkot. PM:n Rautatietston (Huolto 2) ark. 1939–40, T 4885/1, KA; Rautatieupseerien toimintakertomuksia 10/1939–30.4.1940. Rautatiehallituksen Sotilastston ark. 1939–40, T 22470/11, KA; *Rautateiden ilmasuojelun erikoisohje* 1939, *passim*; *Sotilaskuljetusohjesääntö*: *Erikoismääräyksiä sodanaikaa varten* 1932, *passim*; *Sotarautatiemuodostelmien ohjesääntö* 1939, *passim*; Tuhkanen 1946, 50–1, 118–9; Sarmanne 1962, 96; Pennanen 1981, 191–202, 220; Elomaa 1962, 33–4.
28. Tuunainen 2002, 150.
29. *Puolustusvoimien huolto 1918–1986* 1988, 480–3, 485–8; Mäkipirtti 2006, 70–4; *TSH* 4, 337; Iskanius 2003, 53, footnote 83.

30. Hevosvarausten jakaantuminen 1939. PLM:n Sotavasrustustston Sal. kirjeenvaihto 1939, T 7759/6, KA; *Puolustusvoimien huolto 1918–1986* 1988, 491–2; *TSH* 4, 337; Tammi 2005, 135–7; Waris 2001, 65–96.
31. Salonen 1999, 382–6; Grandell 1934, 341–9; Saarinen 1975, 194, 310; 4. TienrakennusK:n spk. 17.–18.1.1940. Spk. 3083, KA; IV AKE:n ja RT:n aurauskartta 1940. Liite 92 IV AKE:n spk:aan. Spk. 123, KA; Lappalainen 1990, 70–1.
32. Lentoteknilliset huoltoasiat 1939–40. Tsto II/LeR 2:n E:n Sal. kirjeenvaihto, T 13430/9, KA; Iskanius 2015, 17; Hietala 2013, *passim*.
33. Tuunainen 2014a, 91.
34. Varikkojen toimintakertomukset 1939–40. PLM:n Tväl.os:n ark., T 18419/1, KA; *Puolustusvoimien huolto 1918–1986* 1988, *passim*; *TSH* 4, 336–77. Lammi 2000, *passim*.
35. *TSH 4*, 341–3; Lojander 1940, 4–10; Pranttila 2006, 36–7; Palmu 1993, 75–9; *Puolustusvoimien huolto 1918–1986* 1988, 653–9.
36. Ibid., 660–7; JR 27:n kirjelmä 9.D:n komentajalle 16.1.1940. Tsto IV/9. DE:n kirjeenvaihto 1939–40, T 1911/17, KA; *TSH* 4, 342–3; Ahto 1989, 40; Tuunainen 2004, 66.
37. Järvi 1989, 17–30; *TSH 4*, 343–5; *Puolustusvoimien huolto 1918–1986* 1988, 812–16; Lefévre 1941, *passim*; Lidbetter 2000, 20–43.
38. *Puolustusvoimien huolto 1918–1986* 1988, 661–2; *TSH* 4, 345; Tuunainen 2004, 66; Somer 1939, *passim*; *Pataljoonan kenttälääkintävarusteet* 1940, *passim*.
39. *Viestitoiminta* 1939, *passim*; Mikola 1980, 129–64.
40. Niilo Hersalon pvk. 29.2.1940. Niilo Hersalon kok., Pk 1894/1, KA; Puhelinsanomat 10.–12.3. 1940.Tsto III/III AKE:n Sal. kirjeenvaihto 1940, P 895/7, KA; Karhu 1932, 135; Mikola 1980, 147–9; Paulaharju, Sinerma and Koskimaa 1994, 108, 117; Waris 2001, 82; Laaksonen 1999, 391–4; Tuunainen 2008, 245.
41. Nykyisen sodan papisto ja sielunhoito. PM:n Sotarovastin Yl. kirjeenvaihto, T 22293/2, KA; Sotilaspapistoa koskevia tilastoja vuosien 1939–40 sodan ajalta. PvPE:n Sotarovastintston Yl. ja sal. kirjeenvaihto 1940–41, T 21729/2, KA; Murtorinne 1995, 233–59; Kansanaho 1991, 29–78.
42. Helin 2006, *passim*; Sinivuo 2011, 57; Poteri 2009, 271–4; Kemppainen 2006, 261–4.
43. Pietiäinen 1988, 161–72; Sotasensuuria koskevat kirjeet 1940. PM:n Sisäpropagandatston (Prop. 3) Sal. kirjeenvaihto 1940, P 3132/15, KA; *Puolustusvoimien huolto 1918–1986* 1988, 173–5; Ahto 1989, 250.
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CHAPTER 6

# Conclusion: The Sources of Finnish Military Effectiveness

None of the accounts to date on the Winter War of 1939–40 has fully explained why Finnish resistance did not collapse in the face of a large-scale Soviet invasion. Most authors have focused on battlefield performance of the warring states (the tactical level), and thus failed to capture the complexity of the multifaceted phenomenon of Finnish military effectiveness. This monograph has attempted to fill the void. It builds on the *Military Effectiveness* volumes. The conceptual framework by Allan R. Millett, Williamson Murray and Kenneth H. Watman has provided me with a useful lens for analyzing why and how Finns were able to develop and maintain military effectiveness and achieve relative success at political, strategic, operational and tactical levels. To answer the main question of how Finland survived, I have identified the processes through which the Finnish military organizations were able to convert their resources for effective operational use. In this undertaking, I have utilized both combatants' archival sources and read a great amount of secondary literature.

The results of this study show that in the Winter War, which took place in an Arctic environment, the Finnish military institutions were put to the ultimate test, which they—backed up by the entire Finnish nation—withstood and passed with flying colors. This book shows that the Finns exhibited considerable overall military effectiveness throughout the war, and, in doing so, could last for 105 days against a formidable foe and remain independent. The Finns achieved this by performing to their near-full potential and utilizing their resources close to the maximum. They focused on their own strengths and pitted those against the weaknesses



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of their adversary. The Finns were able to inflict heavy casualties on the Red Army while minimizing their own losses. The Finnish small-unit applied tactics took advantage of the terrain and conditions, in particular the adverse subzero weather for which they had prepared themselves. The Finnish Army specifically relied on the human element. They had qualitatively better leaders and soldiers who could innovate, improvise and adapt according to the circumstances. Moreover, this book concludes that the Finnish military's organizational culture can account for the reasons why the Finns were able to adapt to the realities of combat and translate the lessons of combat into lessons learned.

The senior officers of the Finnish Army had attempted to secure their fair share of the national budget to meet the military's needs. Yet their political effectiveness was limited and they succeeded only satisfactorily. Armament expenditures remained relatively low all through the interwar period because political decision-makers had lacked the broad political will to commit materiel resources until it was too late. Moreover, the Navy had received a disproportionate share of resources.

The Finnish war preparations had been inadequate. Their materiel preparation was limited, and they entered the war insufficiently equipped. On the other hand, the passing of social legislation and benefits eventually worked in the military's favor as it enhanced the fighting spirit of the majority of Finns. In getting access to the industrial and technological resources necessary to produce equipment, the officers fared slightly better. The best minds from science and cultural life were employed to serve the war effort. The Finnish war industry did its best to supply the Army and meet the increased demands. The scarcity of materiel and ammunition posed serious strains on supply, but it did not decide the outcome of the war. Finnish weapons production was sophisticated yet relatively low-tech, but reliable in harsh weather. The Finns also had fruitful cooperation with Sweden and produced foreign weapons under license. Moreover, the obsolete Finnish inventory was supplemented by the swift use of captured equipment.

It was a relatively easy task to mobilize the people and society for the war effort. Yet there were too few Finns. Their peacetime planning and preparation had enabled them to increase their effectiveness far beyond their numbers. The levels of expenditure produced a serviceable instrument that was employed well. Nevertheless, not all able-bodied Finnish men had been trained, and this shortage of manpower constituted a serious problem. Rapid training efforts began, and women and other

noncombatants freed men for front-line duty from the home front. Due to heavy pressure, the Finnish replacement system did not function as originally planned, and sometimes their troops were reinforced piecemeal. However, with swift improvisation, their replacement system could provide the Field Army with enough reinforcements to keep it fighting. By the end of the war, the scarce reserves were almost all committed and distributed (unevenly) depending on the overall situation.

The Finnish training system was very practical, and it aimed to train individual fighters who could use their initiative, would be able to make effective use of the weapons at their disposal and would have prowess in offensive small-unit tactics. The exceptionally high literacy rate correlated positively with the conscripts' learning capacity. A majority of its soldiers had the advantage of being able to handle the rigors of front-line duties in a cold and snowy forest. This was due to the agrarian background of the majority of the soldiers, and the systematic developmental work that had been completed during the interwar period helped them to live, move, camp and fight in those weather and climatic conditions in trackless terrain. The tactical and technical developments had been kept secret, offering the Finns a relative advantage. Difficult terrain and weather did not pose a serious hindrance to them or their effectiveness. The conditions were normal for them, but extraordinary for the Soviets. Practically the entire Finnish Field Army had been summoned for refresher training, and its members had become acquainted with their wartime tasks. The Finnish training system was able to accommodate the conversion of available resources into effective combat methods and best practices, which enhanced their tactical effectiveness. Even though the Finns were numerically inferior to the Red Army, their level of training and the quality of Finnish soldiers was higher than that of their adversary. Their better quality made up for their inferior numbers and acted as a force multiplier.

In the strategic area, Finland was disadvantaged by its geographical location, sharing a long border with the Soviet Union. Finnish political and strategic effectiveness were influenced because of this major physical factor. Their strategic objectives were inexorably tied to political goals. The aim of their national policy and the basis for their strategy was the overriding need to safeguard national survival. With this in mind, the Finns had formulated realistic and attainable strategic objectives that were based on a rather correct strategic vision. Their operational plans were well in accordance with their logistical infrastructure and the national industrial

and technical base. The Finnish strategy reflected their political aims and it was, indeed, in line with the capability and requirements of the Army.

The great danger was the level of alertness, because the Red Army possessed the capability to launch a surprise attack on Finland without general mobilization. The Winter War was a strategic defense war for the Finns with very high—even existential—stakes. Considerable risks were understood, and strategic objectives were completely in line with this scenario—failure was not even perceived as an option, since its consequences would have been catastrophic. Nonetheless, coping with the realities of the war also called for making compromises. There had been some peacetime tension between political and military leaders. When the war broke out, everyone—soldiers and civilians alike—worked towards the same goal. The Finnish regime's capacity to make plans to fight a war and direct the war effort was good, and the cooperation between military and political leadership was generally excellent. Civilian control was not eroded—a typical feature for a Western democracy.

The size and force structure of the Finnish defense forces were barely enough to attain the strategic goals. The Finns tried to make the best of it and adjust, but their success was only satisfactory. The Finnish Army was practically light infantry on skis. In the distribution of forces, the Karelian Isthmus (the main area of operations) received the bulk of the Finnish troops, while northern sectors would have to cope with less. The Finnish order of battle was under constant change. The troops were often configured into temporary detachments for specific missions, thus breaking the regimental organization of the initial deployment. Their effective organizational structures (task organizations) provided them with operational and tactical flexibility.

The achievement of the Finnish military's strategic objectives was, to some extent, hindered by the limited logistical infrastructure and the national industrial and technical base. The war economy was organized late, and the production numbers could not be raised swiftly. However, dispersal of the war industry eased its vulnerability. The short duration of the war meant that raw materials were sufficient, largely because the Finns managed to keep the lines of communication and supply to Sweden open. The Finns adamantly tried to align themselves with Sweden and to integrate strategies. Sympathy and material assistance came from Sweden, alongside volunteers. Sweden, safeguarding its own neutrality, turned down the Finnish pleas. At the same time, the Finns continued fighting to the verge of collapse, and while doing so they also kept alive the possibility

of a Franco-British intervention offer. Finnish leadership capitalized on the Western card, which Stalin could not neglect when looking at the bigger picture and the potential German threat. This helped the Finns to achieve a negotiated settlement. Still, Finnish attempts at coalition-building reflect ineffectiveness on their part. Their performance was merely sufficient.

At the strategic level, the Finns had difficulties but they managed to avoid the fog of peacetime war planning. Their performance deserves a very good grade, as they had made reasonably accurate net assessments: they correctly identified the enemy and the nature of the next war, and the threat perception had been accurate, which made it relatively easy to counter it and make preparations accordingly. The Finnish operational doctrine was devised to take advantage of their own strengths, which were pitted against the absolute weaknesses and comparative disadvantages of the Red Army. The Finns had made serious attempts to maximize those areas in which they were strong and minimize the weak areas. They constructed their tactical defenses in chokepoints that their enemies had to attack and where they themselves were strong. Superior preparation by the Finns in the utilization of the possibilities offered by military geography contributed greatly to their operational and tactical effectiveness.

Enjoying the advantage from the interior lines of operations and the space to maneuver, the Finns sought to exploit the critical Soviet vulnerabilities. They avoided the road-bound Red Army's strengths and instead attacked its flanks and rear, and other soft areas and single targets—weaknesses—of the enemy's battle array in an asymmetrical fashion. The Finns possessed the ability to operate on the interior lines and to cut off the much larger Red Army units that kept to the roads. Fast movement was the Finns' main strength, and it allowed the use of envelopments and unexpected series of rapid and concentrated attacks. On the northern front, Finnish mobile ski troops used the cover and concealment offered by the forests and the darkness. The Finns aimed to exploit the poor mobility of their adversary as well as its limited supporting capabilities. A good example of this is the *motti* tactics that, in essence, were meant to achieve big results with small resources and defeat in sequence where possible. Massive firepower aided the Soviets, but the Finns—lacking heavy artillery—had limited possibilities to act against this strength by counter-battery fire.

An operational-level combined arms doctrine was in place in the Finnish Army. In combat, it was often absent because the Finnish officers had not had much practice in its use. On the other hand, the Finns employed

infantry–coastal artillery cooperation, and had some degree of ground support from the Air Forces. At the tactical level, infantry–artillery integration worked very well but was hindered by the lack of ammunition. To counteract the lack of troops, most of the Finnish specialist units fought like regular infantry.

The Finnish operational concepts relied on the mobility that was offered by the railroads. Maneuver warfare was often preferred by the Finns because they were outnumbered against the Soviets, and simply because the Finns could not afford to wage a war of attrition. Finnish operational plans were aimed at retaining the freedom of maneuver, often through the use of enveloping movements and flanking attacks. This was accompanied by a high degree of flexibility. The Finns' achievements in maneuver warfare were nearly outstanding.

The Finns could exploit their technology—often inferior or obsolete—reasonably well. Their equipment was not very high-tech, but it was practical and reliable in adverse conditions. The Finnish artillery was old but functioned very effectively due to its sophisticated firing methods. The developmental work since the 1920s in winter equipment paid off, because it allowed the Finns to maintain their fighting power in adverse conditions for a sustained period of time. Fortification technology offered cover and protection from Soviet firepower. The quality of the Finnish Navy's vessels varied, but the relatively weak Navy was counterbalanced by their strong coastal artillery, which had been modified to meet the challenges. The Air Forces' aircraft were operable, but inferior in quality compared to the Soviet planes. Yet their tactical use by the Finns was far better than that of their adversaries.

Well functioning and highly effective Finnish resupply and logistics systems, which primarily relied on trains and horse-drawn transportation, were able to sustain the war effort and secure good operational and tactical effectiveness. The operations were mostly realistically conducted with support capability in mind. Effective supply was necessary, as winter required additions in fodder and foodstuffs. As the troops were operating off the road, the provisions needed to be taken there. On the whole, the Finns were able to make ends meet. The relatively short duration of the war—just 105 days—helped them in this. Due to the scarce resources, the Finns showed some inadequacies, but overall performance was good.

The Finns initially had a strategic intelligence failure concerning the north, but were later able to gather relatively accurate intelligence influencing their strategy and operations, even applying tactics to various cases

on the battlefield. Their operational concepts were rather well supported by intelligence, supply, communications, medical and transport systems. Despite many difficulties, the support systems facilitated command and control and kept the troops fighting. The same high performance goes for the tactical level.

The Finnish operational plans were drawn up to be reasonably well in line with their strategic objectives, and they were also planned to meet the changing situations. Their operational doctrine was formulated to align their capabilities with the Soviet threat. The fighting power was employed to attain a favorable outcome and secure strategic objectives in a very good fashion. The same is true for their tactical approaches, which were consistent with their strategic objectives and operational capabilities. Their ability to win single engagements served a larger purpose and boosted the morale of the Finns. The Finns, indeed, scored many battlefield victories. This is important to note, as tactical effectiveness is viewed by many as a synonym for military effectiveness. Moreover, strategic effectiveness, as per Millett, Murray and Watman, would be irrelevant if there were not fighting units capable of succeeding in their engagements.[1]

The Finnish tactical concepts were very well in line with their operational capabilities. Their tactics stemmed from inferiority, and thus emphasized activeness. The Finns excelled at the tactical level. Taking advantage of the conditions, the Finns were able to achieve the element of surprise, form a local point of gravity in both time and space, create local superiority, and use their reserves in a timely fashion that allowed them to bring their strengths to bear at the right moment against the vulnerabilities of the Soviet troops. The element of surprise—the main Finnish tactical principle—was strongly emphasized as a prerequisite for effective action, even at the cost of artillery barrages. It was followed by daring and swift exploitation of opportunities. Whenever the opportunity presented itself and the possibility of reinforcing success emerged, the Finns kept on pushing and were prepared to utilize the opportunities that arose. Basically, a proactive approach and original tactical methods enabled surprise and allowed them to seize the momentum. The Finns took various protective measures, such as camouflage, movement in darkness and attacking the enemy's flanks and rear. Deception also included the use of various dummy positions and renumbering of units.

A major concern for the Finns was the necessity of saving men. Therefore, they used their forces as economically as they could. They could not afford to take the Soviets on in open terrain, so they used the

cover of the forests. The Finns varied their actions. Their tactical effectiveness was enhanced by the uncertainty caused by their unorthodox style of fighting, and in particular, asymmetrical guerrilla action. This caused fear and confusion among the Soviets, who did not know what to expect from their enemies.

The Finnish officer corps had a professional ethos. They had intellectual capacity, human capital and high morale. The officers knew their wartime tasks and the characteristics of the areas of operation. Many officers had a high sense of duty, and even a naïve faith in their own capabilities. They were able to conduct complex operations, and their training offered them possibilities to find solutions to problems. The officers were appointed to operational billets, and promoted and rewarded based only on merit. This increased effectiveness at all levels. Very few officers were replaced. Occasionally, bad chemistry and personality clashes between officers had an impact on the conduct of operations.

The FHC functioned with considerable efficiency, not only in leading the operations on all fronts, but also in making effective use of the nation's resources. The chains of command and information management were handled in an effective way during the Winter War. Despite some shortcomings, the command deserves high estimation.

On the whole, the Finnish officers were imaginative leaders who aimed to avoid fixed patterns. The command culture encouraged initiative and common sense at all levels. Leeway and freedom was granted to subordinates. The officers were capable of independent action and could disagree with their superiors, yet they worked according to a commander's intent in the spirit of directive command (*Auftragstaktik*). They were taught to make swift decisions and carry them out, and they could cope with friction. Usually, they would stick to their decisions but, when circumstances demanded, they could be changed flexibly if it promised to outwit the enemy. The Finnish leaders made use of classical Clausewitzian or Jominian operational and tactical principles and maxims that they adapted to difficult conditions far better than their enemies, who adhered rigidly to preconceived doctrines. The preferred small-unit tactics called for well-trained and capable NCOs, who formed the backbone and provided generally excellent leadership.

The citizen soldier army was not easy to lead. There was not just one effective command style, and with the right materiel, organization and ways of operating, success was possible. The majority of the Finnish officers took care of their men and inspired them. This was often accomplished

by setting an example, sharing their dangers and living together with the men. While the officers aimed to minimize casualties among the rank and file by leading from the front, the junior officers, who functioned as 'linchpins' between the professionals and reservists, themselves suffered the highest proportion of casualties. They knew how to handle their subordinates to find their talents and use their own strengths. The officers utilized appropriate psychological and sociological insights to enhance cohesion and build trust among the different ranks. The disciplinary system did not normally need to be invoked.

The Finnish training and tactical systems were completely in line with the Army's approach to morale, unit cohesion and inter-rank relations that correlated with a high level of tactical effectiveness. The regional mobilization system produced cohesive fighting units. The men were automatically loyal to their next of kin, neighbors and friends. The Finnish soldiers did not leave their buddies—even those who had fallen—behind, and were willing to risk their own lives to recover their bodies. The relative lack of discipline suited the mentality of the Finnish citizen soldier well.

Societal and cultural factors mattered a great deal in Finnish military effectiveness. The level of support for the military and military service among civil society (and the image of the soldier in Finnish society) and the support of the home front for the soldiers were high. This positive popular attitude toward the Army was undoubtedly of immense importance, boosting the morale of the front-line soldiers. Finnish society was not completely united, but it practically closed ranks soon after the Soviet invasion. The wounds of the bitter Civil War were healed. Faced with an external threat and extinction, the Finns were ready to make the ultimate sacrifice. This also explains their stiffening resistance. The Red Army could not shell them into submission.

The phenomenon of rallying under the same flag, 'the spirit of the Winter War' refers to intangible factors that proved decisive. The Finnish citizen soldiers' traditions, general beliefs, value systems, attitudes and behavior patterns had an impact on their fighting qualities. Ideology, nationalism, patriotism or religion had some influence in motivating the soldiers and partially explain their stamina in combat. The effective public information and propaganda campaigns, which emphasized achievements in culture and sports, appealed to the Finns. The Finnish Field Army as a whole was able to maintain unit cohesion under fire. Hence, most of the Finnish centers of gravity were moral by nature, and they were difficult for the Soviets to influence. These Finnish strengths from strategic down

to tactical level were all related to human resources: the people's strong will to fight, the ability to create and use reserves and the well-trained and committed fighters. They all made the successful defensive battle possible.

There is a distinct pattern to the Finnish military organizations' effectiveness at political, strategic, operational and tactical levels. The evidence suggests that grades improve as the assessment progresses from the top to the battlefield level (see Appendix 1). The lower one goes, the more effectively the Finnish Army appears to have performed. Their grades are concentrated at the high end of the scale, from 8 to 10 (Bs and As). The Finns were at their best in tactical effectiveness. In operational and tactical fields, they had minor weaknesses in combined arms and all-arms integration, barely reaching a good level. All the other grades were better. Clearly, the Finnish military organizations had various shortcomings and problems, and they earned some lower grades for some criteria of political and strategic effectiveness. Their major handicap granting just sufficient performance was in coalition-building. Moreover, the Finnish performance was just satisfactory in allocation of resources and force size and structure.

In comparison to the results with the findings of the *Military Effectiveness* project as illustrated in Appendix I, the Finns earned a grade A as their tactical performance matched that of the German Army in World War II (A), as the best of the seven powers. As far as the operational area is concerned the Finns—who got a very good grade (B+)—reached the standards of many combatant powers, especially in the opening stages of World War II. This can be attributed to their military culture. It is true that operational and tactical excellence are not enough unless political and strategic effectiveness are rated reasonably high. Even though the Germans showed excellent results in the first two areas, they failed at the two highest levels. If one shows strategic ineffectiveness, tactical prowess is useless. In the Wehrmacht, battlefield successes were, as Millett, Murray and Watman argue, practically nullified by (incorrect) problematic strategic and operational level decisions.[2] In a similar fashion, the Finns too had difficulties in politico-strategic arenas, but still managed to earn good grades (Bs) for the political level, and even many As for the strategic and operational levels. In no field, except in the ability of the Finnish military to obtain an adequate share of the national budget and alliance building, can they be given satisfactory grades or below. According to the results of this national case study (see Table 6.1), the Finnish armed services received a very good overall assessment of 8.3 (B+) for their performance in the Winter War.

**Table 6.1** Averages of grades for various levels of Finnish military effectiveness

| | | | |
|---|---|---|---|
| Averages for | Political effectiveness | 7 | (B) good |
| | Strategic effectiveness | 7.4 | (B) good |
| | Operational effectiveness | 8.4 | (B+) very good |
| | Tactical effectiveness | 9.2 | (A) excellent |
| Overall average grade | | 8.3 | (B+) very good |

Even so, the Finnish Army was not effective at all four levels at the same time. The Finns had missed chances when preparing for the war, and continued to encounter various problems when waging it. The coordination of activities along the different levels was generally done in an effective manner. Finnish technological and organizational skills were at a higher level than those of the Soviets. The biggest problems were found at the policy level, where human limitations had posed obstacles. The Finnish strategy was well devised to guarantee the most favorable outcome. It is easy to agree with Millett, Murray and Watman that, even without emerging as a victor, the Finnish Army, which had far fewer resources than its enemies, had performed with proficiency at the operational level of war.[3] I would add that the Finns excelled at the tactical level. It is also worth noting that all levels affected each other.

One of the major indicators of military effectiveness is the ability to minimize one's own casualties and inflict heavy losses on the adversary. Loss–exchange ratios, such as 1:6 in men, clearly indicate operational and tactical effectiveness (see Chap. 4, pages 122-5). It can be seen in terms of figures that have been achieved by placing the qualitative strength of command and troops on the Red Army.

The Arctic combat environment, with which only the Finns had come to terms, influenced the morale of the combatants. On the Soviet side, there were obvious problems. The problems were further aggravated by the widespread Finnish use of scorched-earth tactics, depriving the Soviet troops of the possibility for rest and recuperation. The lack of supplies also affected their will to fight. Yet figures related to morale point out that the level of morale and determination was high or very high in the Finnish Army. Following Jonathan Fennell,[4] high morale was correlated with low rates of desertion, sickness, battle exhaustion, missing and surrender. The ratio of surrendered versus killed in the Finnish Army was even lower

than in the resolute Red Army, and this suggests a high morale. On the influencer and determinant side, such as troops' perception of their weapons, quality of leadership and men and the primary group, the Finns fared equally well and could compensate for their inferior numbers.

Numerical grades and ratios notwithstanding, a very good grade (B+) illustrates the ability of the Finns to achieve considerable overall military effectiveness. In the Winter War, the Finnish military organizations had various weaknesses, but they exhibited some kind of effectiveness at all levels that affected each other. Even though they occasionally demonstrated some ineffectiveness and came close to losing, the Finns did not come even close to failing in any of the levels relevant to military effectiveness (except in alliance-forming). On the contrary, they were able to halt the advance of the Red Army. Simply by sustaining major battles, the Finnish Army exhibited considerable operational and tactical effectiveness.

How was this achievement accomplished? The results of this case study suggest that the main source of Finnish military effectiveness was that the Finnish military institutions stood the test of war and performed almost to their full potential. The organizational effectiveness of the Finnish armed forces was clearly high in almost every aspect. The Finns had been able to develop and maintain their high level of military effectiveness throughout the war, but this did not come easily to them. In the Winter War, the Soviet Union imposed upon Finland challenges the Finns could barely meet. They were able to use all of their forces economically and effectively. Although mobilizing the full materiel and human resources of the entire nation to the war effort, the war imposed serious strains on Finnish resources. They faced serious deficiencies in manpower and materiel. However, the Finnish nation did not overstrain itself during the conflict. This had an impact on morale in the Field Army. No serious breakages occurred in this respect.

All the Finnish services made effective use of the resources they commanded and, by maximally utilizing their resources, they were able to generate sufficient fighting power—and achieve relative military effectiveness—to thwart the Soviet plans of invading Finnish territory and keep them at bay. Fundamental to their achievement, and vital in accomplishing their missions, was their ability to focus on their own strengths. The Finnish Army was an institution enjoying widespread respect that managed to remain intact and succeed in its tasks, and as a result, its members, representatives of its parent society, put up a spirited, unabated and unwavering fight that was enough to bring them a victory in defeat.

Many local victories scored by the Finns in mobile warfare practiced on the northern fronts did not matter, as the war was decided on the Karelian Isthmus, where war of attrition was the norm, and the Finns could not handle that for too long. Yet they deprived the Red Army of the possibility for swift advance, and made the invasion of Finland a costly scenario. The events of the Winter War demonstrated that the Finnish Army was, in fact, more effective than the Red Army. However, military effectiveness is all too often regarded as a synonym for battlefield effectiveness. The relation of their battlefield performance to the outcome of the war was considerable, but not decisive. The effectiveness of the Finnish Army did not result in the defeat of the Red Army, and it could have, regardless of the mounting losses, continued its action and eventually subjugated the Finns. Yet the Finnish resistance almost collapsed in March 1940. Ultimately, the world situation determined the outcome of the Winter War.

The role of the human element was decisive for the Finns. The effectiveness of training was tested in the battlefields. The majority of the Finnish soldiers understood the core purposes demanded of them and the necessity of defending their country. The human resources were used in an economic fashion. Even if armed with inferior equipment, their fighting spirit and morale remained high enough to fulfil their tasks. A majority of Finnish soldiers displayed relentlessness, audacity and willpower. They also had a strong sense of sacrifice. The Finnish soldiers trusted their leaders, and the Finns survived the Soviet invasion as a united nation under Marshal Mannerheim who exhibited considerable resolve. As a result of truly joint efforts by their leadership and the support of the home front, the Finnish military organizations were able to prolong the conflict and buy time for political negotiations.

The quality of leadership and troops was the main reason why the Finnish Army did not disintegrate in the course of the Winter War. It also explains why the Finns could, with the right kind of tactics and use of terrain and weather, balance the advantage the Red Army had through its numerical superiority. Hence, qualitative factors, above all else, explain the high level of Finnish military effectiveness. Despite their inferior numbers and low resources, the Finns were able to capitalize on their human capital and other resources and put them to effective use. This primarily accounts for the exploits of the Finnish Army. They were able to inflict heavy losses and turn the campaign to occupy the territory of Finland into a costly undertaking for the Soviet Union. At the same time, the Finns managed to minimize their own casualties. They did this by focusing on their own

strengths (well-trained officers, NCOs and men, as well as a suitable art of war) against the absolute weaknesses and comparative disadvantages of their adversaries.

Military geographical factors dictated operational and tactical possibilities. Thus, one of the keys to the effective performance of the Finns was that they aligned themselves with nature. Many historical antecedents show that those armies that have made winter an ally and systematically exploited terrain, weather and climatic conditions could compensate for inferior numbers and achieve success. The Finnish qualitative edge was linked with their ability to exploit the difficult forested terrain and climatic conditions, and was seen by the Finns as fundamental to the successful art of war. By utilizing the conditions, they were able to achieve surprise and seize and maintain momentum through the exploitation of success.

Effective military action in winter conditions also called for adaptability. During the Winter War, the Finns showed a remarkable ability for organizational innovation and tactical adaptation. The Finnish armed forces had developed well-functioning organizational capabilities and proved themselves capable of changing their ways and adapting to changing circumstances. Faced with overwhelming odds, the Finns demonstrated a remarkable ability for organizational innovation. They made rapid adjustments or larger structural changes to their war industry, command and control arrangements, support, and replacement systems.

Their ability for innovation and adaptation produced significant capabilities for them. The Finnish officers could incorporate technical innovations and effective infantry–artillery coordination. The leaders at lower echelons learned and made adjustments and alterations at the tactical level. To overcome weaknesses in training, they adopted methods that had been noted to produce results in some sectors. This was not a problem, as the tactical doctrine was not rigid and the manuals were only viewed as a basis for adaptation. The ability to learn, anticipate and adapt and, as Cohen and Gooch[5] assert, is vital even for competent armies to prevail. The Finns, who succeeded in all of these areas in the Winter War, aimed to systematically ensure their military effectiveness by disseminating knowledge of the enemy's fighting techniques and their own novel military innovations. The Finnish front-line soldiers and their leaders often came up with bottom-up tactical innovations and best practices to successfully cope with tactical problems and outfight the Red Army. *Motti* tactics, which were not mentioned in manuals and were a doctrinal adaptation, aptly confirm this point. All this demonstrated that the Finns had a considerable ability

to use their scarce resources to produce optimal results. In this, there is a high contrast between them and the Red Army.

In addition, as Bickel suggests,[6] to the formal doctrinal process of institutionalization of lessons (teaching, curricula and manual-writing), the officers' articles in professional journals were an informal way of sharing and passing along relevant information, disseminating lessons and developing best practices. This was all part of organizational learning. The members of the Finnish Army proved themselves quick learners and good innovators and adaptors at all levels. By doing so, they managed to do the right things that, in essence, are what effectiveness is all about. Therefore, a high grade in this later added criterion (number 26 in Appendix I) concerning the ability for innovation and adaptation in a national cultural framework goes a long way in explaining Finnish military successes in the winter of 1939–40.

However, the interpretation of Finnish military effectiveness would not be complete without referring to intangible, non-materiel and non-measurable factors. Several cultural traits and democratic values helped to produce motivation and fighting spirit and maintain a high morale. It is clear that, given the sheer numbers, the Winter War was a victory of spirit over materiel. The fighting spirit of the Finnish Army, the unity of the few Finnish people and the legitimacy of their cause were unquestionable, and thus, in the end, they had a deep impact on the way Finns organized for war, mobilized their society and waged war. It multiplied their numbers and materiel. This is of course—as the ability to innovate and adapt—to a great extent a matter of national culture. Moreover, Finnish military culture provided them with clear advantages: they possessed well-devised plans and doctrines, and a superior training and tactical system.

In the final analysis, it is difficult to generalize as to why some militaries are effective, especially because Arctic warfare is a context-related form of combat,[7] and we can, in addition to determination, speak about a certain 'Finnish way of war' that incorporates a special kind of resourcefulness and application of classical tactical methods to the peculiar northern forest terrain in cold winter weather.

The legacy of the Winter War is interesting. The Soviet Union achieved its minimum goals. Yet militarily, the Winter War was a botched campaign, and the war's outcome hurt Soviet prestige. For the Soviet leadership, studying the Red Army's performance against the Finns gave invaluable lessons. By learning from their mistakes and by making reforms, they were better prepared for the war against the Germans. In a meeting held in

Moscow in April 1940, Stalin called the Arctic environment 'difficult war conditions'. However, the Germans misinterpreted the Soviet's initial ineffectiveness. They failed to notice that the Red Army, too, had been quickly learning from the Finns. Thus, the Soviets increased their own effectiveness. Furthermore, the Germans failed to take into consideration the clear advice not to fight in Arctic conditions without thorough preparation. This had the gravest repercussions just less than two years after the Winter War ended. The Finns had learned a hard lesson: that a small nation needs protection and should not have to wage war against a big country alone. As a consequence, the Finns joined forces with the Germans in 1941 and participated in Operation Barbarossa to get back the areas of land annexed by the Soviet Union after the Winter War. This scenario was exactly what Stalin had hoped to prevent by the invasion of Finland.[8]

## Notes

1. Millett, Murray and Watman 1988, 26.
2. Ibid., 26; Cushman 1988, 320–2.
3. Millett, Murray and Watman 1988, 3.
4. Fennell 2011, 9–10.
5. Cohen and Gooch 1990, 233–46.
6. Bickel 2001, 17–8, 43–6.
7. Tuunainen 2014a, 87–99.
8. Chubaryan and Shukman 2002, 97; Volkogonov 1991, 363–6.

# Appendix I. Criteria for Assessing Military Effectiveness and a Grading of the Finnish Army's Performance in the Winter War

Allan R. Millett, Williamson Murray and Kenneth H. Watman's criteria for assessing the political, strategic, operational and tactical effectiveness of military institutions, including a grading of the Finnish Army's performance in the Winter War by the author and a mention in which chapter each criterion is discussed (in parentheses). The grading scale used is from 4 to 10: 4 is equivalent to an F grade (fail), 5 to D (sufficient), 6 to C (satisfactory), 7 to B (good), 8 to B+ (very good), 9 to A (excellent), and 10 to A+ (outstanding). The newest, later added criterion 26 is also included in the calculations.

## Political Effectiveness

1. To what extent can military organizations assure themselves a regular share of the national budget sufficient to meet their major needs? 6 (2)
2. To what extent do military organizations have access to the industrial and technological resources necessary to produce the equipment needed? 7 (2)
3. To what extent do military organizations have access to manpower in the required quantity and quality? 8 (2)



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## Strategic Effectiveness

4. To what degree would achievement of the organization's strategic objectives result in securing the political goals of the nation? 9 (2)
5. To what degree are the risks entailed in the desired strategic objectives consistent with the stakes involved and the consequences of failure? 9 (2)
6. To what degree were the leaders of the military organization able to communicate with and influence the political leadership to seek militarily logical national goals? 9 (2)
7. To what degree are strategic goals and courses of action consistent with force size and structure? 6 (2)
8. To what degree are the military's strategic objectives consistent with their logistical infrastructure and the national industrial and technical base? Included in the industrial base are manufacturing capabilities and rates, reserve capacities, sophistication, vulnerability, and access to raw materials. 7 (2/5)
9. To what degree are military organizations successful at integrating their strategic objectives with those of their allies and/or persuading them to adopt consistent strategic objectives? 5 (2)
10. To what degree do the strategic plans and objectives place the strengths of military organizations against the critical weaknesses of their adversary? 7 (2)

## Operational Effectiveness

11. To what extent do the military organizations of a nation possess a professional ethos and integrity that allows them to deal with operational problems in a realistic fashion? 10 (4)
12. To what degree are the military organization's operational methods integrated? To what degree do organizations attempt to combine combat arms to take full advantage of their strengths while covering their weaknesses? 7 (3)
13. To what extent are the military organizations mobile and flexible at the operational level? Can an organization move rapidly both intellectually and physically in either anticipated or unanticipated directions? 9 (3)
14. To what extent are a military organization's operational concepts and decisions consistent with available technology? 8 (3)

15. To what extent are supporting activities well integrated with the operational concepts of the military organization? Do the military organizations have the capability to support their operational practices with the required intelligence, supply, communications, medical, and transport systems? 8 (5)
16. To what extent is the military organization's operational concept consistent with the strategic objectives assigned to it? 8 (3)
17. To what degree does the operational doctrine of military organizations place their strengths against their adversary's weaknesses? 9 (3)

## Tactical Effectiveness

18. To what extent are military organizations' tactical approaches consistent with their strategic objectives? 10 (3)
19. To what extent are tactical concepts consistent with operational capabilities? 9 (3)
20. To what extent does the military organization's tactical system emphasize integration of all arms? 7 (3)
21. To what extent do a military organization's tactical conceptions emphasize surprise and a rapid exploitation of opportunities? 10 (3)
22. To what extent is the military organization's tactical system consistent with its approach to morale, unit cohesion, and relations between officers, NCOs, and the enlisted ranks? 10 (4)
23. To what extent is the military organization's approach to training consistent with its tactical system? 10 (2/3/4)
24. To what extent are military organizations' tactical systems consistent with support capabilities? 9 (5)
25. To what extent do tactical systems place the strengths of military organizations against their adversary's weaknesses? 9 (3/4)

xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

26. To what degree is an ability for innovation and adaptation in a national cultural framework demonstrated? 9 (2/3/4/5)

Sources: Adapted from Millett, Murray & Watman 1986, 37–71; Millett & Murray 1988, 1–30; Murray & Millett 2010, xi–xix.

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## III Interviews

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