

**Canada's Mechanized Infantry**  
The Evolution of a Combat Arm, 1920–2012

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# Introduction

THE STORY OF THE MECHANIZATION of infantry traces how new technology is developed, introduced into an organization, and then refined through use and experimentation. During the Cold War, the iconic image of the Canadian soldier was that of an infantryman in an armoured personnel carrier. It is so pervasive and long lasting that many of us simply take mechanized infantry for granted, as if it had always existed and were a natural state that was achieved with no effort. This, however, is far from the truth. Transforming foot infantry into soldiers who operate from complex vehicles that are integral to their unit involves developing equipment and tactics, changing doctrine, and modifying organizations.

Foot soldiers have been the backbone of Western armies for centuries. Their task – repeatedly stated in doctrine – is “to close with and destroy the enemy.” Only they can occupy and hold ground. However, by the middle of the nineteenth century, the way in which infantry was to accomplish its essential tasks was becoming unclear. Firepower progressively strengthened, as infantry acquired rifled muskets, then breech-loading rifles, magazine rifles, and finally, machine guns. At the same time, artillery improved, becoming rifled and breech-loaded as well, with guns mounted on recoil mechanisms, increasing their range, accuracy, and speed of fire. By the beginning of the twentieth century, the battlefield had become a much more deadly place. It was clear that close-order infantry formations were a thing of the past, but the problem of how infantry was to manoeuvre on the battlefield and navigate the final hundred yards to reach the enemy was not so easily resolved. Neither faith in unit *élan* nor massive artillery firepower addressed this issue. Mechanization emerged as a possible solution.

The mechanization of armies began during the First World War, with the invention of the tank, which assisted infantry in crossing open ground by crushing barbed-wire barriers and defeating enemy machine gun positions. The tank’s potential to revolutionize ground warfare was not lost on theorists, who soon advocated that, in armies where the tank was the principal weapon, the function of infantry would henceforth be solely to assist it – a major change for infantry, which had been known as “Queen of Battle” since at least the time of Napoleon.

By the 1930s, the major problems of infantry mechanization had been recognized, but their solutions had not been determined. Armies had not only to decide how infantry and tanks would be organized but how they would work together on the battlefield. They also had to decide the potential uses of both tanks and infantry vehicles: Were tanks to assist infantry by providing firepower? Or should they be assigned an independent role, using their speed and protection to exploit breakthroughs on the enemy lines? Were infantry vehicles to carry heavy weapons, such as machine guns? Should they transport the soldiers and provide firepower and mobility in assaults? Lastly, armies had to establish the ideal characteristics of infantry vehicles by trading off mobility, firepower, and protection to reach an optimal balance.

The debate over how to mechanize infantry produced several schools of thought, which were never clearly defined. Some commentators championed the historic role of infantry as foot soldiers, whose ability to go anywhere could not be rivalled by machines. This foot-soldier-centric school saw infantry vehicles solely as protected transport for infantry, who would fight dismounted. Conversely, other commentators adopted a more vehicle-centric model in which the vehicle became an integrated part of the infantry-section combat system, exploiting the powerful gun that it could carry and also its mobility, protection, and communications. The American, British, and Canadian Armies gravitated toward the foot-soldier-centric model, whereas Europeans favoured the vehicle-centric solution.

Despite decades of debate and the importance of mechanized infantry in forming the backbone of modern armies, little attention has been paid to how it has been developed and refined. The tank has dominated the discussion of mechanization, if not taken it over completely. A recent search on Amazon.ca for books indexed under “mechanized infantry” yielded fifty-eight titles, including novels and reprints of field manuals. A similar search for “tank” produced twenty thousand hits. Among the decidedly scanty works on mechanized infantry, two books stand out. One, titled *On Infantry*, was published in two editions. The first edition was written by John A. English, who was joined for the second edition by Bruce I. Gudmundsson. The other book is *Mechanized Infantry*, by Richard Simpkin. Both works represent the decidedly divergent views of the soldier- and vehicle-centric schools of thought.<sup>1</sup>

Although English and Gudmundsson do not specifically examine the post-First World War development of mechanized infantry, they can scarcely avoid it. In the first edition of the book, English defines real infantry as light infantry, which he romanticizes as “warrior” infantry based on *jager* (hunter) skills and a “pre-industrial” mentality. English is no fan of the trend, since the late 1960s, of adopting increasingly better-armed and -protected infantry fighting vehicles

(IFVs). He approvingly cites Israeli opinion that the Soviet BMP 1, the IFV used by the Egyptians in the 1973 Yom Kippur War, was effectively an “eleven-man coffin.” To English and Gudmundsson, the introduction of IFVs to NATO armies during the 1970s had cut short the recovery of European infantry. Containing a compartment for a few infantrymen, IFVs were just small tanks that converted units into “something other than infantry.” Writing in 1994, English and Gudmundsson placed their faith in technology, hoping it would provide weapons that infantry could use to best armour and that increasing urbanization in Europe would simultaneously reduce the amount of open “tank country.” This would allow foot soldiers to return to their warrior, light-infantry past.<sup>2</sup>

Richard Simpkin takes the opposing point of view. Reviewing the progress of mechanized infantry since the 1930s, he comments that “with mechanized infantry the difficulty lies in arriving at a meaningful and lucid definition of the role of infantry in the armoured battle and the way it should fight – by which I mean something at the grass roots level but rather broader than minor tactics.” Simpkin is critical of the British Army’s insistence that its infantry enter battle on foot in order to defend from its foxholes. He also dislikes what he calls “too much caste spirit,” which has preserved traditional organizational models. Like English and Gudmundsson, Simpkin takes issue with the state of mechanized infantry in the 1980s. He dismisses the German Marder IFV, “an extreme embarrassment to the designer,” as too large, too complex, and too expensive, tracing these faults to its design, which attempts to accommodate an entire infantry section of nine soldiers. Simpkin concentrates on what he calls “in-house” infantry, which is meant to support armoured units. His recommendation is a force with equal numbers of infantry vehicles and tanks, rendering it completely organizationally integrated. His ideal infantry vehicle is an IFV with the same level of protection and mobility as a tank, as well as a powerful gun and the capacity to allow its mounted infantry to fight from within it. Rather than revert to previous iterations, Simpkin would have infantry and armour evolve together to form a new combat arm.<sup>3</sup>

At the time of writing, no book dealt specifically with the evolution of Canadian infantry, much less its mechanized form. There are, however, at least three that provide a great deal of information about infantry mechanization. In *The Royal Canadian Armoured Corps: An Illustrated History*, John Marteinson and Michael R. McNorgan obviously focus on armour but do not neglect to discuss the evolution of its infantry support. Similarly, Sean Maloney’s *War without Battles: Canada’s NATO Brigade in Germany, 1951–1993* provides a comprehensive account of the development and employment of Canada’s premier mechanized infantry formation, the brigade group in Germany. Due to

their somewhat limited scope, neither of these books addresses the overall problem of the development of mechanized infantry in Canada.<sup>4</sup> The third book is Andrew B. Godefroy, *In Peace Prepared: Innovation and Adaptation in Canada's Cold War Army*. It provides an in-depth assessment of the Canadian Army's combat development processes and doctrinal evolution from 1945 to 1968. Although the book does not deal specifically with infantry, it is relevant to mechanization issues. However, Godefroy is overly sympathetic to the army's top-down decision-making process, which was based on the opinions of senior officers rather than analysis. Nor does he hold the army accountable for the failure of the Bobcat armoured personnel carrier project, pointing the finger instead at civilian politicians.<sup>5</sup>

The present volume will address the mechanization of Canadian infantry since the First World War and will outline Canadian and British thinking on mechanized warfare. In recognition of Canada's dependence on Britain, it will discuss British developments in theory and doctrine and their subsequent transfer to the Canadian Army. It argues that key Canadian choices regarding the role of mechanized infantry and the characteristics of its vehicles were established between the First and Second World Wars. The Canadian Army pioneered mechanized infantry tactics and vehicles during the Second World War, but traditional (British) preferences for fighting on foot and preserving existing organizational structures subsequently reasserted themselves.

How are we to define "mechanized infantry"? Although less than authoritative, a Wikipedia entry usefully notes that it is "equipped with armored personnel carriers (APCs) or infantry fighting vehicles (IFVs) for transport and combat."<sup>6</sup> The entry also distinguishes between mechanized infantry and motorized infantry on the basis of the protection provided by their respective vehicles. Yet it does not require that APCs be tracked or that their mobility and armour match those of tanks. This very basic definition will be applied throughout the book. It is consistent with that of the Canadian Army, which, when it defines "mechanized infantry" at all, has simply chosen to regard any infantry equipped with APCs as mechanized. The broad nature of the Wikipedia definition allows us to include both line infantry equipped with APCs and the in-house infantry of armoured formations as part of the discussion, rather than relegating them to a separate class of "armoured infantry." The definition also includes infantry such as the Second World War Kangaroo units, which travelled in, but did not own, their APCs.

On the other hand, it excludes both truck- and helicopter-borne infantry. Here, again, it is useful in that truck-borne or "motorized" infantry and helicopter-borne infantry – or what the Americans call "air cavalry" – both essentially

operate as light infantry once the soldiers descend from their vehicles. The tactical employment and problems of these two forms differ from those of mechanized infantry.

As presented in this book, the picture of the Canadian Army during the post-war period is that of an institution that achieved great things but fell short in regard to others. At war's end, the army saw no reason to reflect on its doctrine or structure and thus followed its Second World War pattern in re-equipping itself. It did not think to review its wartime innovations in equipment or tactics, even though they had been recorded and preserved. However, the prospect of tactical nuclear war did push the army to revisit its doctrine and tactics. In 1956, it embarked on a wholesale mechanization and re-equipment project that ended with the modernization of 4 Canadian Infantry Brigade Group during the 1960s and its later re-designation as 4 Canadian Mechanized Brigade Group in 1968. As a result, infantry was then equipped with armoured personnel carriers, and the brigade group fielded self-propelled guns, tanks, tactical nuclear rockets, and anti-tank missiles. This was a major achievement for a small army.

The problem, however, was the army as an institution in and of itself. As a subordinate colonial force, it had not developed the organizational capacity to create its own doctrine and form long-range plans. It therefore struggled with the issues presented by infantry mechanization. Although it did mount significant studies of tactical nuclear war, notably Exercise Gold Rush, they were overseen by senior staff study teams with little discernable input from analytical staffs or information gleaned from field trials. Many years would elapse before Gold Rush transitioned from a "concept" to doctrine. Compounding that fact, the army was subject to the varying views of successive chiefs of the general staff.

This book also takes a detailed look at the army's attempt to create its own infantry vehicle, the Bobcat. Like early doctrinal projects, it did not result in a fieldable product, as the Bobcat failed to meet specifications, suffered cost overruns, and was ultimately cancelled. Both the Bobcat's engineering and industrial risks were barely considered, while senior leadership forged ahead with ambitious specifications that it deemed worth pursuing. Lastly, the book raises the issue of why the Canadian Army gave so little consideration to parallel developments in American vehicles, as it sought to produce its own unique alternative.

As the title of Sean Maloney's book indicates, the Cold War was a "war without battles." This book will consider the "Third World War" in Europe as the Canadian Army conceived of it and its potential response. The army did mount a comprehensive study, the 1963 *Final Report* of the Army Tactics

and Organization Board, which combined operations research, field trials, and professional judgment, but it balked at the suggestion that it study merging infantry and armour into a single combat arm. During the 1970s and 1980s, studies featuring senior professional opinion informed key decisions about the role of infantry and how it should be equipped. And once again, the army sought novel equipment in the forms of a unique infantry vehicle and a tank destroyer. Even though the Soviets and most of Canada's NATO allies had accepted the notion that their infantry must possess a fighting vehicle, the Canadian Army clung to its belief that an infantry vehicle was a battlefield taxi, not a tank, and that it should carry a full infantry section. The tank destroyer provided infantry with needed firepower but was not a solution that precipitated organizational change.

After the Cold War, the army leaned toward an IFV, not by deliberate decision, but because the made-in-Canada light armoured vehicle (LAV) had a gun and was the only available option at the time. Its light armour and the fact that it was wheeled rather than tracked limited its mobility and rendered the LAV III less than an IFV but much more than a battlefield taxi. No real decision had been made as to the role of the infantry's vehicle.

The army also experimented with reorganizing its mechanized infantry to take advantage of the Revolution in Military Affairs and netcentric warfare. As in the past, this was a top-down initiative implemented by the chief of the land staff. Also, as in the past, it required novel equipment that turned out to exceed the abilities of the available technology.

This book emphasizes the importance of analysis in making complex decisions about technology and organization, the need to maintain a staff that is capable of conducting comprehensive analyses, and the paramount necessity of grounding the decision-making structure in facts rather than opinions. The Canadian Army's varying degrees of success in solving the problems of mechanized infantry ultimately depended on the capacity of the institutions it had created.

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