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ABSTRACT

This article contends that civilian leaders can adversely affect military capacity in the realm of technology. I argue that if civilian leaders have personal biases that blind them to military effectiveness, and if they have the power to make unilateral procurement decisions, then military capacity will be hampered. With a main plausibility probe of Canada's disastrous World War I Ross rifle, I suggest that Minister of Militia Sam Hughes ensured that Canadians fought with the gun 18 months after its first wartime failures, failures so egregious that one officer said it was "nothing short of murder" to send soldiers into battle with it. I assess two shadow cases on rifle development and procurement involving Union war secretary Simon Cameron and British war secretary Hugh Arnold-Foster, both of which support my theory. I suggest that civilian control over specific military technologies is not desirable, and that civilian control of militaries in general may be strengthened by limiting control of these means of war.

Roamin' in the gloamin', Ross Rifle by my side,
Roamin' in the gloamin', could nae fire it if I tried,
It's worse than a' the rest, the Lee Enfield I like best,
I sure must lose it roamin' in the gloaming.[1]

***

We are Sam Hughes' army,
No bloody good are we.
We cannot march, we cannot shoot,
No bloody good are we.[2]
Canadian Army songs, World War I

In the summer of 1914, Otto von Bismarck's 1888 prediction that "one day the great European War will come out of some damned foolish thing in

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[1]Jason Wilson, *Soldiers of Song: The Dumbells and Other Canadian Concert Parties of the First World War* (Waterloo, ON: Wilfrid Laurier University Press, 2012), 98.
[2]Tim Cook, *At the Sharp End: Canadians Fighting the Great War 1914–1916*, vol. 1 (Toronto: Penguin Canada, 2009), 100.

the Balkans" came true.[3] Thousands of miles away, Canadian prime minister Robert Borden was neither consulted nor briefed by his British counterpart and was left scouring newspapers for reports from Europe.[4] Despite their distance, Canadians erupted in outbursts of imperial patriotism at the war's beginning.[5] Those enlisting had little idea of the horrors ahead. As if the poison gas, trenches, and machine guns awaiting them were not sufficiently unpleasant, the Canadians had guns—Ross Rifle Mark IIIs—that could barely shoot. Championed by Minister of Militia Sam Hughes, the rifles were disastrous. They jammed at the slightest introduction of dirt, were long and cumbersome, and were easy to reassemble improperly, often leading to the ejection of bolts back into the faces of unsuspecting soldiers. "It is nothing short of murder to send out men against the enemy with such a weapon," recorded one officer.[6] Despite this, Canadians were forced to carry the Ross rifle for at least 18 more months, with those who resorted to stealing Short Magazine Lee Enfield (SMLE) rifles from dead British comrades punished for their efforts to arm themselves adequately. The Ross's issues had been evident long before the war, and British commanders actively campaigned for Canadians to receive SMLEs before any forces arrived on the battlefields. And the solution, as these "thieves" demonstrated, was the SMLE—which sat right in front of Canada.

Why did Canada have and use such a fundamentally flawed weapon? Why did Canada fail to procure SMLEs in the face of insurmountable evidence that the Ross was so fatally flawed? The answer rests with a state failing to have the military capacity it should. Such avoidable failures should be rare. War is a serious business: states' survival is at risk, and mistakes mean soldiers die needlessly. Because of this, we should expect countries to delegate responsibility for weaponry to those with expertise, and to develop and acquire the best weaponry possible for their militaries. There are surely factors that limit these possibilities, including ones that can inhibit a state from achieving capacities it otherwise would. Scholars have argued these include a state's cultural milieu, entrenched military bureaucracy and conservative military leaders, or production capacities.[7] Civilian leaders' role in

[3]Cited in Charles W. Van Way III, "Rolling the Iron Dice," *Missouri Medicine* 115, no. 6 (November–December 2018): 510.

[4]Brian Douglas Tennyson, *Canada's Great War, 1914–1918: How Canada Helped Save the British Empire and Became a North American Nation* (London: Rowman & Littlefield, 2015), 7.

[5]This enthusiasm was present predominately in English-speaking Canada. There was indifference and opposition to the war in French Canada, where European links tended to be far more distant, even as many French Canadians did indeed serve. Indigenous Canadians, moreover, could not have been seized with much imperial pride, though many served in the army to great distinction, especially as snipers.

[6]Sharon Adams, "The Ross Rifle," *Legion: Canada's Military History Magazine*, February 16, 2016, https://legionmagazine.com/en/2016/02/the-ross-rifle/.

[7]Sharon K. Weiner, "Organizational Interests versus Battlefield Needs: The U.S. Military and Mine-Resistant Ambush Protected Vehicles in Iraq," *Polity* 42, no. 4 (October 2010): 461–82; Burak Kadercan, "Strong Armies, Slow Adaptation: Civil-Military Relations and the Diffusion of Military Power," *International Security* 38, no. 3 (Winter 2013/14): 117–52; Adam M. Jungdahl and Julia M. Macdonald, "Innovation Inhibitors in War:

this matter has received much less attention,[8] and when scholars have studied the relationship between civilian leaders and military capacity, they have primarily argued that involved civilian leaders have a positive effect.[9]

Yet do civilian leaders reliably increase states' military capacities? In this article, I contend that they do not. I argue that individual civilian leaders harm a state's military capacity when two conditions are in place: (1) when the civilian leader in question has a bias that prompts them to make decisions based on factors other than military effectiveness; and (2) when the civilian leader has the autonomy to make unilateral decisions about specific military technologies.

This article makes its main contribution to the civil-military relations literature. Scholars disagree intensely about where to allocate the specifics of control between militaries and civilian leadership. Some suggest that military professionalism ought to prevail in all but the most general debates,[10] whereas others argue that civilian leaders have the "right to be wrong" on a wide range of military decisions.[11] The latter group argues that civilians should "dominate" conversations about military affairs, about "the ways and the means"[12] of war in addition to the ends, with proponents claiming that such involvement is not only called for in a democracy but also strategically desirable.[13] Although those who favor a wide range of civilian control phrase this as a democratic "right to be wrong," they more often suggest it is the "right to be right."[14] Here, I focus on procurement of military technologies—one specific element of the "ways and means." Neither camp has given much attention to civilians' role in military procurement. In demonstrating how leaders can diminish their state's military capacities, this article indicates that we should be cautious of giving civilians the "right to be wrong" over such ways and means, even as civilian control over ends should remain absolute. In fact, I suggest that restricting civilian control over such specifics may even enhance civilian control over ends.

Overcoming Obstacles in the Pursuit of Military Effectiveness," *Journal of Strategic Studies* 38, no. 4 (May 2015): 467–99.

[8]Studies of national innovation systems, meanwhile, have long paid attention to the role of individual civilian leaders. See, for instance: Richard R. Nelson, "National Innovation Systems: A Retrospective on a Study," *Industrial and Corporate Change* 1, no. 2 (1992): 347–74; Richard R. Nelson, ed., *National Innovation Systems: A Comparative Analysis* (Oxford: Oxford University Press, 1993).

[9]Eliot A. Cohen, *Supreme Command: Soldiers, Statesmen, and Leadership in Wartime* (New York: Free Press, 2002); Peter D. Feaver, *Armed Servants: Agency, Oversight, and Civil-Military Relations* (Cambridge, MA: Harvard University Press, 2003).

[10]Samuel P. Huntington, *The Soldier and the State: The Theory and Politics of Civil-Military Relations* (Cambridge, MA: Harvard University Press, 1957).

[11]Feaver, *Armed Servants*.

[12]Eliot A. Cohen, "The Unequal Dialogue: The Theory and Reality of Civil-Military Relations and the Use of Force," in *Soldiers and Civilians: The Civil-Military Gap and American National Security*, ed. Peter D. Feaver and Richard H. Kohn (Cambridge, MA: MIT Press, 2001), 458.

[13]Peter D. Feaver, "The Right to Be Right: Civil-Military Relations and the Iraq Surge Decision," *International Security* 35, no. 4 (Spring 2011): 87–125; Feaver, *Armed Servants*.

[14]Feaver, "Right to Be Right."

This article contains four sections. In the first, I detail its contribution to the civil-military relations literature. The second presents a close analysis of how Hughes caused the Canadian military to be burdened with the Ross. This case is my argument's main plausibility probe. In the third section, I consider alternative explanations for Canada's failure to properly arm its troops and find that all insufficiently explain the case and leave Hughes alone as key. Fourth, I outline two "shadow cases" that bolster my argument: Union secretary of war Simon Cameron and rifles in the Civil War, and British war secretary Hugh Arnold-Foster and the development of the SMLE prior to World War I. Finally, in the conclusion, I suggest areas of future research for my findings and discuss the implications of my cases for civil-military relations policy.

Theory

State of the Debate

There are four primary theoretical frameworks with which scholars have explained how states develop and procure military capacities, be they tactical or technological:[15] neorealist,[16] cultural,[17] adoption capacity,[18] and domestic institutional.[19] Despite their differences, all share the common

[15]Kadercan, "Strong Armies, Slow Adaptation." Adam Grissom offers a similar—but slightly different—division in the field of military innovation. See: Grissom, "The Future of Military Innovation Studies," *Journal of Strategic Studies* 29, no. 5 (October 2006): 905–34.

[16]Barry R. Posen, "Nationalism, the Mass Army, and Military Power," *International Security* 18, no. 2 (Fall 1993): 80–124; Kenneth N. Waltz, *Theory of International Politics* (Reading, MA: Addison-Wesley, 1979); João Resende-Santos, *Neorealism, States, and the Modern Mass Army* (Cambridge: Cambridge University Press, 2007).

[17]Paul Kennedy, *The Rise and Fall of Great Powers: Economic Change and Military Conflict from 1500 to 2000* (New York: Random House, 1987), 12; Eric Jones, *The European Miracle: Environments, Economics, and Geopolitics in the History of Europe and Asia*, 1st ed. (Cambridge: Cambridge University Press, 1981), 181; Bernard Lewis, *The Muslim Discovery of Europe* (London: Weidenfeld & Nicolson, 1982), 301; Kadercan, "Strong Armies, Slow Adaptation," 122; Theo Farrell, "World Culture and Military Power," *Security Studies* 14, no. 3 (July–September 2005): 448–88; Theo Farrell, "Global Norms and Military Effectiveness: The Army in Early Twentieth-Century Ireland," in *Creating Military Power: The Sources of Military Effectiveness*, ed. Risa A. Brooks and Elizabeth A. Stanley (Stanford, CA: Stanford University Press, 2007), 136–57; Emily O. Goldman, "The Spread of Western Military Models to Ottoman Turkey and Meiji Japan," in *The Sources of Military Change: Culture, Politics, and Technology*, ed. Theo Farrell and Terry Terriff (Boulder, CO: Lynne Rienner, 2002), 41–68; Elizabeth Kier, *Imagining War: French and British Military Doctrine between the Wars* (Princeton, NJ: Princeton University Press, 1997).

[18]Michael C. Horowitz, *The Diffusion of Military Power* (Princeton, NJ: Princeton University Press, 2010); Andrea Gilli and Mauro Gilli, "The Diffusion of Drone Warfare? Industrial, Organizational, and Infrastructural Constraints," *Security Studies* 25, no. 1 (January–March 2016): 50–84; Andrea Gilli and Mauro Gilli, "The Spread of Military Innovations: Adoption Capacity Theory, Tactical Incentives, and the Case of Suicide Terrorism," *Security Studies* 23, no. 3 (July–September 2014): 513–47.

[19]Kadercan, "Strong Armies, Slow Adaptation," 118. In thinking about diffusion in terms of domestic civil-military relations, these scholars follow a long tradition of theorizing in military innovation studies. See: Barry R. Posen, *The Sources of Military Doctrine: France, Britain, and Germany between the World Wars* (Ithaca, NY: Cornell University Press, 1984); Deborah D. Avant, "The Institutional Sources of Military Doctrine: Hegemons in Peripheral Wars," *International Studies Quarterly* 37, no. 4 (December 1993): 409–30; Kimberly Marten Zisk, *Engaging the Enemy: Organization Theory and Soviet Military Innovation 1955–1991* (Princeton, NJ: Princeton University Press, 1993); Harvey M. Sapolsky, *The Polaris System Development: Bureaucratic and Programmatic Success in Government* (Cambridge, MA: Harvard University Press, 1972); Harvey M. Sapolsky, "On the Theory of Military Innovation," *Breakthroughs* 9, no. 1 (Spring 2000): 35–39.

characteristic of neglecting or downplaying the effects of individual civilians upon military capacities generally and equipment specifically. All four theories attribute military capacities to structural factors—systems, materials, ideas, political situations, or bureaucratic inertia. Even Barry R. Posen, who argues that specific civilian leaders do affect military doctrine and technologies,[20] frames this impact as "part of an overall pattern of balancing behavior,"[21] insists on the "dominance of systemic forces," and wishes to avoid a "great man theory."[22] Although Adam M. Jungdahl and Julia M. Macdonald break out of structural explanations, they claim that military leaders are to blame for failures, ignoring—as I show in the fourth section—the role of civilian leadership.[23] First-image approaches have reemerged in force in international relations (IR) theory at large after many decades of scholars assuming that "individuals are essentially irrelevant."[24] Studies have outlined the traits and dispositions that incline leaders to act in various ways—for better or for worse.[25] When scholars have paid attention to civilian leaders' role in arming militaries, they have suggested that civilians have a positive impact. Posen, for one, claims that in both Britain and Germany civilian intervention in the interwar years forced stagnant military organizations to innovate.[26] (Though, crucially, he attributes individual leaders' actions to systemic forces.) Strongly emphasizing individual characters, Eliot A. Cohen highlights the doctrinal improvements fostered by Winston Churchill, Abraham Lincoln, David Ben-Gurion, and Georges Clemenceau.[27] He maintains that all four were highly active in all aspects of military affairs. Though technology is not Cohen's main concern, he claims in passing that each had profoundly positive effects upon

[20]Posen, *Sources of Military Doctrine*, 227.
[21]Ibid., 234.
[22]Ibid., 175; cf. Posen, "Nationalism, the Mass Army, and Military Power."
[23]Jungdahl and Macdonald, "Innovation Inhibitors in War," 68.
[24]Michael C. Horowitz and Matthew Fuhrmann, "Studying Leaders and Military Conflict: Conceptual Framework and Research Agenda," *Journal of Conflict Resolution* 62, no. 10 (November 2018): 2075.
[25]Some examples include: Daniel L. Byman and Kenneth M. Pollack, "Let Us Now Praise Great Men: Bringing the Statesman Back In," *International Security* 25, no. 4 (Spring 2001): 107–46; Jonas Schneider, "Beyond Assurance and Coercion: US Alliances and the Psychology of Nuclear Reversal," *Security Studies* 29, no. 5 (October–December 2020): 927–63; Sarah E. Croco, "The Decider's Dilemma: Leader Culpability, War Outcomes, and Domestic Punishment," *American Political Science Review* 105, no. 3 (August 2011): 457–77; Jessica L. Weeks, "Strongmen and Straw Men: Authoritarian Regimes and the Initiation of International Conflict," *American Political Science Review* 106, no. 2 (May 2012): 326–47; Alexandre Debs and H. E. Goemans, "Regime Type, the Fate of Leaders, and War," *American Political Science Review* 104, no. 3 (August 2010): 430–45; Michael C. Horowitz and Allan C. Stam, "How Prior Military Experience Influences the Future Militarized Behavior of Leaders," *International Organization* 68, no. 3 (Summer 2014): 527–59; Maryann E. Gallagher and Susan H. Allen, "Presidential Personality: Not Just a Nuisance," *Foreign Policy Analysis* 10, no. 1 (January 2014): 1–21; Elizabeth N. Saunders, *Leaders at War: How Presidents Shape Military Interventions* (Ithaca, NY: Cornell University Press, 2011); Keren Yarhi-Milo, *Who Fights for Reputation: The Psychology of Leaders in International Conflict* (Princeton, NJ: Princeton University Press, 2018); Keren Yarhi-Milo, *Knowing the Adversary: Leaders, Intelligence, and Assessment of Intentions in International Relations* (Princeton, NJ: Princeton University Press, 2014).
[26]Posen, *Sources of Military Doctrine*, 225–26.
[27]Cohen, *Supreme Command*.

technological innovation.[28] The literature thus contends that either civilian leaders are irrelevant next to structural explanations, or if they are important, they generally have positive effects upon military capacities.

My Argument

I suggest that civilian leaders are neither irrelevant nor have reliably positive effects upon states' military capacities. I argue that civilian leaders diminish military capacity in the technological realm when two necessary conditions are met: if the civilian leader in question has a personal bias that points away from military effectiveness, and if the civilian leader has sufficient authority to make unilateral decisions about technology.

Work such as Cohen's expects civilian leaders to work rationally toward military effectiveness. Churchill, Lincoln, Ben-Gurion, and Clemenceau, he claims, demonstrate this in the realms of tactics and technology. All four had the power to make decisions about military technology, and Cohen contends that they exercised it well.[29] Yet I show that civilian leaders do not necessarily help military effectiveness and cannot be relied upon to make wise decisions about technology procurement. In fact, civilian leaders often have personal biases that translate into a diminishment of the military's ability to achieve its objectives. Hughes, as I shall show, was biased toward accuracy in rifles and domestic production. Cameron's bias seems to have also been based in an affinity for domestic production, whereas Arnold-Foster was driven by a bias toward marksmanship alone.

Even when civilian leaders have such biases, the second condition of my hypothesis must be met: the balance of civil-military relations must give the leader the power to make unilateral decisions about specific military equipment. Only then can a civilian leader's bias become policy. Such autonomy, I suggest, tends to correspond to the leader's position within domestic politics. Hughes's and Cameron's respective superiors, Robert Borden and Lincoln, believed each's regional power—Ontario and Pennsylvania, in turn—was important to governing, meaning that neither Hughes nor Cameron had sufficient checks upon their authority over equipment decisions. My argument suggests that the positive picture of civilian leadership scholars such as Cohen paint is inaccurate. I agree with

[28]Ibid., 213.

[29]Cohen understates the failures of his chosen four statesmen, especially Churchill's disaster at Dardanelles and various plans in World War II. Cohen claims that it is "perhaps wiser" to "assess a statesman's . . . qualities by the number and importance of the situations that he evaluates correctly, rather than by those in which he errs." Cohen, *Supreme Command*, 113. This is not right. We must evaluate leaders based on their successes and failures in important moments and judge them on balance. This is the equivalent of suggesting that a boxer's performance does not matter provided he or she lands punches at moments deemed "important," forgetting that the possibility of reaching such moments with a chance to win the fight requires consistently good performance.

Cohen that civilian leaders can improve military capacity—if they are given the power to do so and lack biases that blind them to military effectiveness. But I demonstrate that we cannot assume that civilian leaders will not have such biases.

Implications for Civil-Military Relations

Since Cohen's theory is used by scholars to justify considerable civilian control of the details of military operations,[30] in questioning Cohen's account this article naturally has normative consequences. Civil-military relations has traditionally been separated into two (porous and heterogenous) camps: professional supremacists and civilian supremacists. Professional supremacists argue that leading military officers should possess substantial autonomy, as civilian political leaders are either inexperienced in military matters or have significant nonmilitary pressures to pursue aims that are not in the nation's military interests.[31] Civilian supremacists argue the opposite—that the most important thing is maintaining strong civilian control over military affairs.[32] Peter D. Feaver describes the crux of the position as the idea that "civilians have the right to be wrong," because civilian leaders (in democracies) remain accountable to voters.[33] More often, though, civilian supremacists frame this not as the "right to be wrong" but instead as the "right to be right."[34] That is to say, they argue that civilian leaders generally make positive interventions in military affairs and that civilian control on the whole has a positive impact upon military effectiveness, and thus should be the preferred normative arrangement.[35] They maintain that even on the level of logistics, military affairs are so permeated by politics that civilian leaders must insistently intervene.

In democracies, ultimate control over the military resting in the hands of civilians is a given. No one disputes that elected leaders should decide states' general objectives, both because it is a fundamental of democracy and because it ensures military conduct remains consistent with nonmilitary foreign policy. But there is more at play than ultimate control in explaining how civil-military arrangements should be. Strong civilian

[30]Feaver, *Armed Servants*, 300.
[31]For such theorists, see: Huntington, *Soldier and the State*; Michael C. Desch, *Civilian Control of the Military: The Changing Security Environment* (Baltimore: Johns Hopkins University Press, 2001); Michael C. Desch, "Bush and the Generals," *Foreign Affairs* 86, no. 3 (May–June 2007): 97–108; Andrew R. Milburn, "Breaking Ranks: Dissent and the Military Professional," *Joint Forces Quarterly* 59 (4th Quarter 2010): 101–7; Christopher P. Gibson, *Securing the State: Reforming the National Security Decisionmaking Process at the Civil–Military Nexus* (Burlington, VT: Ashgate, 2008).
[32]Feaver, *Armed Servants*; Feaver, "Right to Be Right"; Cohen, *Supreme Command*; Richard H. Kohn, "The Erosion of Civilian Control of the Military in the United States Today," *Naval War College Review* 55, no. 3 (Summer 2002): 8–59.
[33]Feaver, *Armed Servants*, 65.
[34]Feaver, "Right to Be Right," 117.
[35]Cohen, *Supreme Command*; Posen, *Sources of Military Doctrine*.

supremacists such as Feaver and Cohen endorse civilian involvement even in the particulars of military operations. Feaver insists that civilian supremacists do not want civilian leaders to "run roughshod" over the military, and claim to oppose civilian leaders "dictating" policy.[36] Yet—to use Cohen's phrasing—they insist civilian voices should "dominate" the relations between military and civilian leadership, not only in terms of "ends and policies, but ways and means."[37] Once military leaders have voiced their views, they are "obligated to salute, obey, and implement" policy.[38]

My suggestion is that when it comes to outfitting soldiers with specific technologies, civilian "domination" is too close to civilian dictation. Civilian leaders should not "dominate" procurement discussions because, in their lack of expertise, they are liable to have biases that—if given the power to "dominate"—inhibit states' military capacities. I show the considerable risks involved when civilians are intimately involved in highly specific technological matters—the "means" Cohen refers to. Recognizing the limits of civilian leaders, and encouraging checks on their authority over technologies, does not mean weakening civilian control of the military. In fact, doing so might even strengthen civilian control because it will mean refocusing on areas where civilian leaders have expertise: the goals of military action and foreign policy. Recent surveys have shown that civilian control in the United States may already be imperiled, as both the public and military are seemingly ever more skeptical of it. This rightfully makes scholars worry whether it is only a matter of time before civilian control is reduced in practice.[39] Though much of the public's flagging enthusiasm for civilian control appears to be predominantly a result of partisan trends,[40] encouraging better civilian control and limiting civilian "domination" of areas best left to those with expertise should at least reduce tension between civilian leaders and the military, a subject I return to in the conclusion.[41]

Canada, the Ross Rifle, and Sam Hughes

I begin this section by outlining Canada's failure to adequately arm its soldiers in World War I. I show Sam Hughes's role in the saga, arguing that his extreme bias toward the Ross caused its development and delayed its

[36]Feaver, "Right to Be Right," 96.
[37]Cohen, "Unequal Dialogue," 458.
[38]Feaver, "Right to Be Right," 97.
[39]Ronald R. Krebs, Robert Ralston, and Aaron Rapport, "No Right to Be Wrong: What Americans Think about Civil-Military Relations," *Perspectives on Politics* (2021): 1–19, https://doi.org/10.1017/S1537592721000013.
[40]Krebs et al., "No Right to Be Wrong."
[41]Thomas Sheppard and Bryan Groves, "Post-9/11 Civil-Military Relations: Room for Improvement," *Strategic Studies Quarterly* 9, no. 3 (Fall 2015): 62–87.

replacement because until 1916 he had the power to make unilateral decisions.

The Ross Rifle's Early Days

The Ross rifle emerged after the end of the Second Boer War (1899–1902), when Great Britain (aided by Canada and other colonial forces) fought rebellious Afrikaners in South Africa. In 1900, the Canadian government ordered fifteen thousand weapons from Great Britain, but because British production favored its own forces, the order could not be filled. After a haphazard effort to source the rifles elsewhere, Minister of Militia Frederick Borden decided that Canada should produce rifles domestically.[42] Charles Ross, a wealthy Scotsman who had served in South Africa, arrived in Ottawa in 1901 at an opportune time. Ross had patented a straight-pull action sporting rifle inspired by the Boers' Mannlichers.[43] Ross manufactured it in the United States and brought some early units to Ottawa, eager to convert the design to a military weapon and begin production on a mass scale. Although Ross's rifle was clearly accurate, early trials raised considerable concerns. In a portent of things to come, at one point the Ross had to be "hammered with a heel" to open its breech. In an endurance test against the Lee Enfield in 1901, 1,000 rounds were fired easily from the Enfield, "whereas the Ross worked very stiffly at the conclusion of each 60 rounds and misfed and jammed repeatedly." The heat of the firing even melted the foresight's cheap soldering.[44] The Ross's problems at the test alarmed members of the committee supervising it, which included then-opposition member of Parliament Hughes. But Charles Ross's assurances that the issue was not inherent in the design but dependent on minor problems to be expected in a developing model persuaded the committee that "due 'precaution and provision' would be taken" to solve them.[45] Ross was still awarded a contract with generous terms—including essentially free land near Québec City on which his factory was built. This would be the only official test of the Ross against another rifle, as Canada did not subsequently compare the Ross against the multitude of foreign weapons then available.

[42]A. M. Willms, "Decision Making: The Case of the Ross Rifle," *Canadian Public Administration* 2, no. 4 (December 1959): 204.

[43]"Action" refers to the motion required to empty the chamber of a spent cartridge and replace it with a new one. On the Ross, a pull back and a push forward is required, hence the term "straight-pull." This differs from a Lee Enfield, for instance, with which a movement down and to the side is required. The Ross's straight-pull was potentially faster, but it provided less leverage and thus less force to remove a jammed cartridge.

[44]A. F. Duguid, *Official History of the Canadian Forces in The Great War 1914–1919*, vol. 1, pt. 2 (Ottawa: J. O. Patenaude, 1938), 76.

[45]Duguid, *Official History*, 1, pt. 2:77.

With delays, the first Ross Mark Is were delivered in 1905 to the North-West Mounted Police. Two years later, after the police complained the weapons were faulty, even Ross proponent Frederick Borden recommended that the government take over rifle production to resolve ongoing quality concerns.[46]

The Ross Rifle at War

As troubling as the Ross's early history was, its failings became agonizingly clear during the war. By early 1915, when the First Division of the Canadian Expeditionary Force had arrived in England and was training on Salisbury Plain, the Ross was already seen as a liability. General Edwin Alderson, the Canadians' British commanding officer, took note of the Ross's poor performance during training. In addition to jamming often, the rifle's sights were easily damaged, its bayonet liable to fall off, and the magazine and striker springs insufficiently robust.[47] Before the division departed for the Continent, Alderson requested that the Rosses be replaced by SMLEs. His request was denied. Each Canadian soldier arrived in France with a Ross in hand.

The rifles failed catastrophically in their first combat test in April 1915 and continued to do so throughout the spring. The Ross's predilection for jamming was the gun's most aggravating attribute.[48] Robert Clements, a Canadian infantryman, recounted that "men could be seen cursing and frequently crying with rage as they tried in vain to kick or smash the bolts loose."[49] Alderson reported that his men had hands cut and bleeding from trying to bash their bolts free of stuck cartridges.[50] In part, the ammunition with which Canadians were provided caused this jamming. Though the Ross generally performed better with Canadian ammunition made specifically for it, the use of other British ammunition of the same .303 caliber caused the bolt to seize and stick after as few as three or four shots, according to Clements. Dirt was another problem. Alderson experienced this issue in soggy Salisbury, where the Ross quickly refused to function at the slightest introduction of mud. In the trenches, predictably, mud was in plentiful supply. Not only did the Ross's tight chamber make jamming more likely, its straight-pull action made it more difficult to dislodge the offending round.

[46]Willms, "Decision Making," 207.
[47]Duguid, *Official History*, 1, pt. 2:85.
[48]Ronald G. Haycock, *Sam Hughes: The Public Career of a Controversial Canadian, 1885–1916* (Kitchener, ON: Wilfrid Laurier University Press, 1986), 246.
[49]Robert N. Clements, *Merry Hell: The Story of the 25th Battalion (Nova Scotia Regiment)*, ed. Brian Douglas Tennyson (Toronto: University of Toronto Press, 2013), 111.
[50]Duguid, *Official History*, 1, pt. 2:95.

Those whose rifles jammed because of dirt naturally tried to disassemble them and clean the insides. But even this well-intentioned effort could backfire. The Ross was notoriously easy to reassemble incorrectly, and just the slightest error in doing so had serious consequences, as the next round a soldier attempted to shoot could eject the bolt backward into the firer's face.[51] Indeed, in one regiment, a battle's only casualty came when a man was killed by the blowing back of a bolt.[52] And even if through luck and diligence the most patient and careful of soldiers avoided these troubles, the Ross's shape provided its own problems. Considerably longer than the SMLE, it was less than ideal for the trenches. One infantryman recounted that when slung over a shoulder the Ross "either caught on the parapet of the trench or protruded slightly above, thereby drawing enemy fire."[53] As Clements writes, "No one really knows how many men were shot down where they stood through failure of their Ross rifles."[54] Sending men into battle with it was "nothing short of murder" indeed.[55]

Canadian soldiers immediately did their best to adapt, given the poor weapons they were issued. Whereas some took SMLEs from dead British soldiers, others did not wait for their comrades to die. Clements describes the careful planning that went into a midnight heist of one hundred Lee Enfields from very much alive British soldiers, who had one man on watch. First, the Canadians lured the guard away with "a friendly cup of tea in one of the most comfortable dugouts as far away from the rifles as possible," commandeering biscuits and tinned peaches to make the enticement more effective. With the watchman safely distracted, "one hundred Lee Enfield rifles were transformed as if by magic into an equal number of Ross rifles, all carefully stacked by threes in proper military array." When the Yorkshiremen returned, "the howl that went up when [they] discovered they had been rearmed with Canadian Ross rifles cannot be properly recorded. Their officers and noncommissioned officers stormed in to the [Canadian] post accusing them of almost every crime known to man."[56]

The Canadians developed a system of hiding stolen Enfields and producing borrowed Rosses when it was time for inspection, even under threat of punishment. As Clements observes, "No matter how many times Lee Enfields were discovered and taken away from Canadian soldiers, they continued to pick them up at every opportunity."[57] Another officer reported

[51]For a demonstration of how the Ross can be improperly reassembled, see the Forgotten Weapons, "Myth and Reality of the Ross MkIII Rifle," June 16, 2013, YouTube video, https://www.youtube.com/watch?v=EaSui_UqDX8.
[52]Duguid, *Official History*, 1, pt. 2:87.
[53]Quoted in Wilson, *Soldiers of Song*, 96.
[54]Clements, *Merry Hell*, 111.
[55]Adams, "Ross Rifle."
[56]Clements, *Merry Hell*, 116–17.
[57]Ibid., 119.

having found eighteen Lee Enfields in Canadians' possessions during an inspection. "These were immediately replaced by Ross Rifles much to their disgust," he wrote.[58]

Canada's military capacity was dramatically reduced while its soldiers carried the Ross. One Canadian infantryman recalled that his division was tasked with providing covering fire during the battle of Neuve Chapelle in March 1915, alongside a Scottish regiment outfitted with SMLEs: "On our left, the Scottish Rifles were keeping up that deadly stream of fire, without any brakes [*sic*] in it … a steady rolling fire, like so many machine guns. And here we were with a few 'put-puts' a minute."[59] Canadian soldiers suffered high casualties with the Ross, especially at the second battle of Ypres, where 5,975 out of maximum force strength of 18,000 were killed or injured.[60] At Ypres, 1,452 out of 5,000 surviving Canadians (29%) had tossed aside the Ross and picked up SMLEs.[61] Finally, there is the immeasurable deleterious effect the Ross had on Canadian morale, perhaps best exemplified by the songs Canadians sang about the Ross and the amount of time and effort they spent trying to steal SMLEs. Only with the SMLE's adoption was it possible for Canadians to have later success, such as at Vimy Ridge, for without reliable weapons in which the men had faith such breakthroughs would have been impossible.[62]

Infantrymen were not alone in their conviction that the Ross was killing them—high-ranking British and Canadian officers both observed much the same. British general Douglas Haig opposed the Ross, writing numerous letters about its notoriety for jamming, explaining that by and large the men had "lost confidence in their rifle."[63] Most notable among the Canadians was Arthur Currie, initially a brigade commander and later a general. After the debacle at Neuve Chapelle in March 1915, Currie urged General Alderson—who himself was an opponent of the Ross since Salisbury—to "conduct 'the most rigid investigation' of the performance of the Ross rifle, since 'serious interference with rapid firing may prove fatal on occasions.'"[64] At a battle shortly afterwards, one of Currie's biographers notes that he had "ample opportunity to observe the number of Canadians

[58]David Campbell, *It Can't Last Forever: The 19th Battalion and the Canadian Corps in the First World War* (Kitchener, ON: Wilfrid Laurier University Press, 2017), 151.
[59]Quoted in Bill Rawling, *Surviving Trench Warfare: Technology and the Canadian Corps, 1914–1918*, 2nd ed. (Toronto: University of Toronto Press, 2014), 29. An account of similar proceedings at the Battle of Aubers Ridge appears in George H. Cassar, *Trial by Gas: The British Army at the Second Battle of Ypres* (Lincoln: Potomac Books of University of Nebraska Press, 2014), 17.
[60]Rawling, *Surviving Trench Warfare*, 35.
[61]Duguid, *Official History*, 1, pt. 2:87.
[62]Rawling, *Surviving Trench Warfare*, 7.
[63]Haig to General Headquarters, 21 June 1916, cited in Duguid, *Official History*, 1, pt. 2:98; Allan Levine, *Scrum Wars: The Prime Ministers and the Media* (Toronto: Dundurn Press, 1996), 93.
[64]A. M. J. Hyatt, *General Sir Arthur Currie: A Military Biography* (Toronto: University of Toronto Press, 1987), 34; Duguid, *Official History*, 1, pt. 2:86.

who had thrown away their jammed Ross Rifles and picked up Lee-Enfields."[65] Currie later attributed more unnecessary casualties to the Ross than any other factor,[66] saying simply that "the rifle is not as satisfactory as it should be."[67] In addition to Currie, Canadian lieutenant colonels L. J. Lipsett and F. O. W. Loomis sounded the alarm about the Ross in April 1915.

General Alderson, who had lobbied against the Ross when the Canadians were still at Salisbury, received the reports and recommended that deep study of the Ross be undertaken. Though Alderson noted the difficulties that would be involved in switching the Ross for the SMLE, he insisted that any trouble "cannot be allowed to stand in the way when the question may be of life or death, and of victory or defeat."[68] The committee that was formed recommended that "if possible the Canadian troops should be armed with the British rifle."[69] And indeed, shortly thereafter the First Canadian Division was outfitted with SMLEs. But the Second, Third, and Fourth Divisions would not be outfitted with the Ross for an entire year further, until late summer 1916.

In a memo from June 7, 1915, the British General Headquarters (GHQ) hinted at why overruling Canadian rifle policy was a challenge. While noting the Ross's shortcomings, the memo observed that "the Canadian Government will be greatly disturbed if the Dominion rifle is taken from the Canadian troops."[70] The memo was half right. There would be great disturbance, but that disturbance would be largely felt not by the "Canadian Government" but by one man who had championed the Ross for a decade: Sam Hughes.

The Ross and Sam Hughes's Bias

In 1908, Parliament appointed a committee to investigate the rifle's production, chaired by opposition militia critic Sam Hughes. Hughes had previously been only tangentially involved with the Ross and cannot be blamed for its original design and development, but he entered this position of power over it in 1908 at a critical moment. The Ross Mark I was under siege from all sides. If not killed altogether, it was probable that the gun's failures would result in a radical change in its future development—away from precision and toward rough-and-ready functionality. Certainly,

[65]Hyatt, *General Sir Arthur Currie*, 42.
[66]Rawling, *Surviving Trench Warfare*, 65; Tim Cook, "Canada and the Great War," *RUSI Journal* 159, no. 4 (2014): 58.
[67]Duguid, *Official History*, 1, pt. 2:87.
[68]Ibid., 1, pt. 2:86.
[69]Ibid., 1, pt. 2:87.
[70]Ibid.

Hughes's Progressive Conservatives intended to make the Ross affair a damaging scandal for the governing Liberals, based on the (accurate) accusation that the program had failed in its objectives. But Hughes had other ideas. Instead of questioning the Ross, or commissioning tests against other rifles, he championed it. Hughes's undying devotion to the Ross—produced by his love of marksmanship, equipment nationalism, and utter inability to admit error—was a profound bias that made Hughes ensure both that the Ross developed as it did after 1908 and that the SMLE did not replace it during the war.

Hughes had fought in South Africa, and he had been prone to acting without or even against orders and took to sending frequent letters back to Canada in which he excoriated the British command, letters published in Canadian newspapers and passed along to the British brass by Hughes's political opponents. For his recklessness and insubordination, Hughes was fired and sent home. He became convinced that he had been unjustly treated by the imperial command and certain he deserved two Victoria Cross medals for his service, an early sign of his capacity for conspiracy that would only intensify later.[71]

Hughes's experience in South Africa branded him with two key impressions that would become relevant to his commitment to the Ross. The first involved the sort of weapon war required. Accuracy from long range was important against the sharpshooting Boers. Having grown up on a farm, Hughes had always valued marksmanship and by 1907 was president of the Dominion Rifle Association in Canada; war against the Boers solidified his personal commitment to the skill.[72] The second, by contrast, concerned the relation of Canada to the rest of the empire. Frustrated by the British military, Hughes insisted that the Canadian citizen-soldier (or militiaman) was superior to the British professional. Hughes's nationalistic sentiments culminated in his proposed legislation reimagining the Commonwealth's structure—demonstrating the depths of Hughes's commitment to Canadian nationalism at a time when these depths were radical.[73]

As chair of the Standing Small Arms Committee, Hughes found a particular case in which his general commitments could manifest. If the Ross was renowned for its accuracy, then to Hughes it must have been the best weapon for war. If the Ross was to be domestically produced against the resistance of the British high command that preferred uniformity across fighting forces—well, this nationalistic element made it even more appealing. Rather than embarrassing the Liberals, Hughes leapt to the rifle's

[71]Tennyson, *Canada's Great War*, 13.
[72]Haycock, *Sam Hughes*, 110.
[73]Ibid., 117. By nationalism, I mean a commitment to the nation (and/or nation-state) that treats the success of the nation as a valuable end in itself and not merely a political group that is a means to a greater end.

defense. When the Ross's defeat seemed most likely, Hughes fought relentlessly to save it. Against his own party in the Commons, he badgered witnesses called to critically assess the Ross and ranted repeatedly of its superiority to the Enfield, praising the straight-pull's speed and its overall marksmanship capabilities.[74] He called it "the most perfect military rifle in every sense in the world today," while simultaneously condemning "the Lee Enfield from start to finish."[75]

Canadians began winning British shooting competitions with the Mark III, the latest Ross, providing a further boost to Hughes's boasts. And when British judges periodically disqualified Canadian Ross shooters who had won British competitions, Hughes "accused the War Office and British small-arms manufacturers of a conspiracy against the Canadian rifle."[76] The pressure Hughes placed on the Ross's designers to make it ever more accurate was successful: "Machine tolerances were tightened; fit was made better; and the weapons won" more competitions.[77] Hughes successfully achieved innovations of one sort, but of the very sort that would later doom the Ross. It now required perfectly sized ammunition to operate, was so tightly made that mere specks of dirt could wreak havoc, and had fragile, difficult-to-use sights—all things that were optimal on the firing range, but disastrous on the battlefield.

Hughes became minister of militia when his Progressive Conservatives formed a government in 1911. Although contract patronage was a well-established practice in Canada, unique to Hughes was his involvement in, and rationale for, outfitting decisions.[78] Hughes was an equipment nationalist: he wanted Canadian soldiers wearing Canadian gear.[79] The Canadian Oliver harness had been formally replaced in 1911, but at the war's beginning Hughes spent an unauthorized $700,000 on it. When loaded with gear and a full water bottle, it gave them that anti-asphyxiatory heave, a feeling that "no man temporarily decorated and loaded with that Oliver equipment will ever completely forget."[80] When the troops' cardboard shoes disintegrated during training, British authorities had no choice but to issue the Canadians new ones. Hughes was upset that Canadian soldiers would not be marching in Canadian boots,[81] apparently unaware that his own troops had taken to calling the boots "Sham Shoes" in his honor.[82] In 1914,

[74]79 Parl. Deb. H. C., 10th Parl., 3rd Sess., February 26, 1907, 3732–90; Haycock, *Sam Hughes*, 120.
[75]Duguid, *Official History*, 1, pt. 2:82.
[76]Haycock, *Sam Hughes*, 123.
[77]Ibid.
[78]Ibid., 139.
[79]Hughes's encouragement of ill-advised innovation was not limited to rifles and kits. For the tale of the MacAdam Shield Shovel, one even more troubled than the Ross, see: Haycock, *Sam Hughes*, 234; Clements, *Merry Hell*, 40–42.
[80]Clements, *Merry Hell*, 11.
[81]Haycock, *Sam Hughes*, 230.
[82]Cook, *At the Sharp End*, 77.

British secretary of war Lord Kitchener requested that Hughes acquire steel for artillery shells from the United States. Instead, Hughes tried to have US Steel employees help organize domestic Canadian production. After the Americans told Hughes that Canada would not be able to produce the steel needed for shells, he erupted in anger, "bringing his fist down on the table,"[83] and declaring: "By God, the work shall be done in our own country; we are not so dependent as you think."[84]

The problems with the Ross that concerned Alderson in early 1915 were hardly surprising, given similar ones had been raised years earlier. But again in 1915, as in 1908, Hughes refused to acknowledge them. His insistence that Canadians be armed with the Ross ensured Alderson's early worries from Salisbury were ignored and led to the First Canadian Division's deployment with the Ross.[85] Though the First Division's Rosses were quickly replaced with SMLEs, Hughes's conduct kept the Second, Third, and Fourth Divisions with the Ross for more than another year.

After the rifle's disastrous performance in April 1915, Hughes blamed all the jamming on British ammunition—even though he had been warned about this very issue years earlier. Hughes was technically correct that ammunition was causing some issues, but he was utterly unable to perceive that the Ross's straight-pull action and too-tight engineering were to blame, seeing as it was inevitable that Canadian troops would often not have access to Ross-specific cartridges. Optimizing the Ross for sharpshooting was akin to Hughes insisting on giving troops Ferraris instead of tanks. Then, when the cars were stuck in mud and the engines seized from being fed diesel, he blamed the management at the front for failing to build smoothly paved roads and pumps that dispensed racing fuel.

Even though there were several others who maintained that the Ross was a quality weapon, historian Bill Rawling explains that it is unlikely that such accounts were based on personal observations. "Hughes was a strong supporter of the Canadian rifle, and given that many high-ranking officers in the corps owed their positions to the minister of militia, the debate had serious political overtones," writes Rawling.[86] In a 1928 obituary for General Alderson, Major General W. A. Griebach wrote that "a commander in France was faced with the prospect of having his military career blasted if he did not swallow the Ross Rifle lock, stock, and barrel,"[87] calling Hughes's commitment to the Ross a form of "military terrorism."[88]

[83]David Carnegie, *The History of Munitions Supply in Canada, 1914–1918* (London: Spottiswoode, Ballantyne, 1925), 3.
[84]Haycock, *Sam Hughes*, 235.
[85]Ibid., 245.
[86]Rawling, *Surviving Trench Warfare*, 64.
[87]Quoted in: G. W. L. Nicholson, *Canadian Expeditionary Force, 1914–1919: Official History of the Canadian Army in the First World War* (Montreal: McGill-Queen's University Press, 2015 [1963]), 158.
[88]Cook, *At the Sharp End*, 313.

In summer 1915, 6 months after the Ross's first battlefield disaster, Hughes grudgingly agreed that the rifles should have their receivers altered by several thousandths of an inch to permit the extraction of British bullets. But this reluctant—and belated—adjustment had little effect. Modifying the guns introduced new troubles too, since the wrong sort of carbon steel was used and led to weakness in the metal.[89] At this point, chief staff officer of the Canadian Army, Willoughby Gwatkin, insisted the prime minister do away with the Ross. "The blood of half our slain is more precious than an idea," he said.[90]

Hughes still did not concur. In January 1916, he falsely told Parliament that all the Ross's problems had been solved. In March, Hughes sent a snide letter to General Alderson, who had continued to lobby against the rifle, defending it again with his usual pomp. Hughes claimed Alderson was ignorant of firearm matters, and "did not know the butt from the muzzle."[91] Incredibly, he also alleged in the House that "the Canadian solider has to sleep on it or the British soldier would steal it from him," when in reality it was the Canadians who were going to such lengths to steal SMLEs.[92] The efforts of British officers, such as John French, Haig, Gwatkin, and Alderson, to rearm Canadians with SMLEs were in Hughes's mind evidence of yet another anti-Canadian conspiracy. "Do you mean to tell me that Canada … is to be interfered with in the matter of rifles and equipment of every description? The thing is unbearable," he raged.[93] Hughes went so far as to accuse Alderson of bribing Canadian soldiers to provide testimony against the Ross and successfully lobbied Prime Minister Robert Borden to pressure the British to remove Alderson from his command. In May, the *Ottawa Citizen* published a long investigation on the Ross's failures. The pressure became too much. In June, Borden deferred to military judgment and overruled Hughes. Canadians were no longer shipped overseas with the Ross, and by the end of the summer all Canadians in the field had been relieved of their rifles.[94]

Dry eyes were not hard to come by when Hughes was fired in November. Canadian soldiers, who had long been singing about Hughes's incompetency, were thrilled. One wrote that "there is a new contentment among us all. We walk with a sprightlier step … the mad mullah of Canada has been deposed… . Joy, oh Joy! I do not like to kick a man

[89]Duguid, *Official History*, 1, pt. 2:91.
[90]Haycock, *Sam Hughes*, 248.
[91]Kim Richard Nossal, *Charlie Foxtrot: Fixing Defence Procurement in Canada* (Toronto: Dundurn, 2016), 37.
[92]123 Parl. Deb. H. C., 12th Parl., 6th Sess., 2 March 1916, 1349.
[93]Quoted in Haycock, *Sam Hughes*, 250.
[94]Haycock, *Sam Hughes*, 252.

when he is down but I am willing to break nine toes in kicking Sam in the stomach or in the face or anywhere else."[95]

Hughes's "Distinct and Separate Government"

Hughes's bias toward the Ross—a product of his nationalism, devotion to accuracy, and general stubbornness—resulted in its development and retention in the face of overwhelming evidence that the SMLE was superior. But his preference alone does not explain Canada's failure to procure effective rifles for its soldiers. Hughes needed to have sufficient autonomy to make unilateral decisions about the rifles. Until 1916, he had that autonomy. The governing Progressive Conservative alliance was tenuous, and Hughes's power in the party's all-important Ontario wing meant that Prime Minister Borden gave Hughes the considerable latitude he desired in his department when the party formed a government in 1911. Prior to the war, Hughes was openly dismissive of the expertise of military officials. In the House of Commons in March 1913, he claimed that previous government ministers had "failed" in South Africa because they "permitted the officer commanding to run the show in place of exercising their own authority." Hughes made clear that he would not allow military officers to exert such influence. "I am the boss while I am here," he declared.[96]

When war arrived in 1914, then, Hughes was in a prime position to make unilateral decisions about the army. He scrapped a plan for a collaborative militia council and, in the words of his biographer, instead "ran what was tantamount to a one-man show."[97] Hughes managed the militia department on his own whims until 1916. In 1915, when he was temporarily in the hospital, Borden was forced to visit him because his subordinates had little information about their own department. From recruiting, to training, to overseas postings, Hughes had nearly complete control of the Canadian military before it arrived on the battlefield.

When Hughes's conduct—of which that relating to the Ross was but one instance—led to his firing, Borden attributed the decision to Hughes's manner of making decisions. "You seem actuated by a desire," Borden told Hughes, "to administer your department as if it were a distinct and separate government … which has frequently led to a well-founded protest from your colleagues as well as a detriment to the public interest."[98] While

[95]Quoted in Brereton Greenhous, Stephen J. Harris, and Jean Martin, *Canada and the Battle of Vimy Ridge, 9–12 April 1917* (Ottawa: National Defence Headquarters, Directorate of History and Heritage, 1995), 52.
[96]109 Parl. Deb. H. C., 12th Parl., 2nd Sess., March 7, 1913, 4941–42.
[97]Haycock, *Sam Hughes*, 179; George F. G. Stanley, *Canada's Soldiers, 1604–1954: The Military History of an Unmilitary People* (Toronto: Macmillan, 1954), 307–9.
[98]*Correspondence of General Sir Sam Hughes, Ex-Minister of Militia, and The Right Hon. Sir Robert Borden, G. C. M. G., At the Time Sir Sam Resigned* (Ottawa: Central Liberal Information Office, 1916), 14, https://wartimecanada.ca/sites/default/files/documents/Hughes%20%26%20Borden.pdf.

Hughes's commitment to the Ross was founded in his devotion to accuracy and domestic production, without a "distinct and separate government" in his ministry this commitment would not have translated into policy.

Alternative Explanations

I have argued that Hughes's commitment to the Ross led to Canada's failure to adequately arm its military. But what about other explanations as to why Canada developed the Ross as it did, and why it failed to procure the SMLE as a replacement? Here, I consider four alternative answers to these questions. All four, I show, are flawed.

Misjudgment about War

Perhaps the Ross's development was simply a misjudgment about war, a mistaken extrapolation of lessons from the Boer War. In this explanation, Canada's failures were not caused by Hughes but simply a structural outcome of that past conflict in which sharpshooting was so important. The British held a vast advantage over the Boers in terms of firepower and resources, but the Boers' long-range accuracy caused substantial problems.[99] Indeed, Hughes was not the only veteran of South Africa left with a belief that future innovation should place a premium on marksmanship. Charles Ross himself was inspired by the Boers when he built the first sporting version of his weapon. Yet while Britain and Australia fought in South Africa, only Canada responded to the conflict by producing a rifle like the Ross. Australia, especially, was in a similar position to Canada, as a former British colony with some measure of independence. But when the Australians began producing rifles domestically in 1912, the government opted for Lee Enfield patterns rather than develop a weapon like the Ross. If it was the Boer War experience that caused the ill-advised innovation of the Ross, we would expect that the same issue would appear in other countries that fought in South Africa.

Similarly, the Ross could have simply been a general miscalculation about the demands of future wars and the sort of technology that would be required in them. Canadians would not have been the only ones: before World War I, there was general uncertainty as to how rapid developments in armaments would affect the conduct of the next great conflict.[100]

[99]On the Boers' shooting prowess, see: Kenneth L. Smith-Christmas, "The Guns of the Boer Commandos," *American Rifleman*, 1 June 2016; Johan Ellis, "Musketry: The Anglo-Boer War Experience," *Historia* 45, no. 2 (November 2000): 483–501; Spencer Jones, "'The Shooting of the Boers Was Extraordinary': British Views of Boer Marksmanship in the Second Anglo-Boer War, 1899–1902," in *A Cultural History of Firearms in the Age of Empire*, ed. Karen Jones, Giacomo Macola, and David Welch (Burlington, VT: Ashgate, 2013), 251–66.

[100]Michael Howard, "Men against Fire: Expectations of War in 1914," *International Security* 9, no. 1 (Summer 1984): 41–57.

There are, however, at least two key reasons why this "poor decision" argument is unsatisfactory. First, it does not explain why Canada alone developed—and Hughes backed—such a hopeless rifle before the war; all militaries were in a similar state of uncertainty, and only Canada chose a rifle like the Ross. Canada did not even test the Ross extensively against alternatives, except for the initial comparisons with the Lee Enfield in 1901. Other states' militaries extensively tested other rifles and borrowed from their successes. In the United States, for instance, developers so frequently tested and borrowed from Mausers that they were charged with patent infringement.[101] After taking complete control of the rifle in 1908, Hughes prevented any significant competition or challenge to it.

Second, it does not explain why, when the Ross's failures became apparent at Salisbury and Ypres, it took so long for Canada to replace the Ross with the SMLE. If the Ross had been developed before the war and then abandoned as soon as its shortcomings became apparent, then perhaps we could attribute it to miscalculation. But by the time Canadian troops were training at Salisbury, it was overwhelmingly clear that the Ross's strengths on the shooting range would be liabilities in the trenches, and that its liabilities on the range would be downright catastrophes. On all sides there were miscalculations about what war would entail, perhaps most notably the prewar conviction that cavalry charges would continue to be a valuable tool. Miscalculations such as cavalry charges were quickly abandoned;[102] the Ross was not.

Cultural Norms

Even if we accept that Hughes's actions were significant, perhaps his conduct can be attributed to cultural norms rather than anything particular to him.[103] This is especially true of his equipment nationalism. Hughes was not the only one to connect domestic rifle production to patriotism, and a cultural explanation could treat equipment nationalism as a norm. Before Hughes became minister, his predecessor, Frederick Borden, extolled patriotic production on the House floor, and this pean was consistent with the government's broad approach, which was "a good deal more aggressive toward Great Britain" than previous Canadian governments'.[104]

But if Hughes's nationalism was somewhat common in its existence, it was highly uncommon in its severity and the degree to which it affected

[101]Leroy Thompson, *The M1903 Springfield Rifle* (Oxford: Osprey, 2013), 17.
[102]See: "Cavalry on the Western Front," National Army Museum, https://www.nam.ac.uk/explore/cavalry-western-front.
[103]Theo Farrell, "Transnational Norms and Military Development: Constructing Ireland's Professional Army," *European Journal of International Relations* 7, no. 1 (March 2001): 63–102; Goldman, "Spread of Western Military Models to Ottoman Turkey and Meiji Japan."
[104]Willms, "Decision Making," 203.

his decisions. Treating equipment nationalism as a norm does not explain why it was only Hughes who charged British shooting judges with a conspiracy against the Ross, and only Hughes who demanded that Frederick Borden have Canadians boycott future competitions. (Borden refused.[105]) It was only Hughes who was furious with American steel representatives for doubting Canadian industry. It was only Hughes who maligned British commanders when they questioned the Ross, charging them with interfering in domestic Canadian affairs.[106] It was only Hughes who was still defending the Ross in June 1916.[107] It was only Hughes whose commitment to the Ross made it the rifle it became, and it was only Hughes who prevented Canada's policy to change to the SMLE for 18 months. Hughes no doubt lived in a milieu in which nationalism was common, but with the Ross his conduct was so far beyond others' that cultural norms cannot explain his refusal to budge. Additionally, nationalism does not explain why he pushed the Ross to be such an accurate weapon at the expense of other considerations.

Organizational Pressures

An explanation based on organizational pressures suggests that Canada failed to acquire SMLEs to replace the Ross because of intransigency in the military bureaucracy.[108] A Canadian military commitment to marksmanship, prevalent internationally until the universal adoption of assault rifles in the 1960s, might explain why Canada developed such a marksman's rifle in the Ross and why it was unwilling to abandon that rifle for the SMLE.

The circumstances of the Ross, however, do not support this organizational explanation for Canada's failure. Where organizational momentum explains diminished military capacities, there must be an established culture structuring certain practices. In the United States, for instance, a long tradition of marksmanship greatly impeded the transition from the World War II–era M1 to a full-fledged assault rifle in the 1960s.[109] But at the beginning of the twentieth century, Canada's army was brand new. There was no entrenched culture or practice in the organization because there was little

[105]Haycock, *Sam Hughes*, 123.

[106]Indeed, Griebach's 1928 obituary of Alderson was titled: "Lieutenant General Sir Edwin Alderson, a Brave Commander Who Was Sacrificed to the Ross Rifle." See Nicholson, *Canadian Expeditionary Force, 1914–1919*, 568.

[107]Robert Borden, 5 June 1916, "The Diaries of Sir Robert Borden, 1912–1918," ed. and trans. Kathryn Rose (Ottawa: Library and Archives Canada, n.d. [unpublished]), https://research.library.mun.ca/2428/.

[108]Kadercan, "Strong Armies, Slow Adaptation"; Gilli and Gilli, "Diffusion of Drone Warfare?"; Gilli and Gilli, "Spread of Military Innovations."

[109]Thomas J. McNaugher attributes the M1's staying power to the established organizational resistance to change, just as Burak Kadercan argues that diffusion failed in the Ottoman Empire because the military had entrenched ideas that it would not violate. See: McNaugher, *The M16 Controversies: Military Organization and Weapons Acquisition* (New York: Praeger Publishers, 1984); Kadercan, "Strong Armies, Slow Adaptation."

organization at all. Only in 1904 did command of Canada's "militia" become "open to Canadians."[110] When Hughes became minister in 1911, the permanent force numbered just 3,110 officers "and men of other ranks."[111] Hughes was not a status quo conservative maintaining tradition, nor were there great numbers of others resistant to change. His commitment to the Ross's development—and later its retention in the face of its failures—was not about maintaining a tradition, it was about having "the most perfect military rifle" in the world. If anything, Hughes's conflicts with the British over the Ross were a departure from tradition. During the war, ranking Canadian officers were not stagnant or committed to some established tradition. Many officers advocated for the switch to the SMLE, and thousands of infantrymen made the change themselves, risking punishment to do so. Despite the eagerness of military officers (in addition to that of the enlisted) to adopt the SMLE and jettison the Ross, only the overruling of Hughes made this possible.

Supply of Alternatives

Finally, we might wonder whether the failure of Canada to adopt the SMLE over the Ross can be explained by various material pressures.[112] To be sure, British stocks were never so sufficient such that all Canadians could have at any point been outfitted with SMLEs. This includes the time when Canada started to produce the Ross, in 1904–5, when the British simply would not provide them with the needed rifles. This supply problem indicates why Canada started to produce rifles domestically but does not explain why Canada ended up producing a rifle like the Ross—since Australia was faced with the same rifle shortage in the early aughts and simply domestically produced Lee Enfields. Even if Canada did not produce an Enfield, it could have produced something without the Ross's defects, especially once these defects became apparent in 1907–8.[113]

In terms of procurement during wartime, at various points British officials indeed indicated that their own supply of SMLEs was limited.[114] What if Canada's failure to replace the Ross was due to supply of SMLEs, not because of Hughes? To be sure, limited supply of those rifles was never irrelevant. British production of SMLEs was small at the war's beginning, and only gradually increased to sufficient levels closer to the war's end. Indeed, in summer 1915 British GHQ mentioned SMLE supply issues

[110]Desmond Morton, *A Military History of Canada*, 3rd ed. (Toronto: McClelland & Stewart, 1992), 119.
[111]Morton, *Military History of Canada*, 127.
[112]Kadercan, "Strong Armies, Slow Adaptation"; Gilli and Gilli, "Diffusion of Drone Warfare?"; Gilli and Gilli, "Spread of Military Innovations."
[113]The Ross was not cheap to produce—it cost seven dollars more per gun than the SMLE. See Willms, "Decision Making," 205.
[114]Duguid, *Official History*, 1, pt. 2:92.

when considering the possibility of replacing the Canadians' Rosses.[115] Increased production of SMLEs by mid-1916 was no doubt significant to the Ross's replacement.

Yet even as British supply of SMLEs for Canadians was difficult, the real problem was that until Hughes's authority over the Ross was taken away, Canadian demand for SMLEs was nonexistent. In mid-1915 British GHQ itself lamented that "the Canadian Government will be greatly disturbed if the Dominion rifle is taken from the Canadian troops," which effectively meant Hughes would not tolerate it.[116] British authorities were willing to replace the First Canadian Division's Rosses with SMLEs in early 1915 at the urging of General Alderson, before the Ross ever saw battle. Yet they did not do so, as Ronald G. Haycock writes, "deferring to the obvious preference of Hughes."[117]

We can see the interactions of supply and demand in July 1916, when the Ross began to be replaced. Though SMLE production had increased, supply was still a problem—as evidenced by how long it took for all Canadians to receive them. The Second and Third Divisions received SMLEs in August, whereas the Fourth Division did not receive them until September. The Fifth Division received its SMLEs in November.[118] Supply remained a problem, albeit less of one. What had changed was demand, which had gone from zero to complete.

The real problem until summer 1916, then, was one of Canadian demand. Until that point, Canada made no effort to outfit troops with SMLEs. If the issue was simply one of supply, then Canadian policy would have been to get as many SMLEs as possible and use the Rosses in the meantime, which is precisely what was done from July to November 1916. There is no indication that Canada was waiting—through 1914, 1915, and half of 1916—to replace the Ross until enough SMLEs were available. In the middle of war, it would have been downright foolish to expect that the British would have all at once have tens of thousands of surplus rifles to give to the Canadians. Had Canada been planning to replace the Ross, the logical thing to do would have been to make the official change and then take SMLEs gradually as they were available, as was eventually done in summer through fall 1916. SMLEs were already being supplied to other Commonwealth troops, including Australia's.[119] Limited supply of SMLEs may explain in part why Britain did not completely overrule Hughes and

[115]Ibid., 1, pt. 2:87.
[116]Ibid.
[117]Haycock, *Sam Hughes*, 245.
[118]Duguid, *Official History*, 1, pt. 2:98.
[119]Mike Etzel, "Australian Issued Rifles and Bayonets of the First World War," Australian War Memorial, September 23, 2015, https://www.awm.gov.au/articles/blog/australian-issued-rifles-and-bayonets-first-world-war.

replace Canadians' Rosses, but it does not explain why Canada made no effort at all toward such a sorely needed switch.

Further, supply concerns do not explain why, when Canadians did manage to acquire SMLEs, army policy was so hostile to soldiers replacing their Rosses. When the First Canadian Division departed for France, the Cavalry Squadron was issued 175 SMLEs to replace their Rosses; upon hearing rumors of this, Hughes was volcanic, immediately telegramming the British secretary of state for war, Lord Kitchener. Kitchener mistakenly assured Hughes that this was not true, quieting this particular eruption, but one can imagine what would have happened had Hughes been told the truth.[120] Those Canadian soldiers who took SMLEs from dead British were not disciplined because the SMLEs were required for British supplies; they were disciplined because they had contravened Hughes's will that all Canadians carry the Ross.

None of these alternative explanations are entirely irrelevant. Supply of SMLEs surely played some role in the timing of the Ross's replacement, just as Hughes's equipment nationalism and commitment to marksmanship emerged in a milieu where such ideas were common. Yet Hughes was not a common man. His beliefs were not preferences but immutable convictions. Without Hughes, one of two things would have happened: Canada would have built a better Ross after 1908, or it would have changed its policy to acquire SMLEs as soon as possible.

Shadow Cases

The case of Sam Hughes and the Ross rifle is the plausibility probe for my hypothesis that individual civilian leaders diminish military capacities if they have a personal bias away from military effectiveness and if they have the authority to make unilateral equipment decisions. Here, I offer two "shadow cases" that reinforce my thesis: Simon Cameron and muzzle-loading rifles, and Hugh Arnold-Foster and the SMLE. In the first case, like the Ross, both conditions of my theory are met. And as in Canada, the Union's military capacities were dramatically reduced. In the second, only one of the conditions is met. Though Arnold-Foster was biased in a similar way as Hughes, he did not have the authority to make unilateral decisions about technology—and thus he did not diminish military capacities.

Simon Cameron and the Muzzle-Loading Rifle

The US military's slow adoption of breech-loading rifles (and carbines) during the Civil War is a major case in Jungdahl and Macdonald's study of

[120]Duguid, *Official History*, 1, pt. 2:85–86.

how locally empowered military officers can prevent states from acquiring superior weaponry.[121] Though their account of how Union ordnance chief James Ripley personally blocked breechloaders is partially convincing, here I provide a closer look at Union small arms to reveal the role of War Secretary Cameron—a civilian leader—whom Jungdahl and Macdonald overlook.

At the opening of the Civil War in 1861, there were three types of guns with which infantry could have been armed. First, there were old "smoothbore"—meaning the barrel of the gun had no grooves—muzzle-loading muskets. These were holdovers from the Revolutionary War era and essentially useless. They were difficult to load, and the lack of internal grooves meant fired shots wobbled through the air like knuckleballs. In a phrase that a Canadian officer would unknowingly echo about the Ross, Indiana governor Oliver Morton declared that "it would be little better than murder to send troops into battle with such arms" as smoothbores.[122] Unfortunately, they were also the guns that the Union had in most plentiful supply. Second, there were muzzle-loading rifles. Like the smoothbores, these rifles were troublesome to load, offering at best two or three shots a minute in the most skilled hands. Their internal grooves and superior ammunition, however, meant that they were quite accurate when used properly. Finally, there were many prototypical designs of breech-loading rifles, which had the accuracy of muzzleloaders but with far improved speed and reliability. Breechloaders could muster at least ten—and upwards of twenty—shots per minute. But these guns were untested in battle and did not exist in great quantities, nor was it clear that such quantities could be soon produced. In Jungdahl and Macdonald's telling, Army Ordnance Chief Ripley prevented the adoption of the obviously superior breechloader. They argue that Ripley's commitment to carefully aimed fire led him to do everything he could to avoid breech-loading rifles (and carbines for cavalry).[123]

In focusing on the adoption of the breechloader, Jungdahl and Macdonald overstate how obvious it was that the Union should have poured resources into the weapon. Historians are divided on just how poor Ripley's decision was; while many side with Jungdahl and Macdonald, others claim that Ripley's "stance was not the technologically backward one sometimes perceived by Civil War historians."[124] Even Robert V. Bruce, on

[121] Jungdahl and Macdonald, "Innovation Inhibitors in War."
[122] *The War of the Rebellion: A Compilation of the Official Records of the Union and Confederate Armies*, series 3, vol. 1 (Washington, DC: Government Printing Office, 1902), 244.
[123] Jungdahl and Macdonald, "Innovation Inhibitors in War," 485–86.
[124] Michael S. Raber, "Conservative Innovators, Military Small Arms, and Industrial History at Springfield Armory, 1794–1918," *Journal of the Society for Industrial Archeology* 14, no. 1 (1988): 21; Ezra J. Warner, *Generals in Blue: Lives of the Union Commanders* (Baton Rouge: Louisiana State University Press, 1964), 405.

whom Jundgdahl and Macdonald largely rely, and whose history of Union weapons pits the progressive "protagonist" President Lincoln against the conservative "antagonist" Ripley, acknowledges that the breech-loading situation was complicated. By the end of 1861, Lincoln had forced Ripley to order thirty-seven thousand breechloaders. But any more than this would have been unwise, writes Bruce. "Committing the Army to breech loaders without an extensive field trial would have been betting the nation's life against the opinion of most experts."[125] Breech-loading weapons were a complicated question at the beginning of the war. Ripley had two objectives that were both more important and feasible than breech-loading rifles: getting his soldiers any rifles at all to replace the old smoothbores and ensuring they were supplied with ammunition. The latter was a particular challenge. In 1861, Ripley was required to supply the Union with over 600 different calibers of ammunition. In the words of one historian, Ripley was "obsessed" with the problem of standardizing ammunition and ensuring that forces were not left with empty guns.[126] By 1863, he had reduced that number to 140.[127]

Given conditions at the beginning of the war and that breechloaders were an untested technology not yet been produced in sufficient numbers, a better case study of impeded military capacities is the attempted replacement of smoothbores with muzzle-loading rifles. If we view the Union challenge during the first years of the Civil War as being to arm soldiers with any rifles, Ripley's conduct appears different. It was smoothbores that needed to be urgently replaced by muzzle-loading rifles, not muzzle-loading rifles by breech-loading ones. In 1861, Ripley was desperately trying to find enough rifles to replace the smoothbores most Union soldiers had been issued. After the Confederacy's capture of the arsenal at Harper's Ferry, the Union's Springfield Armory could make only 1,200 muzzle-loading rifles per month. Private manufacturers in the Union were little better; between June 1861 and June 1862, they produced only 15,000 rifles.[128] Ripley attempted to procure rifles from the only other option: Europe.

His efforts in this failed, however, not because of any military intransigency but because of a civilian leader: Union secretary of war Cameron. In May and June 1861, at the war's very beginning, Ripley repeatedly implored Cameron to authorize the purchase of up to 100,000 rifles from Europe.[129] Cameron refused to do so. In July, Cameron claimed, unbelievably, that the Union had too many soldiers for its rifles, rather than too few rifles for its

[125]Robert V. Bruce, *Lincoln and the Tools of War* (Indianapolis: Bobbs-Merrill, 1956), 117.
[126]Bruce, *Lincoln and the Tools of War*, 106.
[127]William H. Hallahan, *Misfire: The History of How America's Small Arms Have Failed Our Military* (New York: Charles Scribner's Sons, 1994), 112–13.
[128]Bruce, *Lincoln and the Tools of War*, 41–42.
[129]*War of the Rebellion*, series 3, 1:245.

soldiers, in direct contradiction to what Ripley was telling him.[130] During these early months of the war, there were already Confederate agents scouring Europe for the best rifles they could buy. Ripley urged Cameron to do the same, yet the secretary continued to ignore him. Delayed procurement of rifles for the Union was the fault of the indifferent Cameron, not the desperate Ripley.

According to historians, Cameron's resistance to foreign purchases is attributable to his protectionism—a bias that satisfies the first of my theory's conditions. One writes that "Cameron insisted that all guns be bought at home,"[131] and another states that Cameron was a "strict protective tariff man; one did not buy from foreigners, one bought from and supported domestic industry."[132] Cameron also meets the second of my conditions: he had sufficient authority over decisions that he could make unilateral decisions about arms purchases. Lincoln appointed Cameron secretary of war, and initially gave him wide latitude, because Cameron was powerful in Pennsylvania politics and delivered Lincoln the state's delegates at the 1860 Republican convention.[133] Had this authority been spread beyond his desk, his preference for domestic production would not have stopped the Union Army from securing rifles from Europe.

Though Cameron only had this authority for a short time, his delay was so costly that by the time Lincoln overruled him and personally sent Colonel George Schuyler to buy rifles from Europe, "the South had already purchased all the top-grade weapons on the European market."[134] Cameron's prevention of rifle procurement from Europe diminished Union military capacities for two major reasons. First, obviously, the weapons would have armed Union soldiers adequately with rifles, relieving them of the smoothbores it was "little better than murder" to have them carry, and improving their performance on the battlefield. Second, and more important, buying those rifles would have prevented the Confederacy from arming itself. The South simply did not have the domestic capacity to manufacture the weapons needed for war and needed to buy arms from Europe. As A. Howard Meneely concludes in his exhaustive study, "Had the [Union] government at the start gained control, or nearly so, of the European arms markets, the plight of the Confederacy would have been extremely serious."[135] Cameron's refusal to allow weapons from Europe quite possibly prevented the Union from winning the war at the very beginning,

[130]Ibid., series 3, 1:322.
[131]Bruce, *Lincoln and the Tools of War*, 43.
[132]Hallahan, *Misfire*, 116.
[133]Erwin Stanley Bradley, *Simon Cameron, Lincoln's Secretary of War: A Political Biography* (Philadelphia: University of Pennsylvania Press, 1966).
[134]Hallahan, *Misfire*, 118.
[135]A. Howard Meneely, *The War Department, 1861: A Study in Mobilization and Administration* (New York: Columbia University Press, 1928), 280.

endangered the nation's survival, and potentially cost hundreds of thousands of lives. This shadow case provides external support to my argument beyond the plausibility probe of the Ross, as both conditions of it are met and the outcome is as I predict.

Hugh Arnold-Foster and the SMLE

As the British developed the SMLE in the early 1900s, there was a real chance that Britain's situation could have turned out more like Canada's with the Ross. The first of my theory's two conditions was present: influenced by the Boer War and Britain's marksman organizations, Secretary Arnold-Foster wanted a larger, more accurate rifle. Yet because my theory's second condition—authority for Arnold-Foster to make unilateral decisions—is not, British military capacity was not adversely affected. In Britain, a small arms committee (SAC) made up of three officers with considerable expertise commissioned tests and made decisions about British rifle development and adoption. This professional committee did not fall prey to the personal biases of the civilian leader Arnold-Foster.[136]

Much of the SAC's work was done in response to British experiences in India, where conflicts in difficult terrain emphasized the need for a weapon that was light and easy to aim.[137] Several officers, including Colonel Ian Hamilton and Commander Frederick Roberts, who had both served in India, were particularly important to the SAC's work, and their later experience in South Africa solidified prior impressions. In 1900, Roberts reinforced Hamilton's earlier recommendation of a simple weapon to the secretary of state for war. As Matthew Ford writes, "Roberts appreciated that one way of increasing shooting prowess was to change the rifle in such a way as to make it more convenient, given battlefield conditions: to take away any technical encumbrances that might inhibit its use."[138] Thus, Hamilton, Roberts, and other British officers took the precise opposite lesson from South Africa than Hughes, apparently because they balanced their experience in Africa with their time in India. Where Hughes pushed for a sophisticated, complicated, highly accurate weapon in the Ross, the British SAC prioritized ease of use and reliability, priorities that culminated in the SMLE replacing the longer version.[139]

[136]Matthew Ford, "Marksmanship, Officer–Man Relations, and the Short Magazine Lee-Enfield," *War in History* 23, no. 3 (July 2016): 285.

[137]Nick Evans, "From Drill to Doctrine: Forging the British Army's Tactics, 1897–1909" (PhD diss., King's College London, 2007), 27–71; Ford, "Marksmanship, Officer–Man Relations, and the Short Magazine Lee-Enfield," 282.

[138]Ford, "Marksmanship, Officer–Man Relations, and the Short Magazine Lee-Enfield," 287. Cf. telegram no. 1369 to Secretary of State for War from Lord Roberts, 18 October 1900, WO 108/411, National Archives.

[139]The rifle's official name was the Short, Magazine Lee Enfield. The dropping of the comma makes it seem as if it is the magazine that is short, but in fact the "short" refers to the overall length of the rifle.

Arnold-Foster was secretary of state for war from 1903 to 1905, as the SMLE was in its nascence and about to replace the long Lee Enfield. Like Hughes, Arnold-Foster favored a long-barrelled rifle that was more accurate from great distance. Arnold-Foster's position was bolstered by Britain's National Rifle Association (NRA), which was as committed to marksmanship as was Hughes's Dominion Rifle Association, and which had significant influence on press coverage—and therefore politicians. Arnold-Foster repeatedly questioned the army on its decision to adopt the short rifle in place of a longer one, which he much preferred. "It might not appear that Arnold-Foster was doing anything other than trying to make sure he was sufficiently briefed," writes Ford. "However, even after the secretary of state received an official response from the DGO [director general of ordnance] outlining the main arguments in favor of the SMLE, he did not appear happy."[140] Despite Arnold-Foster's resistance, and the NRA's position, the army stood firm. Rather than a complicated rifle for experts, the army insisted it needed a weapon "for use by comparatively clumsy practitioners, whose operations extend from Canada to the Cape, and from the Afghan frontier to Singapore."[141] In his reflection on the ordeal, Ford remarks that it is surprising "how the secretary of state was unable to challenge the army's decision with regard to the SMLE even though he had support from outside the War Office," and that this fact "says much about the relative power of the army compared with politicians, the press, and other non-governmental actors at that time."[142] Had the civilian leader Arnold-Foster possessed more power over British rifle development, he may have been able to block the SMLE, but military authority over the rifles prevailed.

This is a crucial point. In all three cases I have outlined (Canada, the Union, and pre–World War I Britain) there were civilian leaders whose bias tilted away from the option that optimized military effectiveness. Yet in Britain, the nature of civil-military relations prevented Arnold-Foster from enacting his preferences, since decisions over small arms were made by an all-officer SAC. My theory's second condition is not met, and as predicted, British military capacity was not diminished.

Lengthening the Odds of Murder

This article corrects two misconceptions in the literature on military capacities and civil-military relations. The first is the idea that individual

[140]Ford, "Marksmanship, Officer–Man Relations, and the Short Magazine Lee-Enfield," 293; Matthew Charles Ford, "The British Army and the Politics of Rifle Development, 1880 to 1986" (PhD diss., King's College London, 2008), 95–101. Cf. "The New Rifle—Memorandum by the Secretary of State for War and Replies by Sir Henry Brackenbury, Director General of Ordnance," 19 April 1903, Arnold-Foster Papers, 50315, British Library (BL).
[141]Major R. J. Makur, "New Short Rifle – Summary of Leading Facts," Arnold-Forster Papers, 50215, BL. Cited in Ford, "Marksmanship, Officer–Man Relations, and the Short Magazine Lee-Enfield," 293.
[142]Ford, "Marksmanship, Officer–Man Relations, and the Short Magazine Lee-Enfield," 294, 293.

leaders are largely irrelevant next to structural forces when it comes to military capacity.[143] The second is the suggestion that if civilian leaders matter, they generally have a positive impact on military capacity.[144] I show that when civilian leaders have certain biases and the power to make unilateral weapons decisions, they actually diminish military capacity. In my plausibility probe, I argued that Hughes personally prevented the Canadian Army from being adequately armed. In the Union case, I demonstrated how costly Cameron's bias against procuring rifles from Europe was. In the British case, I showed that limited authority over weaponry decisions prevented Arnold-Foster from turning his bias into a policy saddling the army with a Lee Enfield more like the Ross. My argument has implications both for descriptive research and prescriptive policy.

First, when it comes to description, from these three cases we can observe factors that might produce civilian leaders' biases. One such factor is prior military experience. In IR theory at large, Michael C. Horowitz and Matthew Fuhrmann have conducted substantial research into how leaders' experience affects their decisions.[145] Horowitz and various coauthors have argued that "leaders with prior military service, but not combat experience," are more likely to initiate military conflict;[146] and that leaders who were participants in rebelling against states are more likely to pursue nuclear weapons.[147] The point is that past military experience does not necessarily result in leaders being more reluctant to go to war or to acquire nuclear weapons. Yet such research tends to refrain from judging whether leaders' decisions were good for the state's military capacities and overall defense. This article, by contrast, suggests that the quality of civilian leaders' decisions should be a central feature of future large studies.

Scholars should study whether civilian leaders with military experience are inclined toward technologies suited to their own experience, rather than the current environment. Hughes had past military experience in South Africa, but it backfired when it came to the Ross. He had experience, but not expertise. He had participated in only one sort of conflict in South Africa. Had the Ross been a rifle for a conflict like the Boer War, it likely would not have been quite such a failure. But Europe was not South Africa. Officers of the British SAC, however, balanced their experience in Africa with their experience in India; they had genuine expertise, and not merely experience. Future studies should consider the range of military

[143]Posen, *Sources of Military Doctrine*; Avant, "Institutional Sources of Military Doctrine"; Theo Farrell, "The Dynamics of British Military Transformation," *International Affairs* 84, no. 4 (July 2008): 777–807; Kadercan, "Strong Armies, Slow Adaptation."
[144]Cohen, *Supreme Command*; Feaver, *Armed Servants*.
[145]Horowitz and Fuhrmann, "Studying Leaders and Military Conflict."
[146]Horowitz and Stam, "How Prior Military Experience Influences the Future Militarized Behavior of Leaders," 529.
[147]Matthew Fuhrmann and Michael C. Horowitz, "When Leaders Matter: Rebel Experience and Nuclear Proliferation," *Journal of Politics* 77, no. 1 (January 2015): 72–87.

experience that a civilian leader has. Does experience in multiple conflicts matter? Had Hughes been involved in wars aside from South Africa, perhaps he would have developed genuine expertise and balanced his desire for precision with other demands of war.

Another factor that can foster civilian biases is equipment nationalism. Hughes and Cameron were insistent that their armies be outfitted with domestically produced weapons, and this bias had serious consequences for Canada and the Union. Although encouraging domestic production is not necessarily bad, as Cohen shows in the case of Ben-Gurion, it is when it becomes a pathological commitment rather than a general strategic objective. Future studies should treat equipment nationalism and prior military experience as two conditions that affect civilian leaders' technology preferences. Scholars could connect such studies to existing work on decisions to produce military equipment domestically.[148] This approach would be particularly welcome as nationalism appears to wax in states around the world, and even liberal leaders call for favoring domestically produced goods.[149]

Future work needs to explore whether my argument about civilian leaders holds across different types of military technology. My three cases involve small arms. It is conceivable that civilian leaders are more likely to meddle in technologies such as small arms because they are relatively straightforward, and civilian leaders may have some personal experience with these weapons that leads them to believe they have genuine expertise.[150] But since equipment nationalism was the main reason for Cameron's intervention in procurement, and one of the reasons for Hughes's, in such cases the complexity of the technology would appear not to matter, since it is nationalism, and not personal experience with weaponry, that leads civilian leaders to diminish military capacity.[151]

Finally, scholars should investigate how civilian leaders can achieve the autonomy to make unilateral decisions about military technologies. Robert Borden gave Hughes a wide berth in large part because Borden needed Hughes's Ontario contingency for the former's coalition, and Lincoln needed Cameron's influence on the Pennsylvania delegates at the 1860 Republican convention. For civilian leaders to exercise their "right to be wrong" in such egregious ways, they need to be (or at least to feel) in some

[148]For existing efforts, see: Marc R. DeVore, "Armaments after Autonomy: Military Adaptation and the Drive for Domestic Defence Industries," *Journal of Strategic Studies* 44, no. 3 (June 2021): 325–59; Marc R. DeVore, "Commentary on the Value of Domestic Arms Industries: Security of Supply or Military Adaptation?" *Defence Studies* 17, no. 3 (2017): 242–59.

[149]Lauren Gambino, "Biden Unveils $700bn 'Buy American' Proposal to Revive US Industry," *Guardian*, July 9, 2020, https://www.theguardian.com/us-news/2020/jul/09/joe-biden-buy-american-proposal-economic-platform.

[150]Theodore Roosevelt, for instance, also offered commentary on the bayonet of the M1903 Springfield based on his personal experience with rifles. See Thompson, *M1903 Springfield Rifle*.

[151]Indeed, there is no indication that Cameron was motivated at all by the specifics of rifles or any experience he had with them.

way insulated from immediate accountability, and key regional influence in domestic politics appears to help create that insulation.

To be sure, the highly complex nature of major militaries today inevitably reduces the possibility for a single individual to have the authority to make unilateral decisions. To take just one example, in 1968 the Defense Appropriations Act was 16 pages long; by 2003, it had ballooned to more than 25 times that length.[152] But there is still room in civil-military relations today to think of the effect of civilian leaders on specific technologies. A low point of American civil-military relations in recent decades was during Secretary of Defense Donald Rumsfeld's tenure from 2001 to 2006. With President George W. Bush delegating oversight to Rumsfeld, much like Borden to Hughes, Rumsfeld ran roughshod over military expertise. Rumsfeld was convinced that the military was big, slow, and lumbering, even claiming that the Pentagon was a threat to national security.[153] Unable to realize that the military was already moving in the direction he wanted it to, Rumsfeld "publicly and privately" berated officers, and surrounded himself with "yes-men."[154] There is some evidence to suggest that his commitment to a light and fast military at least contributed to delays in getting heavy armored vehicles needed to protect troops from improvised explosive devices (IEDs).[155] Retired vice admiral Gordon Holder argues that these slow and heavy mine-resistant vehicles did not fit Rumsfeld's vision, and that some of the delay in providing them can be attributed to this fact.[156] Like Hughes, Rumsfeld drew the intense ire of both the Pentagon officers he ignored and the infantry he told "you go to war with the Army you have" when they asked about IED protection.[157] Though Rumsfeld has some defenders,[158] observers generally agree that he attempted to dominate the conversation with the military during his tenure to largely disastrous results, the effects of which still resonate today.

No failure can eliminate civilian leaders' democratic "right to be wrong" about the political objectives of war. But we want civilian leaders both to retain the goodwill of the military as they exercise that right and to be

[152]James M. Hasik, "MRAP: Marketing Military Innovation" (PhD diss., University of Texas, 2016), 105, https://repositories.lib.utexas.edu/handle/2152/41606.
[153]Sheppard and Groves, "Post-9/11 Civil-Military Relations," 66.
[154]Ibid., 69.
[155]Weiner, "Organizational Interests versus Battlefield Needs," 471; Stephen Benedict Dyson, *Leaders in Conflict: Bush and Rumsfeld in Iraq* (Manchester, UK: Manchester University Press, 2014), 58.
[156]Peter Eisler, Tom Vanden Brook, and Blake Morrison, "When the Pentagon Failed to Buy Enough Body Armor, Electronic Jammers and Hardened Vehicles to Protect US Troops from Roadside Bombs in Iraq, Congress Stepped In. Lawmakers Say Their Actions Saved Lives. Should the Military Have Done More?" *USA Today*, September 4, 2007.
[157]"Secretary Rumsfeld Town Hall Meeting in Kuwait," US Department of Defense news transcript, December 8, 2004.
[158]See Richard H. Kohn and Richard B. Myers's response to Michael C. Desch: Richard B. Myers et al., "Salute and Disobey? The Civil-Military Balance, Before Iraq and After," *Foreign Affairs* 86, no. 5 (September/October 2007): 147–56.

wrong as infrequently as possible. Prescriptions for civil-military relations tend to focus on what we as citizens should prevent military officers from doing to maintain civilian control.[159] We should be equally concerned, however, with civilian leaders. Civilian leaders who have a positive effect on their state's military capacity in terms of weaponry do so in honest conversation with military leaders and with information coming from the soldiers using the weapons. They neither dictate nor even dominate this conversation. They must respect the expertise of senior officers on technologies and the firsthand accounts of soldiers on the ground.

We should make it difficult for civilian leaders to exert unilateral control over the "means" of weaponry. Since the equipment in the hands of those fighting is the most fundamental element of a military, control should tilt toward military expertise—by both ranking officers and those using the technologies in combat. We should make it impossible for civilian leaders to disregard the results of independent tests that indicate a technology is fatally flawed, such as those on the Ross. And we should insist that opponents of technologies get the opportunity to air their opposition to legislators rather than simply the executive. Not only can these measures foster greater military effectiveness, but they may diminish the hostility between military and civilian command that is so dangerous to democracies. If we wish to maintain civilian leaders' "right to be wrong" about political questions of military objectives, we should restrict their right to be wrong about matters of technology.

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[159] Jim Golby, "Beyond the Resignation Debate: A New Framework for Civil-Military Dialogue," *Strategic Studies Quarterly* 9, no. 3 (Fall 2015): 26; Risa A. Brooks, "Militaries and Political Activity in Democracies," in *American Civil-Military Relations: The Solider and the State in a New Era*, ed. Suzanne C. Nielsen and Don M. Snider (Baltimore: Johns Hopkins University Press, 2009), 213–38.