

Chapter 1

Bringing the War Home

The village of Enniskillen, a sleepy cluster of a few dozen houses in New Brunswick's Queens County, has never been invaded by a foreign power. But the road to Canadian Forces Base Gagetown, once the largest military base in the British Commonwealth, runs through Enniskillen, literally. In the 1950s, 1960s and 1970s, the village was ground zero for a different kind of offensive, this one launched by the Canadian military against its own people with the deadly dioxin Agent Orange. "They'd spray us, they sprayed over our car and we'd go out afterwards and the whole area would be like burnt ground; it would be totally black," says Suzanne McCann, a retired cook who worked at Canadian Forces Base Gagetown for more than two decades. "Out of those eight houses in that little cluster [in Enniskillen], twenty-five people have died from cancer," McCann says. "There's cancer in every household," which local residents blame on defoliants like Agent Orange sprayed at the base. Today, Enniskillen is little more than a ghost town. Many homes



Suzanne McCann, a civilian who was consistently sprayed with Agent Orange, points to barren land at CFB Gagetown.

have been abandoned, some still strewn with old family photographs and other discarded possessions. “The spraying made it unbearable to live there,” says Doreen Thomas, another former resident, who has had eleven separate tumours removed from her body.

Surprisingly, stories from people like Suzanne McCann and Doreen Thomas are not unusual. Between 1956 and 1984, the Canadian military, through the Department of National Defence and its civilian contractors, sprayed 6,504 barrels (1,328,767 litres) of toxic defoliants, including Agents Orange, White and Purple, on 181,038 acres of Base Gagetown.¹ In 1966 and 1967, the American military — invited by its Canadian counterpart — sprayed Agents Orange and Purple at Base Gagetown.² Agent Orange is the colloquial *nom de guerre* given to a roughly 1:1 chemical mix of 2,4-dichlorophenoxyacetic acid (2,4-D) and 2,4,5-trichlorophenoxyacetic acid (2,4,5-T), bestowed because the defoliant was shipped in 55-gallon drums with an orange stripe. Agent Orange is a member of the phenoxy group of herbicides. The individual chemical components of Agent Orange are arguably dangerous in themselves. In its manufacture, the defoliant was contaminated with TCDD, or dioxin, “perhaps the most toxic molecule ever synthesized,” according to Harvard University’s Peter Schuck.³ An investigation of dioxin in the journal *Science* went even further, labelling it, “the most toxic substance known to humans.”⁴ Canadian dioxin spraying lasted from 1956 to 1967; the spraying from 1967 to 1984 contained other dangerous chemicals including hexachlorobenzene. Canada enacted a formal ban on 2,4,5-T in 1985, following the initiative of the United States. Throughout this book, unless otherwise noted, the term “Agent Orange” is used as a catch-all term for phenoxy herbicides contaminated with dioxin.

Herbicide spraying by the Department of National Defence and its civilian contractors from 1956 to 1984 is partially a story of inaction, ignorance, incompetence and laziness: contract supervisors who didn’t follow safety labels; military personnel who buried improperly sealed barrels of toxin in random locations; aerial sprayers who missed their targets, destroying crops and swaths of land; and power companies who decided spraying dioxin was a cheaper way to clear brush from electrical lines than hiring workers with saws and axes. As former soldier and Agent Orange victim Earl Graves explains, the

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Inside this Enniskillen home, crumpled family photographs and other discarded possessions are strewn about as evidence of the family's rapid departure. Local residents say Agent Orange spraying made the house uninhabitable.

Government of Canada did not have much control over the spraying. That job was left to private contractors, who had an economic interest in destroying brush as quickly and cheaply as possible. This often meant chemicals were mixed in doses stronger than even the manufacturers recommended. "The boss is not going to know if you [a sprayer] mixed [chemicals] a little stronger," says Graves. "A contractor will do what it requires to get the job done."⁵

Graves's view is indicative of the problematic political economy caused by the choice of the Department of National Defence to hire private contractors to spray the chemicals. Contracting firms did not take proper precautions to safeguard their workers, such as providing the protective equipment recommended by the corporations who produced herbicides. Also, to make the herbicides more potent and thus more effective, contractors advised their employees to mix the chemicals in stronger doses than manufacturers suggested, as Graves noted. A technical briefing from U.S. officials explains how the relationship among governments, contractors and chemical companies worked on the ground:

In the late Spring of 1965 Camp Gagetown officials again contracted with civilian contractors to provide Gagetown

with brush control. The contract was awarded to Dow Chemical Company who sprayed approximately 4700 acres of second growth brush with Tordon 101 (agent white) from a Hughes 269A helicopter.⁶

The reason for this spraying was simple: kill trees and other brush to make room for training areas, shooting ranges, road construction and other projects. In a sense, it should not be surprising that contractors and the government itself tried to save money on labour costs at the expense of human health and the natural environment. In a market-driven economic system, this, sadly, is just the cost of doing business.

The United States first used the chemical components of Agent Orange in the late 1940s, mostly for agricultural purposes.⁷ In the late fifties and sixties, Canadian government departments such as National Defence routinely sprayed Agent Orange across CFB Galetown. During this period, Dow Chemical, the principal manufacturer of 2,4,5-T, the most dangerous component of Agent Orange, affixed the following warning to each can of defoliant produced for domestic use in the United States: "Do not contaminate irrigation ditches or water used for domestic purposes. Caution. May cause skin irritation. Avoid contact with eyes, skin and clothing. Keep out of reach of children."⁸ Canadian sprayers working for the Department of National Defence and private contractors say they did not get these basic warnings. "We were told this stuff was safe enough to drink," recalls Ken Dobbie, who, as a nineteen-year-old in 1966, worked a government-financed summer job clearing defoliant-soaked brush at Galetown. "We handled this stuff [defoliated brush] with our bare hands. We were stripped to the waist because of the heat. It wiped across our bodies all the time." Officials responsible for the safety of soldiers ignored clear warnings from Dow Chemical, hardly a group of weak-kneed environmentalists, on how to "safely" use its product.

With no protective equipment, Ken Dobbie spent six weeks on the base working with defoliants, repeating the routine of clearing Agent Orange soaked brush every day, until August 1966. The sickness began that December. Today, Dobbie suffers from brain atrophy, neurological disorders, thyroid growths, toxic hepatitis, blood disorders, relative polycysemia, type 2 diabetes and other ailments. "These diseases don't run in my family, there is no genetic history on either side," says Dobbie,

who is president of the Agent Orange Association of Canada, one of two prominent citizens' advocacy groups representing soldiers and civilians affected by spraying programs. "I've been sick for thirty-nine years. I have a host of different disorders," says Dobbie, who's in his late fifties and takes nine different kinds of medications, including a daily dose of Demerol because of "constant pain." Dr. Robert West, Dobbie's family physician, told the CBC that his patient has no family history of these diseases or conditions like drug use or alcoholism that could explain them. Instead, Dr. West believes Dobbie's symptoms point to chemical exposure and "would suggest an immediate exposure to something."⁹

Ken Dobbie is now a plaintiff in a class-action lawsuit that former sprayers have launched against the government for its negligent use of chemical defoliants at the base. "The military and government have consistently tried to frame this as an issue affecting a small group of service people," he says. "Through all those years, tens, if not hundreds of thousands of people were affected." In 2006, a federally sponsored, fact-finding mission tasked with investigating Agent Orange spraying confirmed Dobbie's estimate. The mission found records for more than 115,001 individuals stationed at Canadian Forces Base Gagetown when defoliant spraying was taking place.¹⁰ Many of these people now live in other parts of the country or the world, meaning that this is a national issue rather than just a provincial problem. During the time that Dobbie was spraying in the 1960s, U.S. Government scientists were well aware of dioxin contamination and other dangers associated with Agent Orange. According to Dr. James Clary, a former U.S. government scientist with the Chemical Weapons branch at Eglin, Florida,

When we [military scientists] initiated the herbicide program in the 1960's, we were aware of the potential for damage due to dioxin contamination in the herbicide. We were even aware that the "military" formulation had a higher dioxin concentration than the "civilian" version due to the lower cost and speed of manufacture. However, because the material was to be used on the "enemy," none of us were overly concerned. We never considered a scenario in which our own personnel would become contaminated with the herbicide.¹¹

The fact that Vietnamese civilians and children faced poisoning from dioxin was, of course, no cause of concern for military scientists like Dr. Clary.

Tony Merchant, the lawyer representing former soldiers and civilians in a class-action lawsuit against the federal government, echoes the views of Earl Graves and other former sprayers on the economic relationships that made the spraying unduly hazardous. “We don’t say ‘there should be damages because Agent Orange exists,’” Merchant says.¹² The government wanted to save money in the short term by spraying rather than hiring workers to clear brush manually. Government-hired contractors wanted to pinch pennies by mixing the chemicals in stronger doses than the manufacturers recommended to clear brush more quickly, thus saving money on wages. Concerns about saving money trumped health and environmental concerns. According to Merchant:

We say, it’s the way the government used the Agent Orange, the quantities of use of the Agent Orange; the way they had troops involved with the use of the Agent Orange; We say, if you pour millions of tons of defoliants around a telephone pole and then encourage children to go crawl around and cook hot-dogs in it; that’s the danger.

Merchant’s argument must be viewed within the larger economic context. In free market logic, where money is power, governments will do anything to save the former to maintain the latter.

If it is true that a penny saved is a penny earned, than the Government of Canada pocketed some gold coins through its defoliation campaign by skimping on labour costs in favour of the dioxin debacle. If, however, we are to believe an old proverb that states that health is wealth, the Federales and their chemical company enablers did not make positive investments by saving a few million dollars on labour costs. In this regard, the creation of dioxin and Canada’s broader history with Agent Orange is one more example of scientific discovery and human ingenuity serving short-term profit at the expense of long-term social preservation.

While the Canadian spraying was based on laziness and the desire of the Department of Defence and its contractors to save

money, the American testing in 1966 and 1967 must be seen within the historical framework of the Cold War and broader trends in Canada-U.S. relations. Political scientists Reg Whitaker and Gary Marcuse argue that the Cold War period in Canada created “excesses of government.”¹³ The high volume spraying of Agent Orange and Agent Purple could certainly be considered excessive, especially since soldiers and civilians were not warned about potential risks or offered protective equipment. American scientists from the Chemical Weapons Branch based in Fort Detrick, Maryland, wanted to spray in New Brunswick because, of all possible North American test sites, it had the terrain most like that of Vietnam. According to a 1968 U.S. army technical memorandum, “The test site selected contained a mixture of conifers and deciduous broadleaf species in a dense undisturbed forest cover that would provide similar vegetation densities to those of temperate tropical areas such as South East Asia.”¹⁴ The U.S. tested defoliants on some 472 acres of Base Gagetown; with Agent Orange and Agent Purple being sprayed on 83 acres.¹⁵ In 1966 Americans from Fort Detrick sprayed 55 gallons each of Agent Orange and Agent Purple.¹⁶

According to minutes from a meeting marked “secret,” sent from acting Canadian Army commander C.H. Cook to officials in Washington (names are censored) in 1962, Canadian C123 fixed-wing planes outfitted with special 1000 gallon metal tanks sprayed butyl ester 2,4,5,-T (trichlorophenoxyacetic acid) and isobutyl ester 2,4,5,t at Gagetown.¹⁷ The chemicals cost \$5 per gallon. The Canadian government sprayed Agent Orange and Agent Purple at a concentration of three gallons per acre.¹⁸ In a *Mother Jones* magazine feature aptly titled “Apocalypse Still,” investigative reporter Robert Dreyfuss explained that during the Vietnam War, American C123s spread the defoliants at a concentration of “up to three gallons per acre.”¹⁹ This is startling for two reasons. First, the obvious: the Canadian government sprayed chemicals against its own people at a higher concentration than the U.S. sprayed in Vietnam. Second, since the Canadian tests took place in 1962, the U.S. likely copied the dosage of chemicals (albeit with slightly less ferocity) for its Vietnamese campaign. “If you compare and break it down [Canadian spraying volumes at Gagetown], it’s *not* miniscule compared to Vietnam,” said Marilyn Kissinger, a civilian who lived

near the base during the worst years of spraying.

When Americans from Fort Detrick tested Agent Purple in New Brunswick in 1966, the U.S. Congress had already banned its use in Vietnam.²⁰ Along with dioxin levels three times higher than Agent Orange, Agent Purple also contains arsenic.²¹ The chemical was too dangerous for wartime use against “communist gooks,” but acceptable for spraying on unsuspecting New Brunswickers. As Wayne Cardinal, a former soldier with the Blackwatch regiment and a well-known Agent Orange activist, explains, “The Americans weren’t allowed to test in their own backyard, so the Government of Canada said ‘c’mon down.” This is remarkable, considering the U.S. was at war with Vietnam and Canada was an ally. Agent Orange was, according to a 1969 U.S. army counter-insurgency manual, a “chemical agent which possesses *high offensive* potential for destroying or seriously limiting the production of food and destroying vegetation”²² (*italics added*). Thus, calling the events at Gagetown part of a “war at home” is an accurate military assessment of the offensive defoliant campaign rather than simplistic hyperbole or poetic prose.

Officially, Canada did not participate in the Vietnam conflict because Canadian boots were not on the ground during the war. However, Canada did act as an “accomplice” of the United States in Vietnam, according to the well-known historian Charles Taylor.²³ This complicity took several forms: Canada approved the bombing of North Vietnam; Canadian personnel with the International Control Commission (ICC), established by the Geneva Conference of 1954, were used by the United States as messengers to threaten North Vietnam and to collect military information; and Canadian companies sold the United States arms that were used in Vietnam.²⁴ Victor Levant buttresses this view with his thorough study, *Quiet Complicity: Canadian Involvement in the Vietnam War*. “Canada,” Levant argues, was “a willing ally in U.S. counter-insurgency efforts... allied yet subordinate to the U.S. industrial and financial oligarchy.”²⁵ Canadian complicity came with a price, a price paid in part by soldiers and civilians living on or near CFB Gagetown.

“U.S. interest in this trial is intense, especially with the operational personnel, both Army and Air Force,” notes a U.S. military briefing reporting on the 1966 to 1967 tests. However, “Canadian

interest appears quite slight and limited to those people concerned with the clearing of training and range areas.”²⁶ This shows that the U.S. was actively testing offensive weapons at Gagetown while Canadian officials mused about weed-control schemes and saving money on labour costs. Essentially, our leaders fiddled while the eyes and skin of Canadian soldiers burned. According to U.S. officials, Canada received a good deal as a result of the Gagetown tests.

In international affairs, Canada often plays junior partner to American imperialism — “holding the bully’s coat,” to quote *Toronto Star* columnist Linda McQuaig.²⁷ When problems arise on the school yard, it is often the bully’s accomplice who takes the first mud-ball in the eye from the angry mob. For Canadians this, strangely, may provide some comfort. What is a trade-dependent middle power to do when Uncle Sam wants to test toxic chemicals on Canadian soil? Sadly, this classic “damn Yankees” approach is woefully inadequate for analyzing the Gagetown spraying. It is likely that the Harper Conservatives, like the Liberals before them, were playing on this widespread sentiment when they announced the September 2007 compensation packages for victims of American Agent Orange testing, neglecting Canada’s far more ubiquitous spraying. This package amounted to partisan posturing and little more.

“They [Americans] were only there because our government invited them in,” said former soldier Earl Graves, a claim that government documents corroborate. “I blame the Canadian government,” says Graves, a lifelong soldier who now suffers from hypertension, heart disease and a rash on his feet that has existed since 1982. As president of New Brunswick’s association of former Black Watch members — the regiment hardest hit by the spraying — Graves is in a unique position to evaluate the consequences of Canada’s history with Agent Orange. He estimates that at least 170 former Black Watch soldiers died young from diseases related to Agent Orange exposure. He also argues that Harper’s compensation package was an attempt to gain votes and deflect attention and outrage towards the U.S. spraying program, overlooking the Canadian government’s far more dangerous record.

Canada’s history with Agent Orange is still unfolding as I write, and it is likely that new information will surface in the next few years, especially during the class-action lawsuit currently before a

court in Newfoundland. It is, however, safe to say that “experts” and affected veterans use two major interpretations to analyze three decades of Agent Orange spraying at Base Gagetown. Dr. Dennis Furlong, appointed by the federal Liberals to head a 2005 fact-finding mission into the spraying, argues that it is not anyone’s fault, *per se*, that the spraying took place: “People didn’t understand at the time what was taking place. I am not sure that anyone in 1956 or 1965 realized that these chemicals were dangerous. Now we do, looking back through our retrospective.” Many soldiers and civilians exposed to the chemicals feel differently. They say they were treated as “guinea pigs”²⁸ and that military and political leaders who were responsible for their safety lied to them. As Agent Orange veteran Paul Thompson explains,

The deceit and the betrayal is what bothers me most. I can live with the diseases, I do every day. But you can’t live with the deceit. I gave twenty-five years of my life to the military and to find out they did this to me and my family, it’s unacceptable. I blame my government; they had no right to do what they did. You were never told what was going on around you, you were like a lab rat.

Many average citizens come down on Dr. Furlong’s side. The components of Agent Orange, 2,4-D and 2,4,5-T were, after all, legally registered chemicals in Canada up until 1985 (2,4-D is actually still used in some provinces, a controversy I discuss later). If the chemicals were registered and legal for use according to Health Canada guidelines, then is anyone really at fault? The federal government cannot compensate everyone each time scientists discover that a new product is dangerous. Many taxpayers, especially urbanites in Central and western Canada who view this as a “Down-East issue,” don’t want the government to shell out millions of dollars for scientific inaccuracies that may have made people sick at a military base in New Brunswick three decades ago.

There are a couple of problems with this interpretation. There is, in fact, ample evidence that senior military officials knew about the spraying of unregistered and dangerous herbicides at the base, yet they refused to act. Among other facts:

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- The companies who produced Agent Orange knew “as early as 1952” that the herbicide was contaminated with dioxin, according to a peer-reviewed book published by Harvard University Press.²⁹
- Internal memos from the Department of National Defence show that in the mid-1960s military officials were concerned about the spraying of unregistered herbicides on the base, yet they did nothing.³⁰
- Leaked memos from the Dow Chemical Company’s Canada operations show that the company was definitely aware of dioxin contamination and the danger it posed to human health by 1965.³¹
- Dozens of interviews with former sprayers working for the Department of National Defence and its contractors clearly corroborate the fact that the military did not provide the simple protective gear mandated by the companies who produced the chemicals. Having military brass telling subordinates that Agent Orange was “safe enough to drink” should dispel any myths of innocence.³²
- A secret 1990 memo to the U.S. Secretary of Veterans Affairs from Admiral Zumwalt showed that American scientists knew in the 1960s about the dangers of Agent Orange, but were not overly concerned because they thought the Vietnamese would be the sole recipients. (One would assume that they would share scientific information with the Canadians or at least make it accessible to them.)³³
- Most importantly, Canada allowed the U.S. to spray Agent Purple when the U.S. had banned that chemical for use in Vietnam. If nothing else, this illustrates, at best, the Canadian government’s complete and utter regulatory ineptitude. At worst, allowing Americans to test a chemical laced with dioxin and arsenic, too dangerous for the Vietnam War, represents total and vicious disregard for the health and safety of Canadian soldiers and civilians.³⁴

The fact that the Government of Canada sprayed more than one million litres of defoliants including Agents Orange, White and Purple on its own people is an ongoing source of disbelief. The

chemicals are, of course, infamous because of the war in Vietnam (the Vietnamese rightly term it the American war). “I can’t believe your government sprayed its own people,” said Nguyen, my friendly Vietnamese translator, as we sped through Ho Chi Minh City on his motor scooter. Throughout my travels and interviews in Vietnam and eastern Canada, this was the most widespread cause of disbelief and rage. “How could our own government do this to us?” wondered one sick veteran. “It just shows me that we don’t mean very damn much to them,” said Wayne Cardinal a “lifelong soldier” who now suffers from “heart problems, COPD [chronic obstructive pulmonary disease — a hardening of the lungs], and a whole raft of problems” he links to the chemicals sprayed when he trained at the base.

While Agent Orange spraying at Gagetown officially began in 1956, some analysts say the historical conditions that made the tragedy possible commenced in the 1920s, if not before. At that time, Israel Rabinowitch and Sir Frederick Banting, leading architects of Canada’s first chemical weapons program, toured Britain’s Base Porton to learn about that country’s chemical warfare technologies. Rabinowitch, a Montreal doctor with a keen interest in chemical war, pitched the idea of aerial spraying to British officials, stating that Canadian “open spaces” could be used for field trials of “mustard gas.”³⁵ The British had recently been rudely awakened to concerns about testing poison gas at home, as mustard gas had “drifted” from Base Porton, causing “complaints from neighboring villages.”³⁶ In other words, spraying in Britain caused blowback, literally. The Brits, and later the Americans, needed a new collaborator in their chemical warfare program, a place where the blowback would not be so severe.

The term “blowback” entered the Oxford dictionary in 2006, defined as “the unintended adverse results of a political action or situation.” According to former CIA agent Chalmers Johnson, who popularized the phrase, blowback is “a metaphor for the unintended consequences of the U.S. government’s international activities that have been kept secret from the American people.”³⁷ In the New Brunswick context, “blowback” has a dual meaning. Wind currents and badly timed spray operations meant Agent Orange and other defoliants literally blew back on the applicators, along with civilians and the natural environment. But the spraying also created the classic

political blowback that Johnson witnessed after botched CIA operations. And the “unintended consequences” of Canada’s long secret war at home has caused people to push back. “We’ve been lied to for forty years and we aren’t going to take it anymore,” said one vet from the Blackwatch. “As we die off... our families will take up the cause,” said Ken Dobbie, a leading plaintiff of a class-action lawsuit Agent Orange victims have filed against the federal government.

“During the 1960s, growing protests over the U.S. Army’s role in Vietnam, the use of defoliants, the use of riot control agents both in Southeast Asia and on the home front, and heightened concern for the environment, gradually increased the public hostility toward chemical and biological weapons,” notes the U.S. Army’s official historical research team in a 2005 report.³⁸ Popular hostility on the home front was not only directed towards chemical weapons projects. Large sectors of the population in the U.S. and Canada challenged basic notions of western hegemony and foreign military interference. Some took this critique even further: student radicals in the 1960s threatened to “bring the war home” if the U.S. didn’t stop bombing Vietnam.

The war did in fact come home to towns like Enniskillen but in the form of spray planes and cancer, rather than social rebellion. This is the story of the war coming home — a story of the military and economic currents that allowed Agent Orange to blow through trees and into rivers in New Brunswick. More than anything, it’s a story of soldiers and local residents who blew back against the government and companies who poisoned them. It’s a blowback against silence. And, though not articulated as such by most of the story’s protagonists, it’s a blowback against militarism and inevitable home-front destruction caused by the chemical fog of war.

Notes

1. Chris Arsenault, “Collateral Damage: Canada’s Vietnam,” *This Magazine*, March/April 2006 <<http://www.thismagazine.ca/issues/2006/03/collateral.php>>. I reported this issue for *This Magazine*, which conducted a thorough fact-check. All of my sources were phoned by a magazine staff member; all documents were reviewed and then a lawyer vetted the piece for libel and accuracy. These numbers come from 1982 briefings to the New Brunswick provincial government, obtained by Access to Information request A-2004-00203-3-4, p. 83–84. By the choice of my editors, facts,

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- interviews and other information from *This Magazine's* investigation will not be cited from here on in.
2. Defoliants sprayed at CFB Gagetown from 1956 to 1984 A-2004-00203-3-4, p. 83–84. Also see CBC “People Harmed by Agent Orange at Gagetown Offered \$20K,” September 12, 2007 <<http://www.cbc.ca/canada/new-brunswick/story/2007/09/12/agent-orange.html>>.
 3. Peter H. Schuck, *Agent Orange on Trial: Mass Toxic Disasters in the Courts*, Cambridge, MA, Belknap Press of Harvard University Press, 1986, p. 18.
 4. L. Roberts, “Dioxin Risks Revisited,” *Science*, February 8, 1991, p. 624–26.
 5. Interview with Earl Graves, January 2008.
 6. Prepared by Major W.O. Taylor, CLO (CBR) Vegetation Control—CFB Gagetown CDW: 2514-3-4 (CBR) 406 August 2, 1966, p. 4. This document was part of the initial package obtained through America’s Access to Information system by MP Terry Sargeant, who helped break the story in 1981.
 7. Alastair Hay and John Tarrel, “Mortality of Power Workers Exposed to Phenoxy Herbicides and Polychlorinated Biphenyls in Waste Transformer Oil,” *Annals of the New York Academy of Sciences*, 837, 1, 1997, p. 138.
 8. Michael Uhl and Tod Ensign, *GI Guinea Pigs: How the Pentagon Exposed Our Troops to Dangers more Deadly than War*, New York, Wideview Press, 1980, p. 123.
 9. Louise Elliot, “In Depth: Agent Orange and Agent Purple,” from the National and CBC Radio World Report, June 13 and 14, 2005. Elliot won the investigative award from the Canadian Association of Journalists in 2006 for this report.
 10. Sean Stoyles, J.M. McCutcheon et al., Canadian Development Consultants International Inc. (CDCI), *Final Report Fact-Finding Task #1 — Military Personnel and Department of National Defence Employees Present at CFB Gagetown During Herbicide Use Since 1952*. Presented to the Department of National Defence by Canadian Development Consultants International, Inc. Ottawa, Ontario, June 30, 2006, p. 7 <http://www.mdn.ca/site/Reports/defoliant/FFReports/Task1/Task%201%20-%20CDCI_Final_FactFindingT1.pdf>.
 11. Letter from Dr. James R. Clary to Senator Tom Daschle, September 9, 1988. Dr. Clary is a former government scientist with the Chemical Weapons Branch, BW/CW Division, Air Force Armament Development Laboratory, Eglin APE, Florida. Dr. Clary was instrumental in designing the specifications for the A/A 45y-1 spray tank (ADO 42) and was also the scientist who prepared the final report on “Ranch Hand: Herbicide Operations in SEA,” July 1979.
 12. Interview with Tony Merchant, January 2008.
 13. Reg Whitaker and Gary Marcuse, *Cold War Canada: The Making of a National*

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- Insecurity State, 1945–1957*, Toronto: University of Toronto Press, 1995, p. 17. For the latter part, see *This Magazine* interview with Ken Dobbie.
14. Department of the Army, Fort Detrick, Maryland, “Technical Memorandum 141: Defoliation Tests in 1966 at Base Gagetown, New Brunswick, Canada,” October 1968, p. 7.
 15. Karen Ellis, Opening Remarks for ADM (Infrastructure and Environment) Department of National Defence before the Standing Committee on National Defence and Veterans Affairs, Ottawa, Ontario, June 21, 2005.
 16. *Ibid.*
 17. A2007-00224, “Material Contained in Agent Orange,” Library and Archives Canada, p. 270. These reports were obtained through Access to Information requests.
 18. A2007-00224, “Material Contained in Agent Orange,” Library and Archives Canada CD, p. 272.
 19. Robert Dreyfuss, “Apocalypse Still,” *Mother Jones* January/February 2000 <<http://www.motherjones.com/news/feature/2000/01/orange.html>>.
 20. Louise Elliot, “In Depth: Agent Orange and Agent Purple.”
 21. *Ibid.*
 22. “Employment of Riot Control Agents, Flame Smoke, Antiplant Agents, and Personnel Detectors in Counterguerilla Operations,” Department of Army Training Circular TC 3–16, April 1969, Section 1, Technical Aspects, p. 1.
 23. Charles Taylor, *Snow Job: Canada, the United States and Vietnam 1954 to 1973*, Toronto: Anansi Publishers, 1974.
 24. *Ibid.*, p. 197.
 25. Victor Levant, *Quiet Complicity: Canadian Involvement in the Vietnam War*, Toronto: Between the Lines Press, 1986, p. 2.
 26. Prepared by Major W.O. Taylor, CLO (CBR) Vegetation Control—CFB Gagetown CDW: 2514-3-4 (CBR) 406, August 2, 1966, p. 5.
 27. Linda McQuaig, *Holding the Bully’s Coat: Canada and the U.S. Empire*, Toronto: Doubleday, 2007.
 28. Interview with Earl Graves, December 2007.
 29. L. Roberts, “Dioxin Risks Revisited,” *Science*, February 8, 1991, p. 624–26.
 30. 1982 briefings to the New Brunswick provincial government, obtained by Access to Information request, A200700224, p. 256.
 31. V.K. Rowe, “2,4,5-Trichlorophenol, the “T” Acids, and Associated Alkaloids,” Dow Confidential, Dow 747096, MM069799. Received on June 24, 1965, by Ross Milholland, Manager of Bioproducts, Dow Chemical of Canada, Sarnia. CCd to L. Silverstien, C. Otis, Grady Holdeman, F. Asstuzz, G. Goergoa, M. Foyle, Y. Falsey, correspondence T17 <<http://www.safe2use.com/ca-ipm/02-03-08.htm>>.
 32. Interviews with Dobbie, Graves, Chisholm and more.
 33. Department of Veterans Affairs, Report to Secretary of the Department

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- of Veterans Affairs on the Association Between Adverse Health Effects and Exposure to Agent Orange Classified Confidential Status (1), as reported by Special Assistant Admiral E.R. Zumwalt, Jr., May 5, 1990, p. 38.
34. Jeanne Mager Stellman, Steven D. Stellman, Richard Christian, Tracy Weber and Carrie Tomasallo, "The Extent and Patterns of Usage of Agent Orange and Other Herbicides in Vietnam," *Nature*, 422, April 17, 2003, p. 682.
 35. John Bryden, *Deadly Allies: Canada's Secret War 1937-47*, Toronto: McClelland and Stewart, 1989, p. 31.
 36. Ibid, p. 31-32.
 37. Chalmers Johnson, "Blowback," *The Nation*, September 27, 2007 <<http://www.thenation.com/doc/20011015/johnson>>.
 38. "History of the U.S. Army Research, Development and Engineering Command (Rdecom)," prepared by Historical Research and Response Team, May 2005, p. 18 <http://www.rdecom.army.mil/pages/fact_sheets/complete_rdecom_history.pdf>.