



## SCATTERING CHAFF: Canadian Air Power and Censorship during the Kosovo War by Bob Bergen

ISBN 978-1-77385-031-3

**THIS BOOK IS AN OPEN ACCESS E-BOOK.** It is an electronic version of a book that can be purchased in physical form through any bookseller or on-line retailer, or from our distributors. Please support this open access publication by requesting that your university purchase a print copy of this book, or by purchasing a copy yourself. If you have any questions, please contact us at [ucpress@ucalgary.ca](mailto:ucpress@ucalgary.ca)

**Cover Art:** The artwork on the cover of this book is not open access and falls under traditional copyright provisions; it cannot be reproduced in any way without written permission of the artists and their agents. The cover can be displayed as a complete cover image for the purposes of publicizing this work, but the artwork cannot be extracted from the context of the cover of this specific work without breaching the artist's copyright.

**COPYRIGHT NOTICE:** This open-access work is published under a Creative Commons licence. This means that you are free to copy, distribute, display or perform the work as long as you clearly attribute the work to its authors and publisher, that you do not use this work for any commercial gain in any form, and that you in no way alter, transform, or build on the work outside of its use in normal academic scholarship without our express permission. If you want to reuse or distribute the work, you must inform its new audience of the licence terms of this work. For more information, see details of the Creative Commons licence at: <http://creativecommons.org/licenses/by-nc-nd/4.0/>

**UNDER THE CREATIVE COMMONS LICENCE YOU MAY:**

- read and store this document free of charge;
- distribute it for personal use free of charge;
- print sections of the work for personal use;
- read or perform parts of the work in a context where no financial transactions take place.

**UNDER THE CREATIVE COMMONS LICENCE YOU MAY NOT:**

- gain financially from the work in any way;
- sell the work or seek monies in relation to the distribution of the work;
- use the work in any commercial activity of any kind;
- profit a third party indirectly via use or distribution of the work;
- distribute in or through a commercial body (with the exception of academic usage within educational institutions such as schools and universities);
- reproduce, distribute, or store the cover image outside of its function as a cover of this work;
- alter or build on the work outside of normal academic scholarship.



**Acknowledgement:** We acknowledge the wording around open access used by Australian publisher, **re.press**, and thank them for giving us permission to adapt their wording to our policy <http://www.re-press.org>

## Don't Go to War without It

The dangers that Canada's CF-18 pilots faced each time they flew into combat began high over the Adriatic Sea about ten or fifteen minutes before their final push to targets in Serbia and Kosovo, through a date with the "Iron Maiden." The Iron Maiden was the pilots' affectionate name for the American or French KC-135 air-to-air refuelling tanker the Canadians call a strategic tanker.<sup>1</sup> To take on a load of jet fuel, the pilots had to approach KC-135s from behind with their fueling probe extended toward the Iron Maiden's 8.5-metre boom with a 68-kilogram cast iron basket attached to the end of a 2.4-metre rubber hose.

The pilots had to insert their probe into the basket and then delicately manoeuvre their jets so a 90-degree bend occurred in the rubber hose. That bend let the fuel flow.<sup>2</sup> The task could be jeopardized by jittery or uncertain pilots who missed the basket and tipped it into the KC-135's slipstream, causing a violent swinging motion that could flail the basket into the jets, tearing their skin or shearing off vital sensors. That was known as "the kiss of the Iron Maiden."<sup>3</sup> Capt. Brett Glaeser recalled his first terrifying date with the Iron Maiden the night of his first mission on 5 April 1999:

Being a Canadian fighter pilot with 350 hours, I'd never had a chance to fuel from one of these things. The brief was like: "OK, has anybody here flown on a 135?" I said: "Yeah. I've never done this before." The brief from the flight lead was: "OK, you know you need to do this, this, and this. These are



4.1. A CF-18 refuels mid-flight on a KC-135 during a “date with the Iron Maiden.”  
Photo courtesy of Travis Brassington.

the cues that you’re going to want to look for and this is how you’re going to want to approach the airplane and get your fuel.” Probably five minutes he spent just talking to me. I remember I was the last guy in the formation. It was in the dark and in the clouds and I had the least amount of gas when I arrived on the tanker. If I was unable to get gas then I was diverting and I would have been landing somewhere in southern Italy where I’d never been before in my life, but I got my gas and the airplane didn’t get damaged. Nobody got hurt. It was a heck of an experience. I’d never air refueled on a KC-135 before; I’d never carried a live GBU-12 before and I’d never been shot at before. These are all things that I’ve never done before in my life and I’m doing them all

on the same night, but probably 50 per cent of the stress was going to that tank.<sup>4</sup>

Whether with Glaeser on his first mission or Maj. Alain Pelletier on his third tour of duty flying out of Aviano and refuelling on many different tanker aircraft, the experience could be harrowing. Pelletier explained:

There was one night during the actual conflict itself where Rambo and I showed up and tanked out on a KC-135, an American KC-135, between two cells—two thunderstorm cells—that were extending up to about 35,000 feet. So, we were between those two cells. Just seeing the lightning coming from the right or from the left as you're actually hooked up to an aircraft that carries about 135,000 pounds of fuel makes you think about what you're doing. It's like lighting a match right next to a fuel cell or fuel tank.<sup>5</sup>

Just as Pelletier remembered almost every detail from the night of his first combat mission on March 24, pilots like Glaeser vividly remember what was going through their minds:

Really, like I had no real fear for my safety, for my life or being shot down. My biggest fear was: "OK, did I pay attention enough in my training, you know, and whether or not I could actually pull it all together and make it happen. If not, then really it's life or death so it was like, OK, I need to be on my game tonight."<sup>6</sup>

Glaeser's first mission was a Battlefield Air Interdiction (BAI), or bombing mission attacking army barracks, in the town of Prizren, barely into Serbia about twenty miles north of Kosovo's southern border.

We got gas and waited for the whole strike package, the whole mission that was going into theatre to push into country. We crossed the border and we were in bad guy

land, as we call it, for probably no more than five minutes.  
We dropped our weapons, turned around, came home.<sup>7</sup>

By the time one Bagotville pilot of 425 Tactical Fighter Squadron arrived in Aviano on 1 May 1999, Canada's air-to-air refuelling limitations were beginning to fully manifest themselves. He had been in Aviano for three months in 1998, but he wasn't in Aviano for the first night of bombing on March 24, because his pregnant wife was due to deliver a baby. When he flew off to war, he left his wife and newborn in the care of both sets of grandparents. He was sent over with seven other pilots flying an eight-pack of CF-18s to replace those that had reached their serviceable limit in Aviano. Unfortunately, the Americans' KC-135s were fully committed to the war effort and were unavailable to refuel Larouche and his fellow pilots mid-ocean. Hence, they had to fly the operationally least preferable transatlantic route to Aviano. They hopped to Goose Bay from Bagotville; stayed overnight in Goose Bay; met a pre-deployed Hercules refuelling plane off Iceland and flew to Germany; stayed overnight in Germany and reached Aviano on May 1.<sup>8</sup>

On a more optimistic note, the Canadian Forces had obtained precision-guided munitions capabilities for the CF-18 after the 1991 Persian Gulf War. The Canadian Forces' after-action report on the Kosovo air campaign addresses this issue in only the most opaque fashion. The Canadian airmen and their support crews had to "adapt to difficult and unfamiliar operating environments with equipment that was new, unproven and incompletely documented" while maintenance personnel had to cope with "new software versions that were introduced without documentation that made troubleshooting and fault code analysis difficult."<sup>9</sup> To understand those cryptic observations, one must consider how the Canadian Forces developed precision-guided munitions capabilities for the first time.

Air forces worldwide began to view precision-guided munitions as the way of the future after the 1991 Persian Gulf War. During that war, US commanders appeared on television sets around the globe in post-operation briefings showing cockpit footage of so-called "smart bombs" guided to their targets with pinpoint accuracy. Lt. Col. Don Matthews, who commanded the Canadian "Desert Cats" during the 1991 Persian Gulf War, came within two hours of being the first Canadian pilot to drop

precision-guided munitions in February 1991. The American navy had supplied Canadians with the bombs, which would have been buddy-lased or guided on to their targets by Americans flying A-6E Intruder carrier-based aircraft training their lasers on designated targets. Those bombs were never dropped because a ceasefire was agreed to and the war ended.<sup>10</sup>

The Canadian air force did not acquire precision-guided munitions until six years after that war ended, for several reasons. Most had to do with Department of National Defence budget cuts following the collapse of the Soviet Union. In 1991, the Mulroney government announced that it would close the Canadian air force bases at Lahr and Baden-Soellingen, Germany, by 1995 and that the Forces' overall strength would fall to 76,000 from 82,000. In years to follow, the finance ministers began plucking the low-hanging fruit that was the national defence budget in the name of the peace dividend and deficit reduction. Defence spending was slashed by 23 per cent to \$9 billion in 1998–1999 from \$12 billion in 1993–1994. When coupled with inflation, the effect was a 30 per cent reduction in real terms.<sup>11</sup> With no indication in the 1994 White Paper on Defence as to what the budget cuts would mean for the air force operationally in the coming years, fighter-related overheads were cut, including annual authorized flying rates, the CF-5 fleet was retired, fighter pilot training was modified, and operational aircraft were reduced to between forty-eight and sixty from seventy-two.<sup>12</sup>

The 1994 white paper also indicated that the CF-18s' multi-purpose capabilities would be enhanced with the acquisition of a small number of sophisticated precision-guided munitions.<sup>13</sup> However, the air force did not receive the so-called smart weapons for years. Matthews explained: "The peace dividend was going to be pulled out of the military come hell or high water. Precision-guided munitions went into a long list of capabilities that were shelved."<sup>14</sup>

The air force eventually began to receive the long-sought precision-guided munitions capability six years after the 1991 Gulf War. It began with the delivery of Forward Looking Infrared (FLIR) pods and NITE Hawk B laser targeting in 1997.<sup>15</sup> FLIR pods enable target identification at night using four-power magnification and heat-sensing equipment. NITE Hawk pods enable pilots to home smart bombs onto their targets by directing laser energy at them, which the bombs follow.<sup>16</sup> Also, six years

after the Gulf War, Matthews was back in Canada commanding the military's Aerospace Engineering Test Establishment. He flew on the final missions to clear the NITE Hawk laser designating pod and 2,000-pound precision-guided munitions for the CF-18. The work configuring the CF-18s' computers for that capability spoke volumes about the state of the Canadian air force. There was a six-year hiatus between the time the Canadians saw that precision-guided munitions were the way of the future and their eventual clearance for use. By that time, the CF-18s' mission computers had become the equivalent of computing dinosaurs, like obsolete early 1980s-vintage Commodore 64 computers.<sup>17</sup> Matthews explained the problem:

The mission computer on the F-18 could barely handle the NITE Hawk. I mean it's sort of like saying you know, "let's buy the best target designating pod on the market." So, it's like buying the best peripheral for your computer. If you've got a Commodore 64, do you think the latest piece of software from IQ is going to work on it? No, so that's the issue. We diddled our software so badly and under-funded our software so badly that we really had to tweak it up. By really tweaking it, we screwed some things up badly. One of the missions I was on, the bomb went Pffft. I don't need to bore you with all the details, but that was indicative of where we were as an air force.<sup>18</sup>

When Canada acquired the technology, it bought only thirteen FLIR pods. Immediately upon acquisition, two were taken out of service to be cannibalized for parts, while the remainders were allocated to Canada's two fighter wings for training.<sup>19</sup> Former 4 Wing Commander Lt. Col. Jim Donihee did not have positive memories of the experience. "You basically had two wings attempting to shuttle six or eight pods back and forth on a recurring basis in order to try and maintain readiness levels. It was almost whimsical that it could ever be achieved."<sup>20</sup>

When Canadian CF-18s were committed to the Kosovo air campaign, eight pods were committed to Aviano, while three remained in Canada to train pilots who replaced the CF-18 pilots in theatre. Canada could only

escalate its sortie commitment to twelve CF-18s by borrowing four earlier-generation FLIR pods from the Australian air force.<sup>21</sup> After Canada had increased the number of CF-18s to eighteen, Task Force Aviano never had enough pods to equip the last six jets that arrived, rendering them useful only for air defence or for missions that did not require smart bombs.<sup>22</sup> Bagotville pilot “Tubs” of 433 Tactical Fighter Squadron described what it was like working with a FLIR pod during combat:

It really depended on the environmental conditions. They are very susceptible to humidity, but on a nice dry night you can see for fifteen or twenty miles. Generally speaking, you had to be inside of ten miles to identify your target area. You have to have familiarity with the pod to sometimes interpret what you’re seeing. What you’re looking for is heat difference, heat differential, and to recognize the pattern. You learn what things cool off faster if you’re at night and what things heat up quicker if you’re in the daytime, if it’s sunny, if it’s not sunny, if it’s cloudy, what grass looks like, what buildings look like, roads, concrete—they all look different on a FLIR. I was pretty fortunate. I had a lot of training with the pod, but there were some folks that weren’t as comfortable with predicting what things would look like through the pod, so certainly that was a shortcoming.<sup>23</sup>

Another of the shortcomings with the FLIR pod the Canadians were using was its four-power magnification. Of the FLIR pods available to NATO militaries, the Canadians had the poor-cousin variant. During the Kosovo air war, the Americans used FLIR pods with eight and ten times’ magnification, with integrated global positioning systems (GPS) that allowed for precise bombing through cloud cover.<sup>24</sup> In the event of cloud cover that made it impossible to deliver their bombs, the Canadians simply returned home with them. One Bagotville pilot, for example, flew six missions and dropped his bombs only once.<sup>25</sup>

Instead of the Americans’ GPS, the Canadian FLIR pods were equipped with an Instrument Navigation System (INS) that reduced their effectiveness. There is always a certain amount of drift in an airplane’s

flight path. That drift could put the CF-18s up to two miles off the path the pilots intended on their bombing run approach, increasing the workload of pilots as they tried to determine where they were and if they were about to bomb the right target. A CF-18 pilot explained:

Before we dropped we had to update that INS to make sure our FLIR was looking in the right place. The problem is—because of the limitations of the system and the equipment—the problem now became for the pilot, in addition to having reduced magnification, you may not even be pointing at the target. You may be two miles away when you're looking at your FLIR. We used to call it blobology. If you are pointing at something that's two miles off the target, now you're cueing in terms of what you have as a [different] reference from your visual picture and the one from your map. Now it becomes totally skewed, you're not seeing what you expected to see. If I was expecting to see a river, a bridge, a building target and the FLIR is now pointing two miles off, well I'm not going to see a river, a bridge, a building target. I'm going to see a field that looks nothing like what I'm supposed to be looking at so, that in itself causes us some problems. When you look at the Americans, if they have a GPS system, they know that their system is good. They have much more confidence that when they designate a target and when they launch a bomb that it's going to land in the vicinity and not two miles away.<sup>26</sup>

“Blobology” was a far cry from Chief of Defence Staff Gen. Maurice Baril’s description before the House of Commons Standing Committee on Defence and Veterans’ Affairs (SCONDVA) on the Canadians’ precision bombing capability. More than a month into the war, on 28 April 1999, Gen. Baril told SCONDVA: “From very far and very high, our pilots can choose which window of this building to drive the bomb into with precision-guided ammunition.”<sup>27</sup> That was not the truth. So, too, with the ordnance or bombs the Canadians were dropping. Deputy Chief of Defence Staff Lt. Gen. Ray Henault told an Ottawa press briefing on March 25, the



4.2. Lieutenant-Colonel William Allen “Billie” Flynn examines a 500-pound GBU-12 Paveway II laser-guided bomb during a pre-flight inspection. Photo courtesy of the Department of National Defence.

day after the bombing campaign began, that acquiring the precision-guided munitions got Canada “back into the club again.”<sup>28</sup>

The standard bomb in Canada’s inventory before the Kosovo air war was the Mark 82 500-pound free-fall bomb, so-called iron or “dumb bomb,” dropped by the Canadian Desert Cats on the “Highway of Death” in the final days of the 1991 Gulf War. One laser-guided technology Canada acquired after the Gulf War coupled a FLIR pod and Mark 82 bombs equipped with MAU-169 Paveway II control units. Those control units turned the Mark 82 bombs into GBU-12 bombs able to follow laser light beamed at targets by the FLIR pod, making them smart.<sup>29</sup>

Canada also acquired a later-generation Paveway III laser-guidance technology for the GBU-24, a 2,000-pound bomb. The GBU-24 was provisionally cleared by the Department of National Defence for use with the CF-18 on 15 July 1998.<sup>30</sup> The differences between Paveway II and Paveway III determined the technology Canadians used during the Kosovo air

campaign. Paveway II technology simply let bombs follow a pilot-aimed laser line off the airplane. If the laser beam encounters a cloud, because there is no laser energy for the bomb to follow the bomb falls off the laser beam and misses its target. That is not necessarily a bad outcome, explained Lt. Col. William Flynn, commander of CFB Cold Lake's 441 Tactical Fighter Squadron in Aviano, who assumed command of Task Force Aviano's Canadian fighter operations sixteen days into the war.

At least you know that if you drop in on a certain line, and you've figured out where your tack is, and if there is something in the way of this bomb when you drop it—if it loses laser energy—it's going to drop short by some distance and blow up a couple of trees. You're not going to have the same risk of collateral damage as you might have with a bomb that you don't know where it goes once it comes off your airplane.<sup>31</sup>

Not knowing where a bomb might land was the problem associated with the Paveway III technology. The Paveway III had a four-program mode capability that let pilots determine how it would fly. When released up to ten nautical miles away from its target, the GBU-24 falls off the airplane and establishes itself on a pilot-determined mid-altitude cruise profile, for example, at about 10,000 feet. The bomb cruises along to a point where it opens its "eyes" and looks for laser energy to dive into the target. The technology was ideal during Desert Storm when there were no clouds over the desert.<sup>32</sup> If the laser beam runs into clouds, however, the GBU-24 doesn't simply fall off the beam like a GB-12; it keeps on flying beyond the intended target. The pilot who launched it has no idea where it is going.<sup>33</sup> However, the weather for much of the Kosovo air campaign wasn't comparable to that of the Persian Gulf, where American pilots launched their bombs from seven miles away, hitting their targets every time because in the desert, nothing was in the way. Flynn explained:

This was April and May in the Balkans. It was pouring rain—horrible weather—and we had to be very careful about throwing these bombs away arbitrarily. We also had

to deal with the collateral damage issue which is: “You better make sure you know where this bomb is going to go and if it doesn’t hit the target, you better have some idea of where it might fall.” We didn’t want to accept the risk of collateral damage by launching these bombs and having no idea where they were going to go.<sup>34</sup>

The tactical conditions dictated that the only suitable bombs for the Canadians were the lighter 500-pound GBU-12 bombs. There was nothing wrong with them, given appropriate targets. In the most successful bombing mission of the early part of the war, four Canadian pilots—Flynn among them—dropped six 500-pound bombs each on fifty or sixty Serbian army vehicles assembled on a hilltop one Saturday morning. “We dropped twenty-four bombs exactly on target. We destroyed the entire assembly area and vehicles and, obviously, the Serb army soldiers with our attack.”<sup>35</sup>

Choosing the right bomb for targets is not up to the pilots. Mission planning aids and computer programs match weaponry to targets.<sup>36</sup> A 500-pound bomb is appropriate for a soft-skinned communications tower, whereas a 2,000-pound bomb is not. Flynn explained:

A big bomb isn’t always exactly what you want when you drop two bombs at a time. Dropping 2,000 pounds of ordnance every time can be serious overkill. When you talk about the lethality of a bomb, it is not linear in the level of destruction from a 500-pound bomb to a 2,000-pound bomb. It is exponential. A 500-pound bomb is basically a poof, a little flash. A 2,000-pound bomb is incredible destruction. You don’t always need to be dropping 2,000-pound bombs everywhere you go.<sup>37</sup>

However, three sets of problems emerged as the result of the Canadians only having 500-pound smart bombs in their inventory. The first problem was only cryptically hinted at in the publicly releasable declassified portions of the secret Operation Echo lessons-learned report. “At times during OP ECHO, TFA came close to depleting vital consumables that could have significantly limited operations.”<sup>38</sup> Stated in less bureaucratic

language, two weeks into the war the Canadians in Task Force Aviano were running out of GBU-12 bombs.<sup>39</sup> A weapons load standards and training officer with 1 Air Maintenance Squadron assigned to 441 Tactical Fighter Squadron in Aviano, saw that shortcoming when he arrived in Aviano two weeks after the bombing campaign began on March 24. He later recalled: “We could still meet mission requirements, but we were using them up pretty quick.”<sup>40</sup> Canadian military personnel are reluctant to give specifics about the seriousness of their supply problems, but they were down to one day’s supply at least twice.<sup>41</sup>

Brig.-Gen. James Cox was Canada’s Deputy Assistant Chief of Staff for Intelligence posted to NATO’s Supreme Headquarters Allied Powers in Europe (SHAPE), the NATO military headquarters responsible for all NATO operations in Europe in Mons, Belgium in July of 1998. He officially worked for a Dutch Major-General WHO reported to the Chief of Staff, a very able German four-star General. However, being Canadian, he was the senior “Five Eyes” military intelligence officer in SHAPE, and in that role occasionally had direct access to American Gen. Wesley Clark, NATO’s Supreme Allied Commander for Europe. He also had British and American colonels on his staff, as well. Between the three, they had links to their national intelligence organizations and shared intelligence products appropriately. Cox recalled the morning when the Canadians began running out of the “key consumables”. He was in the room that was equipped with video screens for teleconferences between Clark and Lt.-Gen. Mike Short, NATO’s air south commander who commanded the air war’s operations out of Naples, Italy. Cox recalled:

This one morning, we were there and they were talking about the problems of the targeting and clearing the targets. It was becoming a problem in the Alliance, and General Short happened to say, on screen: “and this morning I had a problem with, of all people, the Canadians.” So, I sat up and I perked up as I heard him say “the Canadians.” He said: “Yeah, there was a problem in getting clearance for the bombing of targets.” I mean, he just happened to throw in the glib phrase of, “and I think it’s a problem with their Parliament.” Now where he heard that from I have no idea, but

that's what he said. General Clark, in exasperation, because he was having a hard time on target clearances, he threw his pen down on his notepad on the desk and he turned to me a couple of tables over and he said: "Could you please straighten out your Parliament?" So, I had all sorts of ideas in my head, you know, "Jesus, how can I do that?" But, I said, "Yes, Sir."<sup>42</sup>

Cox left the meeting and began making phone calls. "I got an answer out of Aviano that, in fact, the only problem that we were having is that we were running out of bombs and needed more. It was a thing I was happy to take up and report to Clark to say, 'Here's what really happened. The only problem in all this really is we need some more bombs.'"<sup>43</sup>

The only ally Canada could turn to in order to obtain more precision-guided bombs was the United States. A flurry of diplomatic activity occurred between the Canadian embassy in Washington and the Pentagon. On April 8, two weeks after the bombing campaign began, Public Works Canada and Government Services Canada in Washington filed an "extremely urgent" request for an emergency supply of 100 GBU-12 laser-guided bombs.<sup>44</sup> In Ottawa, Brig. Gen. David Jurkowski was back on the phone to his Permanent Joint Board of Defence counterpart in the Pentagon. "It was very quick to call up the Pentagon and say to my buddy: 'We need this. Can you help us?' It happened in a heartbeat. So that's actually a very, very positive capability as well as development."<sup>45</sup>

The clearance happened so quickly that the Canadian Forces' weapons technician in Aviano responsible for acquiring the GBU-12 bombs, at a cost of \$25,000 each from the Americans, had no problem at all. Giving added meaning to the expression "Don't leave home without it," he produced his Canadian government-issued credit card. "I can buy military equipment with it. Wherever I need it, I can buy it."<sup>46</sup> In Canada, that is what Gen. Henault told SCNDVA on 28 April 1999 was "the normal replenishment process." He did not say what the process was, only that "we are replenishing or re-supplying the ammunition stocks as we go along."<sup>47</sup> That explanation did not begin to come close to revealing to parliamentarians how ill equipped the Canadians were during the bombing campaign and how reliant they were on the Americans.

The weapons technician said it was easier buying bombs from the Americans than it was to get them back to the Canadian storage area at the southwest end of the Aviano air base. The American ammunition control building, where all ordnance was tracked, was miles from the airfield across the main north–south public highway. When the Canadians needed materiel from the Americans, the east gates of the airfield would be opened and Italian civilian police, the carabinieri, would stop vehicular traffic so military vehicles could cross the road. The technician explained:

It was actually quite comical. We had a car come right through us, right through the convoy. Like, there was a truck and then two trailers and a truck and two trailers and the car came right between the two trucks and barely missed one of the explosives trailers by about two inches. The carabinieri was quite shocked. All he could do, he sort of looked at us and shook his head and waved us through. It's pretty funny. It wasn't at the time, but when you look back: "Oh, that was close."<sup>48</sup>

Moreover, as the campaign wore on, the quality of the American bomb stocks being supplied to the Canadians dropped noticeably. The weapons technician described what happened:

When we first went over there, the first ones were basically pristine looking, you know, like they'd never been out of the box. But we ran out of what we bought so we had to buy more from them and the stuff that they were basically pawning off was dregs. The oldest one I saw was made in like 1974. It was really old stuff. Some of them, for me to get them to work, I had to hit them with a hammer. What happens is the little wing hubs that steer the weapon to the target, over time sitting in storage, they sort of tighten up and the "O" rings would dry up a little bit. To get it to work you would have to whack it with a hammer, that's actually in the American technical orders to do that. It's pretty funny actually.<sup>49</sup>

Even more, for the older bombs, the Americans didn't have documentation for the laser-guidance kit codes. A Persian Gulf War veteran, a sergeant, found a solution to that problem, burning out specific lines in the older laser-guidance binary codes to make them compatible with newer guidance systems. "In fact, none of the Americans knew how to do that."<sup>50</sup> He showed the American military how to reconfigure their own old weapons, enabling them to salvage more than 90 per cent of bombs they thought were unserviceable, saving them tens of millions of dollars.<sup>51</sup> Even so, he often felt uncomfortable as a Canadian going to the Americans with his cap in hand.

We'd always have to go to the Americans to get stuff. It was: "Yep, we're running out of bombs." So I felt like an arms dealer going to the guys and going: "Hey, what do you got, do you have anything left over that we can use?" You know, making deals with them, having to use their forklifts because we didn't have any, and then using the diesel forklift inside a magazine where all the bombs are stored. Then you get fumed out because there were fumes where we should have had an electric forklift in there, or something with better air quality. We ended up putting a strain on the Americans by having to use their stuff.<sup>52</sup>

He says that making do with few resources is the Canadian way. "You work with what you can, and instead of saying, 'No, we can't do it.' You make it happen. There's normally always a way to get work done." Scrounging has become the Canadian way of war.

Shortly after the beginning of May, the Canadian ground crew in Aviano took to naming themselves the "Balkan Rats," because it rhymed with the Deserts Cats, the nickname for the CF-18 pilots who flew during the 1991 Gulf War. It also carried a pack-rat connotation well suited to their ability to scrounge sufficient equipment to keep the CF-18s in the air.<sup>53</sup> To acknowledge their nickname, the crews painted a "Balkan Rats" emblem on the top outboard of each CF-18's forward-facing fins.<sup>54</sup> They also used a stencil cut from cardboard to paint a bomb on the CF-18's forward port fuselage after each successful bombing mission. Once, after a pilot had to

jettison a hung bomb into the Adriatic due to a malfunction in the charge that deploys the bomb from the jet, the ground crew painted a fish on the CF-18's fuselage.<sup>55</sup> Despite the hardship, they retained a sense of humour.

At the outset of the air-bombing campaign, SACEUR Gen. Clark aimed to blind the Yugoslav military by crippling their radars and destroying their missile launchers and anti-aircraft missile systems, expecting Milosevic would capitulate in short order. On the first night of bombing, NATO warplanes hammered airfields, an aircraft repair facility, electronic intelligence collection and distribution sites, and army headquarters.<sup>56</sup> However, Milosevic did not capitulate and the bombing campaign became protracted. Generating enough approved targets beyond the initial planned 100 became a problem for NATO commanders, not because there were too few places to hit but because of the approval process.<sup>57</sup> Initially, the plan gave Clark the power to approve targets. When the campaign began, however, Washington and other countries' governments and their politicians wanted to shape the target approval process.<sup>58</sup>

Clark held two command functions in Europe. He was NATO's Supreme Allied Commander Europe, responsible for taking command from NATO's North Atlantic Council, and the US Commander in Chief, European Command (EUCOM). In EUCOM each target was assessed for location, military value, possible casualties, potential for collateral or accidental damage beyond the intended target, and what might happen if a bomb missed its target. The proper weapon had to be found for each target, and once that analysis was done, it was sent off to Washington, where it underwent further military review before ending up on US president Bill Clinton's desk for approval.<sup>59</sup> The US chain of command ran from Clark in Mons, to the joint chiefs of staff, to defence secretary William Cohen, to Clinton and then back to Clark. Individual countries also had their say, frustrating NATO commanders and slowing the bombing campaign. French president Jacques Chirac ruled out strikes against Montenegro, which was viewed as less hostile to the west than Belgrade.<sup>60</sup> The target approval process put Gen. Clark in an impossible position: responsibility without authority. As de Jomini predicted, if the unfortunate general directing the war was unable to decide the manner in which he was to achieve the war's objective, the responsibility for that inability would fall on the

shoulders of those responsible hundreds of miles (in this case thousands of kilometres) away.

Canada's ambassador to NATO in Brussels during the bombing campaign, David Wright, sat on NATO's North Atlantic Council. He was one of nineteen ambassadors taking political direction from their countries but empowered to make decisions on behalf of their governments. He wrote that the North Atlantic Council had the authority to decide on categories of targets and used it during the various phases of the bombing campaign, but that politicians did not micro-manage the bombing campaign by deciding on individual targets. The first phase, for example, targeted Serbian anti-aircraft installations. The second phase was launched against tactical Serb targets in Kosovo. The third phase, which was never formally adopted but began anyway, started just six days after the bombing campaign began. It included selected strategic targets such as the state-run television station and other targets at the heart of Slobodan Milosevic's power. Wright denied there were political motivations behind the target selections, insisting that it was military authorities alone who decided on the targets.<sup>61</sup> Wright's account directly contradicts Gen. Clark's and others' accounts. For example, on the first night of the war there were fifty-one targets struck by 366 aircraft. By the war's end, nearly 1,000 targets had been identified as targets for 900 NATO aircraft.<sup>62</sup>

Lt. Col. Sylvain Faucher saw politics shape the target selection. It was never believed around the planning table that the NATO bombing campaign would be protracted.

Everyone thought it would be over in a matter of days. Every morning I was sitting around the table with X number of nations—the nations that were in Aviano—to plan what was going to happen today. At that point in time, the political inputs, i.e., what would the political leaders want us to do with the conflict, it was their conviction, it was obvious to me, that this conflict would be short. That's what their beliefs were and that's where the number-of-targets issue came into play. A lot of people were convinced that with this amount of targets the military would have accomplished its mission. So initially, the targets were restricted to a certain

number and a certain category. It became fairly obvious after a few days that the aim would not be accomplished with that amount of targets.<sup>63</sup>

Post-mortems concluded that the problem with the bombing campaign was not the NATO mechanisms for using air power but rather with political leaders who believed that Operation Allied Force would end in two to four days. So certain were they of that end, they identified just three days' worth of targets.<sup>64</sup> As a result, the bombing efforts seemed under-sourced, the targeting process erratic, and the aircraft too few. Moreover, the combined air operations centre (COAC) in Vicenza had no flexible targeting cell that could authorize an expanded target list.<sup>65</sup>

The Canadian government documented the targeting process during the air campaign,<sup>66</sup> but those documents are exempt from disclosure under the *Access to Information Act* because their release could damage the conduct of international affairs and the defence of Canada.<sup>67</sup> However, Operation Echo's after-action report showed that the targeting process evolved over time and was briefed to and approved by Gen. Baril in early June of 1999, near the war's end.<sup>68</sup>

Further, long before any Canadian pilot donned his Nomex® flight suit, his targets had to be approved for their military value by Canadian military lawyers in Aviano who vetted them. Lawyers could veto missions based on a target's military worth or proximity to civilians based on the CF-18s' flight paths if bombs fell short, as was the planned fail-safe case with Canadians' use of the Paveway II GBU technology. For some pilots, that vetting was a source of frustration, for others a source of comfort, and, for more, a source of stress. There were flight recorders in the cockpits of every CF-18 that were turned on as soon as the pilots went "feet dry," or, in other words, passed flying over the Adriatic Sea and began to fly over land. The flight recorders record up to three hours, so everything the pilots did was scrutinized by lawyers upon their return, including where the bombs landed and what they hit.<sup>69</sup> Pilot radio call sign "Chimp" explained:

That was something new for us, to actually have a lawyer with us in Aviano looking over the targets. Every country has a list of declared special sites, religious sites, historically

significant sites, and they're obligated to not hide their military equipment at any of those sites. We make every effort to spare those sites. The lawyers would be looking over our shoulders to be sure we're keeping that in mind and that we didn't use a bigger bomb than we had to.<sup>70</sup>

One pilot who goes by the call sign "Midas" explained that he felt better having lawyers vet his targets first:

Some people would complain probably that it was a bit of a pain in the ass having them there, but they really sanitized the targets. I was quite confident that I wasn't personally carrying out any atrocities or anything that was questionable. They were quite careful, at all levels, to ensure that there was no collateral damage, the things you see on TV where markets are blowing up. They were quite careful to make sure we didn't do that. It wasn't just legal, it was more of a humanitarian and less of a military approach, which sat well with me. You knew what you were doing was horrible, but at the same time it was for the right reasons. It was sanitized to a point where the people who were getting it deserved it.<sup>71</sup>

Pilot radio call sign "Mur," the 4 Wing weapons officer in Aviano, was happy to have the Canadian Forces lawyers involved in the targeting approval process.

I personally found it to be a comfort having the lawyers there. Rules of engagement and the validity of military targets is a very, very legal-based thing. It's a bit much to ask an air warrior to be expert in that system of interpreting the legality of rules of engagement and target validity whilst also maintaining the ability to execute that mission. That's a pretty broad spectrum so I was happy to have a lawyer say: "This is a valid target. These are the restrictions you have to apply when attacking a target and these are the areas

that are potential areas of collateral damage avoidance. We should avoid that.” I thought that enhanced our mission. It made it easier for me to achieve the commander’s intent with their input.<sup>72</sup>

Not all the pilots were happy that lawyers vetted their targets, however. Pilot radio call sign “Willi,” flying with Bagotville’s 433 Squadron, explained the frustration:

Some of the times I felt that the lawyers were there more tying our hands than they were helping us. I can come up with a particular instance. We were targeting a facility and all our targets had to go through the North Atlantic Council, which Canada was a member of, so the council cleared all the targets. We have to assume our highest level has cleared this to be a legal, valid target. The target was tasked to us and our lawyer in theatre said we couldn’t hit that target because it wasn’t a valid target, it was a civilian target. He couldn’t see the relation of what this would be for military operations. Twice we targeted the same thing and twice he told us we couldn’t target this facility until somebody else destroyed it. It was that level of frustration I felt with the lawyers. By the same token, the lawyers were there absolutely to keep us safe, but sometimes they tied our hands significantly in the belief that, you know, always looking for the 100-per-cent solution. Much of the time we don’t deal in the 100-per-cent solution because often, we don’t have the time for the 100-per-cent solution.<sup>73</sup>

Once pilots returned from their missions, the Canadian Forces lawyers stood in the debriefing rooms, reviewing flight tapes to ensure the bombs were dropped on their targets exactly as planned. The pressure the lawyers put on the pilots to avoid collateral damage illustrates just how far modern strategic thinking had evolved from Giulio Douhet, one of its key originators, who argued major population centres should be subjected to strategic targeting to break the population’s support for the war. Despite

those modern human rights objectives, Capt. Kirk Soroka said the pressure that the lawyers brought to bear on the pilots was almost unbearable.

The problem is that war's not fought like the Second World War anymore, it's fought on CNN. It's fought with the lawyers hanging over your shoulders and everybody in the chain of command can see your videotape and know every single mistake in action that you make. The pressure on each pilot when he shows up in theatre to fly his first combat mission is incredible. You're not only applying pressure on yourself to deliver weapons so you don't run away from the enemy, but you get pressure from your peers, pressure from the ground crew, pressure from the lawyers, your leaders, all to go out there and destroy your target. That type of pressure can make you ineffective. There were a lot of missed attacks due to this pressure. Everything was being recorded. We were being micro-scoped every day, so you make a mistake and they want your tapes. The guys were afraid if they did make a mistake that the lawyers would basically testify against them. In fact, one lawyer told me right to my face that she'd testify against any pilot she saw that mistakenly dropped their bombs into the target area.<sup>74</sup>

One Bagotville pilot recalled a terrifying night that illustrates the dangers the pilots faced, how their years of training came into play, and why there were times they couldn't give a second thought to the lawyers reviewing their flight tapes and assessing the appropriateness of their actions. After being tasked to bomb an ammunition depot just north of the Serbian city of Nis, he and the pilot flying lead missed their target on the first pass through southern Serbia and returned to re-attack. Although they couldn't see it on their radar, they were shot at by an SA-6 radar-guided surface-to-air missile that was travelling at more than twice the speed of sound.

The flight lead, he called the SAM launch, right, two o'clock. We didn't talk to each other until everything was over, but we did the same actions at about the exact same time with-

out talking to each other. We both emergency jettisoned all our tanks and bombs and everything. We hit the panic button, if you wish. Everything fell from the aircraft so we have a manoeuvrable aircraft and this SAM, it just climbed. I remember really vividly, it just climbed. Then it was aiming. I was just about to do my last-ditch manoeuvre there so the missile just misses you a little bit, then it just flamed out. So, it became all dark. It was night so I went: “Oh, OK.”

Foolish me. I assumed the thing was just gone, but it was still doing over Mach 2 heading my way. So I stopped manoeuvring. I just levelled the wing. I don’t know how close it came, but the motor stopped running. Then I talked to my lead. We started talking: “Hey, what’s your position?” He was below me, but I put on the afterburners to get some energy. We exited Serbia via Macedonia and came on home. It was quite an experience, not just because they launched some SAMs. This one, it was guided. I’m thinking they had some kind of optical sensors like NVGs or something and were tracking us optically.<sup>75</sup>

Having explained how close the pair came to being killed that night, the pilot explained how, with a guided missile streaking toward him, the concern for civilian casualties and the involvement of the lawyers all went out the window. Self-defence is always the first Rule of Engagement.

No doubt in my mind, saving my bacon comes first. Really, I feel bad if there’s somebody underneath who gets the fuel tanks on their heads or the bombs. But, no, we’re not going to take a vote here. It’s just, OK, I’m either going to die in the next minute or I’m going to drop this stuff.

After the fact it’s funny because when I parked my jet, the ground crew’s marshalling me in—it’s maybe three or four in the morning—and I can see his look wondering why there’s no tanks or bombs left or nothing. Usually you come back with your tanks. I shut down and he’s coming up the ladder he says: “Airman, what’s going on? You have no more

tanks.” I said: “I know, I know. I got rid of them.” I said: “We were shot at by an SA-6.” He says: “Oh really,” then he runs and he gets the other ground crew to come and look at the jet. I stepped down from the aircraft and I said: “Oh, I think I need a beer.” He goes: “Oh, yes. You do go definitely have a beer.”<sup>76</sup>

