

CANADIAN FORCES COLLEGE / COLLÈGE DES FORCES CANADIENNES  
CSC 29 / CCEM 29

MDS RESEARCH PAPER

**CARROT AND STICK: THE COERCIVE USE OF AIR POWER**

By Maj T.N. Balfé

*This paper was written by a student attending the Canadian Forces College in fulfilment of one of the requirements of the Course of Studies. The paper is a scholastic document, and thus contains facts and opinions which the author alone considered appropriate and correct for the subject. It does not necessarily reflect the policy or the opinion of any agency, including the Government of Canada and the Canadian Department of National Defence. This paper may not be released, quoted or copied except with the express permission of the Canadian Department of National Defence.*

*La présente étude a été rédigée par un stagiaire du Collège des Forces canadiennes pour satisfaire à l'une des exigences du cours. L'étude est un document qui se rapporte au cours et contient donc des faits et des opinions que seul l'auteur considère appropriés et convenables au sujet. Elle ne reflète pas nécessairement la politique ou l'opinion d'un organisme quelconque, y compris le gouvernement du Canada et le ministère de la Défense nationale du Canada. Il est défendu de diffuser, de citer ou de reproduire cette étude sans la permission expresse du ministère de la Défense nationale.*

## **ABSTRACT**

The threat and application of force is an integral part of diplomacy. Commonly referred to as coercion, force is employed through counter-civilian or counter-military strategies. Counter-civilian strategies threaten force or apply actual force to civilian infrastructure or interests to overwhelm the population's will to resist. Counter-military strategies, in contrast, target the adversary's military capacity to resist. Decapitation strategies target the adversary's leadership and their interests, and comprise elements of counter-civilian and counter-military coercion.

Doctrinally, coercion occupies the uncertain middle ground between *military operations other than war* (MOOTW) and *war*. According to *Joint Publication 1: Joint Warfare of the Armed Forces of the United States*, a MOOTW requires only a raid or a show of force to protect important interests. A *war*, by contrast, doctrinally requires the application of overwhelming brute force in defense of vital national interests.

Air power has been employed as the "low cost, low commitment" tool of choice in coercive campaigns with limited objectives. The remarkable increase in weapons accuracy now permits air power to engage a wide array of targets without incurring significant collateral damage. Accordingly, a combination of counter-civilian and counter-military strategies is the most effective employment of air power in a coercive campaign against an industrialized state. Specifically, decapitation campaigns employing both counter-civilian and counter-military strategies are the most likely to succeed.

Operation Allied Force serves as an instructive example of a campaign that began with a counter-military coercive strategy, and ultimately succeeded as a result of NATO's resort to counter-civilian and decapitation strategies.

At 1900 hours Greenwich Mean Time (GMT) on 24 March 1999, cruise missiles and aircraft under the control of the North Atlantic Treaty Organization (NATO) commenced attacks against the Former Republic of Yugoslavia (FRY).<sup>1</sup> These opening strikes would lead to the alliance's first conflict since its inception in 1949. Known as Operation Allied Force, NATO's commitment to the campaign would initially comprise an air order of battle limited to 112 U.S. aircraft and 102 allied aircraft from twelve alliance countries.<sup>2</sup> These aircraft would participate in the first inter-state conflict in Europe since the end of the Second World War, and the subsequent air campaign would generate considerable controversy concerning NATO's strategy and the coercive application of air power.

Following FRY President Milosevic's rejection of the NATO conditions presented at Rambouillet in March 1999, the alliance was required to back up its diplomacy with force.<sup>3</sup> The initial NATO strategy envisioned only a show of force to compel Milosevic to accept a negotiated settlement to the crisis in Kosovo. From the outset, casualty averse NATO political leaders had publicly ruled out the option of a ground invasion of Kosovo.<sup>4</sup> Accordingly, the military means available to NATO would be limited to air power. This show of force, it was believed, would compel Milosevic to concede, and would deter him from expanding the crisis.

---

<sup>1</sup> Anthony H. Cordesman, *The Lessons and Non-Lessons of the Air and Missile Campaign in Kosovo* (Westport: Praeger, 2001), p 20.

<sup>2</sup> Ibid.

<sup>3</sup> Stephen T. Hosmer, *The Conflict Over Kosovo: Why Milosevic Decided to Settle When he Did* (Santa Monica: Rand Corporation, 2001), p xi.

<sup>4</sup> Eliot A. Cohen, *Supreme Command* (New York: The Free Press, 2002), p 203.

U.S. Army General Wesley K. Clark, NATO's Supreme Allied Commander Europe (SACEUR), reflected that, "[w]hile the air campaign was simple enough in concept, its execution was repeatedly constrained and distorted by political forces such as hope that just a few strikes would compel Milosevic's surrender..."<sup>5</sup> This show of force failed, and NATO's operation evolved into a protracted air campaign. While NATO eventually prevailed, the following 78 days of the campaign tested the alliance's resolve, and demonstrated significant flaws in NATO's strategic planning. Earl H. Tilford has described the NATO victory as "a win, but a rather ugly one."<sup>6</sup> The Operation did not achieve "anything approaching a grand strategic outcome"<sup>7</sup> according to Anthony Cordesman. The overwhelming allocation of massive NATO airpower, including 10,484 aircraft strike sorties releasing 28,018 high explosive weapons,<sup>8</sup> was required, in the end, to coerce Milosevic to concede.<sup>9</sup>

Casualty averse NATO leaders resorted to air power as the "low-cost, low-commitment tool"<sup>10</sup> of choice to force a diplomatic solution to the humanitarian crisis in Kosovo. Significantly, NATO's initial strategy reveals a flawed comprehension of political coercion that did not maximize and did not exploit the considerable capabilities of modern air power. While the subsequent conduct of the air campaign, following the

---

<sup>5</sup> General Wesley K. Clark, *Waging Modern War* (New York: PublicAffairs, 2001), p 424.

<sup>6</sup> Earl H. Tilford, "Operation Allied Force and the Role of Air Power", *Parameters* (Winter 1999-2000), p 24.

<sup>7</sup> Cordesman, p 357.

<sup>8</sup> *Ibid*, pp 61-64.

<sup>9</sup> Albert Atkins, *Air War Over Kosovo* (San Jose: Writer's Club Press, 2000) p 91.

<sup>10</sup> Daniel L. Byman, Mathew C. Waxman, and Eric Larson, *Air Power as a Coercive Instrument* (Santa Monica: Rand Corporation, 1999), p xv.

initial show of force, eventually prevailed, NATO leaders and the SACEUR imprecisely and inconsistently employed air power's coercive potential. Additionally, NATO seriously under-estimated President Milosevic's likely response, and failed to establish escalation dominance through the gradual increase of coercive force while denying Serbian counter-coercive options.

Doctrinally, following the initial show of force, Operation Allied Force transitioned to the uncertain middle ground between *military operations other than war* (MOOTW) and *war*. Defining the operation as a MOOTW required, doctrinally, only a raid or a show of force to protect important interests.<sup>11</sup> Defining the operation as war dictated, according to *Joint Publication 1: Joint Warfare of the Armed Forces of the United States*, the application of overwhelming brute force in defense of vital national interests.<sup>12</sup> Clearly, neither was appropriate to the situation. As Peter F. Herrly has noted, "Operation Allied Force was inconsistent with joint doctrine in both word and spirit."<sup>13</sup> Stephen P. Aubin has observed that Allied Force "was, in many ways, the antithesis of Air Force doctrine."<sup>14</sup> Air strikes, for example, were not conducted in parallel across the spectrum of tactical, operational and strategic targets, as USAF doctrine advocates.<sup>15</sup> This doctrinal vacuum illuminates the fundamental military misunderstanding of coercive force. This misunderstanding would result in internecine

---

<sup>11</sup> Department of Defense, *Joint Publication 1: Joint Warfare of the Armed Forces of the United States* (Washington: DoD U.S., 2000), p III-14.

<sup>12</sup> Ibid.

<sup>13</sup> Peter F. Herrly, "The Plight of Joint Doctrine After Kosovo", *Joint Force Quarterly*, Number 22 (Summer 1999), p 99.

<sup>14</sup> Stephen P. Aubin, "Operation Allied Force: War or 'Coercive Diplomacy'?", *Strategic Review*, Volume 27, Number 3 (Summer 1999), p 8.

quarrels amongst key military leaders over targeting during Allied Force and will be addressed in detail later in this paper.

While coercive force is not precisely described in U.S. doctrine, its foundation and purpose are, nonetheless, identical to war and to MOOTW. As Clausewitz wrote, “war ... is an act of policy.”<sup>16</sup> And policy he continued, “will permeate all military operations, and in so far as their violent nature will admit, it will have a continuous influence on them.”<sup>17</sup> As with war and MOOTW, then, coercion requires the identification of clear political aims married to real military capabilities if success is to be achieved.

Traditionally, coercion has been attempted through counter-civilian or counter-military strategies. Counter-civilian strategies threaten force or apply actual force to civilian infrastructure or interests to overwhelm the population’s will to resist. Counter-military strategies, in contrast, target the adversary’s military capacity to resist, and usually require a significant military commitment from the coercer. Counter-civilian strategies have been out of favour due to the high civilian casualties that resulted from the strategic bombing campaigns of the Second World War. The lack of political support for counter-civilian bombing was particularly evident during the Vietnam War, and resulted in significant constraints on the use of air power.<sup>18</sup> Airpower in Vietnam was restrained politically to preclude the expansion of the conflict and, importantly, in response to

---

<sup>15</sup> Ibid, p 8.

<sup>16</sup> Carl Von Clausewitz, *On War*, ed and trans by Michael Howard and Peter Paret (Princeton: Princeton University Press, 1976), p 87.

<sup>17</sup> Ibid.

<sup>18</sup> Mark Clodfelter, *The Limits of Air Power* (New York: The Free Press, 1989), p 164.

intense international and domestic criticism of the destruction being wrought on North Vietnam.<sup>19</sup> This abhorrence for targeting civilian interests has resulted in recent campaigns focusing on counter-military strategies, achieving, at best, limited success.

The accuracy of modern air power employing precision weapons has increased exponentially since the counter-civilian campaigns of the Second World War. This new capability suggests that the application of air power in counter-civilian campaigns should be re-addressed. In particular, this paper will argue that a combination of counter-civilian and counter-military strategies is the most effective employment of air power in a coercive campaign against an industrialized state. Specifically, decapitation campaigns that employ both counter-civilian and counter-military strategies are the most likely to succeed. Operation Allied Force will serve as an instructive example of a campaign that began with counter-military coercive strategies, and ultimately succeeded as a result of NATO's resort to counter-civilian and decapitation strategies.

The recently concluded war in Iraq, Operation Iraqi Freedom, demonstrated, according to Michael Vickers, the "strategic ascendancy of precision airpower."<sup>20</sup> The remarkable increase in weapons accuracy permitted, in Mackublin Thomas Owens opinion, "an air assault against Iraq unprecedented in scope and magnitude, while avoiding not only civilian casualties but also damage to the infrastructure upon which civilians depend."<sup>21</sup> This recent operation, however, differed significantly from

---

<sup>19</sup> H.R. McMaster, *Dereliction of Duty* (New York: Harper Collins, 1997), p 283.

<sup>20</sup> Michael Vickers, "Ground War: Doing More With Less", The Washington Post, 6 April 2003. <http://www.washingtonpost.com/wp-dyn/articles/A32232-2003Apr4.html> Website accessed at 1100 hrs 15 April 03.

<sup>21</sup> Mackublin Thomas Owens, "A Clausewitzian Read", National Review Online, 23 March 2003. <http://www.nationalreview.com/owens/owens032303.asp> Website accessed at 1100 hrs 15 April 03.

Operation Allied Force. The objective of Operation Iraqi Freedom was far-reaching, namely, regime change. The objective of Operation Allied Force, by contrast, was limited to the coerced halt to a humanitarian crisis. Additionally, the synergistic benefits of conjoined air and ground power, well demonstrated in Iraq, were not available in Kosovo. Stephen Budiansky noted that “the overwhelming weight of the air effort ... [was] directed against Iraqi military forces in the field: tanks, missile launchers, supply trucks, command posts, air defense units.”<sup>22</sup> Ground based forward air controllers employed sophisticated technology to fix, identify, and mark Iraqi fielded forces for destruction by airpower.<sup>23</sup> This use of air and ground power may not be replicable in all circumstances; future operations may be limited, politically, to airpower alone. Accordingly, Operation Iraqi Freedom may not be useful as a model for the future employment of air power, in particular, for coercive campaigns.

Coercive campaigns with limited objectives appear increasingly likely in the uni-polar post Cold War world, and air power will frequently be selected as the weapon of choice. Significantly, the demise of the Soviet Union has left the United States with no peer competitor. Accordingly, American leaders have the freedom to threaten force or to apply force without fear of defeat or major consequence. This also means that the potential threat is less clear and is, therefore, more difficult to deter.<sup>24</sup> A resort to the threat of force or the use of actual force to coerce a recalcitrant adversary offers an

---

<sup>22</sup> Stephen Budiansky, “Air War: Striking In Ways We Haven’t Seen”, The Washington Post, 06 April 2003. <http://www.washingtonpost.com/wp-dyn/articles/A32230-2003Apr4.html> Website accessed at 1100 hrs 15 April 2003.

<sup>23</sup> Christian Lowe, “The New Art of War”, The Weekly Standard, 03 April 2003. <http://www.weeklystandard.com/Content/Public/Articles/000/000/002/481lkpii.asp> Website accessed at 1100 hrs 15 April 2003.

<sup>24</sup> Byman et al, p 2.

enticing and likely solution to world crises. A clear comprehension of the nature of coercion, therefore, becomes essential for both political and military leaders.

Chapter 1 of this paper begins with a detailed examination of the nature and theory of coercion. The capabilities, doctrine and strategies of coercive air power, in historical context, are then examined in Chapter 2. NATO's initial, failed, coercive strategy employed in Operation Allied Force will be analyzed in Chapter 3. And finally, in Chapter 4 NATO's strategic adaptation during the air campaign that ultimately led to success will be investigated to determine key lessons for the future application of coercive air power.

## Chapter 1: Political Coercion and the Use of Force

Political coercion is not a new phenomenon. The threat of the use of force by one state to coerce another state is common throughout history. Most recently, coercion was a central element of Cold War deterrence. The credible threat of an overwhelming nuclear response was an essential element of U.S. and NATO policy to deter the conventionally stronger Soviet Union. Bernard Brodie commented in 1959 that,

The threat of war, open or implied, has always been an instrument of diplomacy by which one state deterred another from doing something of a military or political nature which the former deemed undesirable.<sup>25</sup>

Thomas Schelling defined coercion as comprising deterrence, the threat of force to deter an act, and compellence, the threat of or use of force to cause an act.<sup>26</sup> He wrote that,

... - throughout history but particularly now - military potential is used to influence other countries, their government or their people, by the harm it could do to them. It may be used skillfully or clumsily ... but used as bargaining power it is part of diplomacy – the uglier, more negative, less civilized part of diplomacy – nevertheless, diplomacy.<sup>27</sup>

Robert J. Art has concluded that “compellence is more difficult than deterrence.”<sup>28</sup> In other words, to deter an act is politically and militarily easier than undoing an act.

Schelling further distinguished a number of key characteristics for the use, or the threat of the use of force for coercive purposes. Firstly, the infliction of suffering is not the aim of coercion, the actions to avoid it are. The coercer’s intention is to manipulate

---

<sup>25</sup> Bernard Brodie, *Strategy in the Missile Age* (Princeton: Princeton University Press, 1959), p 271.

<sup>26</sup> Thomas C. Schelling, *Arms and Influence* (New Haven: Yale University Press, 1966), pp 70-71.

<sup>27</sup> Ibid, p vi.

<sup>28</sup> Robert J. Art and Kenneth N. Waltz ,eds, *The Use of Force: Military Power and International Politics* (Lanham Maryland: Rowman and Littlefield Publishers, 1999), p 13.

the risk of damage to the adversary rather than to impose the actual damage. According to Schelling, “inflict[ing] suffering gains nothing and saves nothing directly; it can only make people behave to avoid it.”<sup>29</sup> Secondly, the coercive force must be anticipated, providing a clear choice to the opponent. In Schelling’s words, “[t]o be coercive, violence has to be anticipated,”<sup>30</sup> because “the object of a threat is to give somebody a choice.”<sup>31</sup> Thirdly, since coercion is a two party activity, the “threat of damage requires that our interests and our opponents not be absolutely opposed.”<sup>32</sup> Fourthly, the progression to compellence requires force “to be allocated over time and apportioned in its intensity.”<sup>33</sup> And to succeed, compellence requires knowledge of the opponent, who is in charge, and what he values.<sup>34</sup>

Robert Pape has expanded upon Schelling’s influential work, particularly with respect to the application of coercive air power. Pape rejects what he labels the ‘accepted wisdom’ that coercion rests on the threat to harm civilians. To the contrary, he asserts that successful coercion (in conventional conflicts) occurs when we “exploit the opponent’s *military* vulnerabilities, thereby making it infeasible for the opponent to achieve its political goals by continued military efforts.”<sup>35</sup>

---

<sup>29</sup> Schelling, p 2.

<sup>30</sup> Ibid.

<sup>31</sup> Ibid, p 74.

<sup>32</sup> Ibid, p 4.

<sup>33</sup> Ibid, p 175.

<sup>34</sup> Ibid.

<sup>35</sup> Robert Pape, *Bombing to Win: Air Power and Coercion in War* (Ithaca: Cornell University Press, 1996), p 1.

Pape identifies four main coercive strategies, punishment, risk, denial, and decapitation. Punishment and risk rely on inflicting pain and suffering on civilians in order to overwhelm their interests and force the government to concede, or to cause the population to rally insisting on concession. Possible targets would include electric power grids, oil refineries, water and sewer systems, and domestic transportation.<sup>36</sup> A risk strategy, specifically, would rely upon imposing the risk of future damage to the adversary's critical infrastructure. With this strategy, damage must occur slowly and the coercer must be careful not 'to kill the hostage'. In other words, the coercer must ensure that the adversary has something left to preserve or there will be no incentive to concede.<sup>37</sup> Punishment and risk, or counter-civilian strategies as Pape refers to them, only work when core values are not at stake.<sup>38</sup>

Denial, or counter-military strategy, by contrast, focuses on military capability and aims to defeat the adversary's military strategy and subsequent countermeasures. To do so, the coercer must exploit the adversary's critical vulnerabilities. In a conventional war, the critical vulnerability may be military supply lines; in a guerilla war it may be the support of the population. Denial is the most costly coercion strategy, Pape contends, since "it requires the coercer to demonstrate the capacity to control the disputed territory by force."<sup>39</sup> In other words, the coercer must convince the adversary that his military forces will be rendered impotent, and then, if necessary, the coercer will occupy the disputed territory.

---

<sup>36</sup> Ibid, p 59.

<sup>37</sup> Ibid, p 28.

<sup>38</sup> Ibid, p 20.

<sup>39</sup> Ibid, p 32.

The fourth and final coercion strategy, decapitation, relies on both punishment and denial effects. Key leadership and command and control facilities along with economic infrastructure targets are struck to compel compliance. With this strategy, targeting would be directed at the national leadership and its sources of power and influence.<sup>40</sup> The connection with Colonel (retired) John Warden’s decapitation theory will be addressed in Chapter 2.

Any coercion strategy must remain focused on the adversary’s decision calculus, and to this end Pape offers a convenient equation for calculating the costs and benefits to the adversary of resistance or concession:

$$R = B p(B) - C p(C),$$

where:

- R = value of resistance;
- B = potential benefits of resistance;
- p(B) = probability of attaining benefits by continued resistance;
- C = potential costs of resistance;
- p(C) = probability of suffering costs.<sup>41</sup>

The coercer must manipulate the elements of this equation to reduce the value of resistance. In particular, the coercer’s options are to raise the cost of resistance [C], raise the probability of suffering costs [p(C)], or reduce the probability that resistance will be beneficial [p(B)].<sup>42</sup>

Pape concedes that, historically, coercion is seen as “morally repugnant”<sup>43</sup> since it often involves inflicting pain and suffering on civilians. He further contends that, due to

---

<sup>40</sup> Ibid, p 56.

<sup>41</sup> Ibid, p 16.

<sup>42</sup> Ibid, pp 15-16.

<sup>43</sup> Ibid, p 3.

their composition, modern states are now more able to withstand the limited punishment that conventional weapons can inflict, and punishment strategies, therefore, often fail. Pape argues that denial (counter-military) strategies, while more costly, are the key to successful coercion. He writes, “coercion is most likely to succeed when directed at military, not civilian vulnerabilities.”<sup>44</sup>

In *Air Power as a Coercive Instrument*, Daniel Byman, Mathew Waxman, and Eric Larson accept and refine several of the key premises advocated by Schelling and Pape. They acknowledge that “[c]oercion is simple in concept but complex in practice.”<sup>45</sup> The challenge, therefore, is to develop strategies that will permit the effective use of coercion. They begin by relying upon a cost-benefit model similar to Pape’s, which they insist must be manipulated by the coercer to achieve deterrence or compellence. In particular, punishment coercive strategies can raise the cost  $[C]$  to the adversary, risk strategies can increase the probability of costs  $[p(C)]$ , and denial strategies can decrease the probability of benefits  $[p(B)]$ .<sup>46</sup>

Coercion, it must be remembered, is a dynamic two party activity; manipulation of the cost-benefit model, therefore, must also consider the adversary’s decision calculus.<sup>47</sup> The adversary can also alter aspects of the cost-benefit model in response to coercion. The adversary, for example, can alter Pape’s cost-benefit formula and increase the value of resistance through counter-coercion. Milosevic, as will be discussed in Chapter 4, attempted this through the expulsion of hundreds of thousands of Kosovar

---

<sup>44</sup> Ibid, p 19.

<sup>45</sup> Byman et al, p 1.

<sup>46</sup> Ibid, pp 15-16.

<sup>47</sup> Ibid, p 15.

Albanians in an attempt to overwhelm NATO's management of the humanitarian crisis. Counter-coercion can undermine the coercer's strategy if it is not anticipated and defeated. And this raises the challenge of identifying the adversary's true intentions and likely actions. This difficult analysis often relies upon the assumption that decisions are being made, in Alex Mintz's words, by "rational actors"<sup>48</sup>, who can be expected to maximize utility in their decision making. According to James D. Morrow, "[a]ctors do what they believe is in their best interest at the time they must choose."<sup>49</sup> Rational choice theory assumes the decision maker will apply logical reasoning within a complex environment, and is seen, therefore, as being predictive.<sup>50</sup>

Coercers should concentrate on what Byman et al term, "key regime attributes"<sup>51</sup> to understand the adversary's decision calculus. Since one individual does not always make the key decisions, the attributes of the bureaucracy making the decisions must be understood. Schelling wrote that, "compellence requires that we recognize the difference between an individual and a government."<sup>52</sup> He added,

... a government does not reach a decision in the same way as an individual in government. Collective decision depends on the internal politics and bureaucracy of government, on the chain of command and on lines of communication, on party structures and pressure groups, as well as on individual values and careers.<sup>53</sup>

---

<sup>48</sup> Nehemia Geva, and Alex Mintz, *Decisionmaking on War and Peace: The Cognitive-Rational Debate* (Boulder: Lynne Rienner Publishers, 1997), p 2.

<sup>49</sup> Ibid, p 12.

<sup>50</sup> Zeev Maoz, *Paradoxes of War* (Boston: Unwin Hyman, 1990), p 19.

<sup>51</sup> Byman et al, p 18.

<sup>52</sup> Schelling, p 85.

<sup>53</sup> Ibid, p 86.

In order to succeed, then, coercion relies heavily upon “accurate intelligence and careful estimations of the adversary.”<sup>54</sup>

The ability of the coercer to gradually escalate the threat and the application of force is essential for successful coercion. Since coercion is a dynamic two-party activity, the coercer must achieve what Byman et al refer to as “escalation dominance – the ability to escalate credibly against the adversary ... to threaten imposition of a greater and greater price of defiance.”<sup>55</sup> Escalation dominance is rooted in Cold War deterrent theory. Herman Kahn, in discussing thermo-nuclear war, wrote in 1961 that the “threat of escalation is today an important deterrent.”<sup>56</sup> In short, the coercer must be able to increase the unfettered application of force, reducing the value of resistance to the adversary, while minimizing or defeating any attempts to defeat this escalation or to counter-coerce.<sup>57</sup>

Figure 1 provides a useful linear construct to explain the relationship of the threat and the use of actual force in coercive strategies. The coercer may choose to apply either counter-civilian or counter-military strategies. It is significant to note that decapitation contains elements of counter-military and counter-civilian coercion and can be seen to bridge the gap between the two strategies. As such, decapitation offers considerable potential, and will be discussed in further detail in Chapter 2. The linear nature of the application of force is significant; the coercer may move gradually from the threat of force to deter an adversary to the application of brute force to subjugate an adversary.

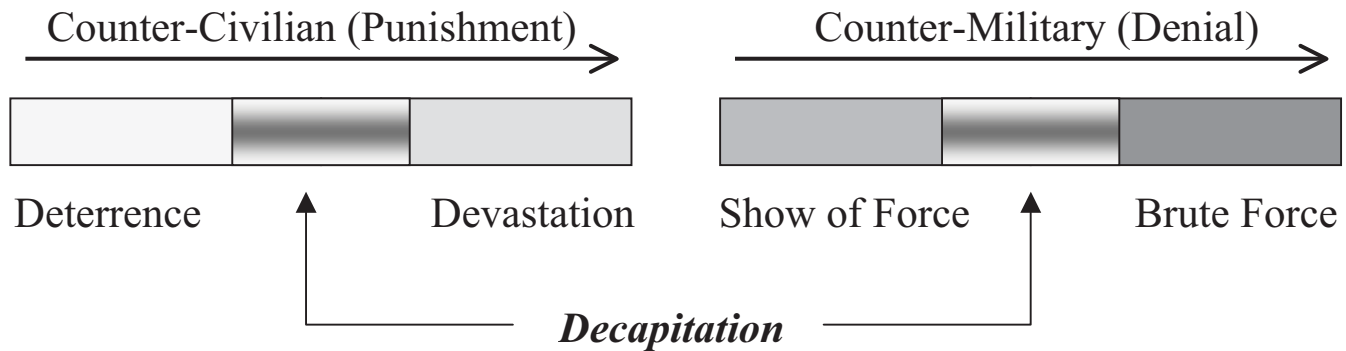
---

<sup>54</sup> Byman et al, p xiv.

<sup>55</sup> Ibid, p 30.

<sup>56</sup> Herman Kahn, *On Thermonuclear War* (Princeton: Princeton University Press, 1961), p 229.

Clearly, a coercer would wish to compel concession at the earliest point on the linear scale. If core values are at stake, however, the coercer may have no choice but to progress to the application of brute force.



**Figure 1. The Spectrum of Coercion**

It is imperative for the coercer to complete the cost-benefit analysis before embarking on a coercive campaign to precisely determine, politically and militarily, the limits of the linear progression of coercion. The cost-benefit model is essential to understand and to manipulate coercive effects. And since coercion is a dynamic two-player activity, intelligence and a correct estimation of the adversary's likely reaction is critical. To succeed, escalation dominance must be achieved and the adversary's counter-coercive threats must be anticipated and defeated.

The coercive use of air power is a credible and increasingly popular response in a uni-polar world where the United States no longer has a peer competitor. Limited conflicts, where the United States' core values are not at stake, present an ideal opportunity for the coercive use of air power. This is not to say that air power is a

<sup>57</sup> Counter-coercion is often an asymmetric response intended by the adversary to defeat the coercer's strategy, such as Milosevic's expulsion of hundreds of thousands of Kosovar Albanians.

panacea; the linear scale at Figure 1 leads to brute force if the adversary has been misjudged, or if the technical capabilities of air power have been over-estimated. This pitfall must be recognized and mitigated with clear strategic limits on the application of coercive power. A failure to recognize these limits will be highlighted in the case study of Operation Allied Force.

## Chapter 2: Coercive Air Power

The term *air power* will be used synonymously with *aerospace power* throughout this paper. Aerospace power is defined in *Air Force Doctrine Document 2:*

*Organization and Employment of Aerospace Power*, as “the use of lethal and nonlethal means by aerospace forces to achieve strategic, operational and tactical objectives.”<sup>58</sup>

Significantly, United States Air Force doctrine has emphasized, and continues to emphasize the application of air power against strategic target sets. According to *Air Force Doctrine Document 2-1.2: Strategic Attack*,

Strategic attack has historically attempted to avoid the carnage of symmetric force-on-force surface operations by engaging the adversary’s COG’s [Centers of Gravity] directly. COG’s are defined as those characteristics, capabilities, or localities from which a force derives its freedom of action, physical strength, or will to fight.<sup>59</sup>

Furthermore, “[s]trategic attack should produce effects well beyond the proportion of effort expended in their execution.”<sup>60</sup> Additionally, the doctrine asserts that strategic attack will “demoralize the enemy’s leadership, military forces, and population, thus affecting an adversary’s capability to continue the conflict.”<sup>61</sup>

This emphasis on strategic attack has a solid foundation in coercion theory. By attempting to avoid the application of symmetric force-on-force destruction, the adversary’s capacity or will to resist is directly targeted. Strategic attack will, it is

---

<sup>58</sup> Department of Defense, *Air Force Doctrine Document 2: Organization and Employment of Aerospace Power* (Washington: DoD U.S., 2000), p 1.

<sup>59</sup> Department of Defense, *Air Force Doctrine Document 2-1.2: Strategic Attack* (Washington: DoD U.S., 1998), p 1.

<sup>60</sup> Ibid.

<sup>61</sup> Department of Defense, *Air Force Doctrine Document 1: Air Force Basic Doctrine* (Washington: DoD U.S., 1997), p 51.

believed, coerce victory at a cheaper cost than brute force destruction. During the Second World War, for example, both the Americans and the British used strategic bombing to target enemy morale. This targeting was partially a result of Douhetian theory, and ultimately recognition of the technological limitations of air power at the time.<sup>62</sup> An example of this coercive application of air power can be found in the Royal Air Force's (RAF) Bomber Command War Plan, W.A. 8, instituting night area bombing of German cities to "demoralize and dislocate"<sup>63</sup> the population. Richard Overy has written that "[s]trategic bombing emerged as a major commitment not from operational success but from political necessity. It was chosen by civilians to be used against civilians...".<sup>64</sup> Strategic bombing of Germany, in the end, did not coerce surrender; allied forces forcibly occupied German territory to conclude the war in Europe.

Another, more extreme example, is the American use of atomic weapons against Japan in August 1945, which resulted in concession and did not require the forced entry of allied forces into the Japanese home islands. Both of these examples were clearly counter-civilian strategies. Notably, conventional weapons were unable to produce significant damage to the will or capacity of the German war machine to coerce concession, while atomic weapons compelled the surrender of Japan and precluded the final invasion. As Richard Overy has written, "[i]n the end air power alone was able to bring Japan to the point of surrender."<sup>65</sup> He continued, "[t]he bombers might have failed

---

<sup>62</sup> Eric Ash, "Terror Targeting", *Aerospace Power Journal*, Volume 13, Issue 4 (Winter 1999), p 41.

<sup>63</sup> British Bombing Survey Unit, *The Strategic Air War Against Germany 1939-1945* (London: Frank Cass, 1998), p 2.

<sup>64</sup> Richard Overy, *Why the Allies Won* (New York: W.W. Norton & Company, 1995), p 110.

<sup>65</sup> *Ibid*, p 126.

to bring Germany to defeat unaided, but the ruthless destruction of Japanese cities from the air made direct invasion here redundant.”<sup>66</sup>

Collateral damage from these counter-civilian strategies was immense. The *United States Strategic Bombing Survey* estimated that 305,000 German civilians were killed and another 780,000 wounded as a result of these attacks.<sup>67</sup> In the Pacific Campaign, an estimated 2.2 million Japanese civilians were killed or wounded as a result of strategic conventional and nuclear bombing.<sup>68</sup> The poor accuracy of Second World War bombing systems resulted in these very high collateral damage figures. Moreover, this inaccuracy precluded air power from effectively targeting key civilian infrastructure that was critical to the functioning of the state and to the maintenance of morale.

For example, only from 1943 onwards did the RAF’s bombers begin to release 50% or greater of their weapons within 3 miles of their aim points.<sup>69</sup> American ‘precision’ bombing never achieved a circular error probable (CEP)<sup>70</sup> greater than 3300 feet throughout the war.<sup>71</sup> These large CEPs necessitated massed bomber attacks to achieve any measure of success, and resulted in large numbers of high explosive and incendiary bombs falling thousands of feet, and even miles, away from their intended

---

<sup>66</sup> Ibid, p 127.

<sup>67</sup> United States, *The United States Strategic Bombing Survey: Summary Report (European War)* (Washington: Government Printing Office, 1945), p 21.

<sup>68</sup> Ash, p 38.

<sup>69</sup> British Bombing Survey Unit, p 49.

<sup>70</sup> The CEP figure is the radius of a circle around the target within which 50% of the weapons should fall, with the remaining 50% falling outside the CEP. Source: Department of Defense, *Air Force Pamphlet 14-210 Intelligence, USAF Intelligence Targeting Guide*, 1 February 1999, p 99.

<sup>71</sup> Richard P. Hallion, “Precision Guided Munitions and the New Era of Warfare”, Air Power Studies Centre Paper Number 53 (RAAF Base Fairbairn: Commonwealth of Australia, 1995), p 4.

targets. As an example of this inaccuracy, it was calculated that to successfully deliver one bomb onto a target one-third the size of a football field, 9,000 bombs would have to be released from one thousand B-17 aircraft.<sup>72</sup> This inaccuracy resulted in a high level of collateral damage in its crude attempts to target civilian infrastructure and morale.

The strategic bombings of Germany and Japan were not conducted in isolation, of course. Decisive military campaigns were occurring concurrently and continued to threaten both countries with defeat. It is clearly beneficial, however, to defeat the adversary without having to resort to complete subjugation through the occupation of territory. As Robert Pape has written, “the coercer hopes to attain concessions without having to pay the full cost of victory.”<sup>73</sup> Looking to the spectrum of coercion construct at Figure 1, both counter-civilian and counter-military forces were applied against Germany, requiring, in the end, brute force for subjugation and the occupation of her territory. With Japan, the use of atomic weapons coerced concession and obviated the requirement for a final invasion.<sup>74</sup> The atomic bombs dropped on Hiroshima and Nagasaki accomplished more than the destruction of key industrial cities – they had a profound psychological effect. In particular, the atomic bombs demonstrated Japan’s vulnerability and inability to prevent further, almost certain destruction.<sup>75</sup> Accordingly, complete progression along the counter-military scale was avoided in the war against Japan. Importantly, these examples involved total war where vital national interests were

---

<sup>72</sup> John Warden, *The Air Campaign* (San Jose: toExcel, 2000), p 147.

<sup>73</sup> Pape, p 13.

<sup>74</sup> James E. Auer and Richard Halloran, “Looking Back at the Bomb”, *Parameters*, Volume 26, Issue 1 (Spring 1996), p 128.

<sup>75</sup> Group Captain A.P.N. Lambert in *Perspectives on Air Power*, ed Stuart Peach (London: The Stationery Office, 1998), p 272.

at stake and where coercion was not likely to succeed. Only the unprecedented use of atomic weapons produced a coerced concession from Japan.

The coercive application of air power in limited wars has had mixed results, particularly in wars against non-industrial states. During the Korean War, strategic strikes were carried out against North Korea, including hydroelectric power facilities, irrigation dams, and industrial targets in Pyongyang.<sup>76</sup> This coercive pressure was insufficient to compel concessions from the communists and to break the military deadlock. The challenge with the Korean War, as with any limited war, was the presence of a supporting state, in this case China, providing materiel and basing which could not be targeted.<sup>77</sup> Additionally, as a non-industrial state, North Korea did not present many lucrative infrastructure targets.

The final Truce Agreement of 1953 was only reached, according to Stephen T. Hosmer, after the U.S. threatened to widen the war to China and to use nuclear weapons.<sup>78</sup> Counter-military coercion and counter-civilian coercion, most notably the threat of nuclear strikes, were applied in the Korean War. United Nations military strength, including air power, could not compel communist concession through a denial strategy and was insufficient to achieve victory through brute force. Significantly, technological improvements in air power resulted in bombing CEPs being reduced to 1000 feet during the war.<sup>79</sup> While this CEP reduction was of benefit, it was still too

---

<sup>76</sup> William T. Y'Blood, "Air War Over Korea", *Air Power Journal*, Volume 47, Issue 2 (Summer 2000), p 45.

<sup>77</sup> Stephen T. Hosmer, *Psychological Effects of U.S. Air Operations in Four Wars 1941 – 1991* (Santa Monica: Rand Corporation, 1996), p 18.

<sup>78</sup> *Ibid*, p 24.

<sup>79</sup> Hallion, p 4.

inaccurate to effectively target civilian infrastructure without risking considerable collateral damage. Moreover, air power was prohibited from targeting the communists' supporting base and infrastructure in China out of fear of expanding the war. Furthermore, air power could have only limited effects on pre-industrial North Korea.

The application of counter-military force did not progress to brute force for subjugation during the Korean War, due to a desire to limit United Nations' casualties.<sup>80</sup> According to Stephen T. Hosmer, "air power became the dominant instrument for exerting leverage on the enemy to end the war."<sup>81</sup> Only the threat of the introduction of nuclear weapons provided the necessary counter-civilian coercion to finally break the deadlock and to secure the negotiated truce.<sup>82</sup>

Vietnam, like the Korean War, was a limited conflict with stringent controls on the application of military force, to prevent an escalation of the war.<sup>83</sup> Within these constraints the U.S. applied air power in protracted military campaigns and, after 1968, in attempts to coerce North Vietnam to accept a negotiated settlement that would permit American withdrawal. Between 1965 and 1972, for example, U.S. aircraft conducted 775,000 sorties over North Vietnam during the Rolling Thunder and Linebacker I and II campaigns.<sup>84</sup> The Rolling Thunder campaign lasted from 1965 to 1968 and initially targeted North Vietnamese infrastructure before concentrating exclusively on the

---

<sup>80</sup> Hosmer, *Psychological Effects of U.S. Air Operations in Four Wars 1941 – 1991*, p 17.

<sup>81</sup> Ibid, pp 17-18.

<sup>82</sup> Clodfelter, pp 23-24.

<sup>83</sup> Stephen W. Wilson, "Taking Clodfelter One Step Further: Mass, Surprise, Concentration, and the Failure of Operation Rolling Thunder", *Air Power History*, Volume 48, Issue 4 (Winter 2001), p 44.

<sup>84</sup> Hosmer, *Psychological Effects of U.S. Air Operations in Four Wars 1941 – 1991*, p 28.

interdiction of supply lines into South Vietnam.<sup>85</sup> The Rolling Thunder campaign concluded in November 1968, having had “little impact upon the outcome of the conflict.”<sup>86</sup>

The Linebacker I campaign began in response to the North’s Easter 1972 offensive into South Vietnam. American air power contributed militarily to the stalling of the Easter offensive and also provided the necessary leverage to draw the North into serious peace negotiations intended to achieve President Nixon’s objective of a negotiated withdrawal of American forces from the conflict.<sup>87</sup> The Linebacker II campaign commenced in December 1972 as a means of breaking a negotiation stalemate. Linebacker I and II targeted the industrial Hanoi-Haiphong area and were a significant escalation of American force.

President Nixon intended to achieve his objective with Linebacker I by “wrecking North Vietnam’s war-making capacity; he intended Linebacker II to destroy the North’s will to fight.”<sup>88</sup> This targeting of infrastructure in North Vietnam’s industrial Red River basin was a distinctly counter-civilian coercive strategy. During the 11 days of Linebacker II, for example, 729 B-52 sorties and 1,216 Navy and Air Force fighter sorties were flown against industrial targets in North Vietnam, releasing 20,237 tons of

---

<sup>85</sup> Ibid, pp 28-29.

<sup>86</sup> Diego M. Wendt, “Using a Sledgehammer to Kill a Gnat”, *Airpower Journal*, Volume 4, Number 2, (Summer 1990), p 60

<sup>87</sup> Mark A. Gunzinger, “AirPower as a Second Front”, *Airpower Journal*, Volume 5, Issue 3 (Fall 1995), p 68.

<sup>88</sup> Clodfelter, p 177.

bombs.<sup>89</sup> Rail traffic around Hanoi was completely disrupted, 191 storage warehouses were destroyed, electric power generation was reduced from 115,000 to 29,000 kilowatts, and petroleum, oil and lubricant (POL) supplies were reduced by one fourth as a result of these attacks.<sup>90</sup> Mark Clodfelter has concluded that “Linebacker’s pummeling compelled the [North Vietnamese] Politburo to negotiate.”<sup>91</sup> Nixon’s escalation and resort to counter-civilian coercion achieved its limited objective, a negotiated vice a military settlement to the conflict.<sup>92</sup>

Notably, the CEP of American aircraft was reduced to 750 feet during the Rolling Thunder campaign and eventually to 365 feet by the end of American involvement in the conflict.<sup>93</sup> While significant, this reduction was not sufficient, however, to prevent high levels of collateral damage when targeting infrastructure. The North claimed Linebacker II killed 1,318 civilians in Hanoi and a further 305 in Haiphong.<sup>94</sup> While these numbers are quite small compared to Second World War numbers, it is important to remember that the campaign was only 11 days long. Additionally, domestic support for the Linebacker campaigns, with televised images of collateral damage, was very much less than for the strategic bombing campaigns of the total war of the Second World War. This “surge of domestic criticism” peaked with Linebacker II and was accompanied by the threat of the

---

<sup>89</sup> Ibid, p 194.

<sup>90</sup> Ibid, pp 194-195.

<sup>91</sup> Ibid, p 198.

<sup>92</sup> Hosmer, *Psychological Effects of U.S. Air Operations in Four Wars 1941 – 1991*, p 41.

<sup>93</sup> Wendt, p 60.

<sup>94</sup> Clodfelter, p 195.

withdrawal of congressional support.<sup>95</sup> Parenthetically, precision, laser guided weapons were first employed in Vietnam, foreshadowing the remarkable increase in weapons accuracy to come.<sup>96</sup>

As in Korea, the U.S. was unwilling to apply sufficient counter-military force to end the war and, with Linebacker I and II, turned to a counter-civilian strategy to achieve its limited objectives. Both Linebacker I and II can be considered to have been successes in the sense that they achieved their limited objectives – the coerced return of North Vietnam to the peace negotiations.

A remarkable increase in weapon accuracy was demonstrated during the Gulf War of 1991. Only nine percent of the air weapons expended were precision guided; yet they accounted for seventy-five percent of the damage inflicted on Iraqi strategic and operational level targets.<sup>97</sup> The strategic bombing campaign, Instant Thunder, was designed to achieve the “strategic paralysis”<sup>98</sup> of the Iraqi regime. The contrast of this operation’s name with Vietnam’s Rolling Thunder is telling – air power would not be applied slowly and gradually in the Gulf War.<sup>99</sup> With Instant Thunder, key leadership and command and control facilities were targeted; the strikes were distinctly counter-military. Colonel Richard T. Reynolds, writing on the Gulf War air campaign, remarked that, “civilian populations ... can be left relatively unscathed with the use of modern air

---

<sup>95</sup> Ibid, pp 191-192.

<sup>96</sup> Kenneth P. Werrell, “Did USAF Technology Fail in Vietnam?”, *Aerospace Power Journal*, Volume 12, Number 1 (Spring 1998), p 91.

<sup>97</sup> Hallion, p 10.

<sup>98</sup> Warden, p 150.

<sup>99</sup> Richard T. Reynolds, *Heart of the Storm: The Genesis of the Air Campaign Against Iraq* (Maxwell Air Force Base: Air University Press, 1995), p 29.

power.”<sup>100</sup> For illustration, the laser-guided bombs used in the Gulf War had a CEP of only 9 metres (30 ft).<sup>101</sup> The application of precision air power was clearly a decisive factor in the Gulf War. John Warden described air power as the “key force” for 38 days of the 41 day campaign.<sup>102</sup>

While the Gulf War was a classic counter-military campaign that explicitly avoided targeting civilian interests, it demonstrated the remarkable capacity of air power to dislocate the adversary’s leadership through precision strike.<sup>103</sup> In John Warden’s words, “[p]recision has changed the face of warfare.”<sup>104</sup> This precision now permits the engagement of infrastructure and leadership targets without imposing unacceptable collateral damage. Moreover, war becomes focused on destroying or incapacitating capabilities vice people. Air power strategy, then, has become concerned with effects rather than annihilation. U.S. Air Force Doctrine states, “the precision and lethality of aerospace power now affords the ability to mass effects rather than platforms and conduct parallel attacks on entire target systems with only one or two platforms per target.”<sup>105</sup>

Richard P. Hallion has written that air power now provides the capability to “control an opponent without having to destroy him.”<sup>106</sup> Air power’s technological

---

<sup>100</sup> Ibid, p 18.

<sup>101</sup> Federation of American Scientists, <http://www.fas.org/man/dod-101/sys/smart/gbu-16.htm> Website accessed at 1400 hrs 08 February 2003.

<sup>102</sup> Warden, p 159.

<sup>103</sup> Ibid, p 149.

<sup>104</sup> Ibid, p 148.

<sup>105</sup> Department of Defense, *Air Force Doctrine Document 2-1.3: Counterland* (Washington: DoD U.S., 1999), p 17.

<sup>106</sup> Hallion, p 12.

advance from CEPs no better than 3300 feet during the Second World War to as precise as 30 feet today, allows the air strategist to re-consider counter-civilian coercive strategies. This precision capability now permits air power to comprehensively target infrastructure to strategically paralyze the state while minimizing collateral damage.

Robert Pape's assertion that air power lacks the capacity to undermine the functioning of the modern state with conventional weapons underestimates the destructive capabilities of advanced precision weapons, such as laser guided bombs and the recently introduced Joint Direct Attack Munition (JDAM).<sup>107</sup> This all-weather precision weapon provides the destructive capability to accurately target infrastructure with little or no collateral damage. Used in conjunction with laser-guided weapons, modern air power now has the capability to seriously undermine the functioning of a modern state. The principle of concentrating air power to achieve mass has been re-defined with the introduction of this precision capability, which will be discussed in further detail in Chapter 4.

The aim of conflict is to overcome the adversary's will to fight, while maintaining your own will. Sun Tzu referred to this will as "moral influence ... [which] causes the people to be in harmony with their leaders, so that they will accompany them in life and unto death without fear of mortal peril."<sup>108</sup> Undermining this will to fight can be

---

<sup>107</sup> The Global Positioning System (GPS) guided JDAM is an all weather, 'launch and leave' weapon with a CEP of 13 metres (42 feet). The JDAM's 'launch and leave' capability also permits multiple target engagements. A single aircraft, such as a B-1 bomber, can now engage up to 24 different targets on the same mission with 24 JDAMs. Sources: Federation of American Scientists, <http://www.fas.org/man/dod-101/sys/smart/jdam.htm> Website accessed at 1400 hrs 08 February 2003, and Air Force News, [http://www.af.mil/news/factsheets/B\\_1B\\_Lancer.html](http://www.af.mil/news/factsheets/B_1B_Lancer.html) Website accessed at 2130 hrs 19 March 2003.

<sup>108</sup> Sun Tzu, *The Art of War*, ed and trans by Samuel B. Griffith (London: Oxford University Press, 1971), p 64.

accomplished by imposing hardships on the civilian population by destroying or neutralizing infrastructure such as power generation and petroleum facilities, lines of communication and industry. Richard Overy has concluded, for example, that the bombing offensives of the Second World War undermined industrial efficiency and contributed to high levels of worker absenteeism in Germany and Japan.<sup>109</sup> He asserts that “[f]or all the arguments over the morality or operational effectiveness of the bombing campaigns, the air offensive was one of the decisive elements in Allied victory.”<sup>110</sup>

The Linebacker II campaign also targeted the adversary’s will to fight and, according to Mark Clodfelter, “unsettle[d] the North’s urban population ... individuals remaining in Hanoi received only an hour or two of sleep a night, their nerves strained by the continual attacks.”<sup>111</sup> In addition to destroying much of North Vietnam’s infrastructure, Linebacker II succeeded in dislocating and disrupting much of the population; food reserves, for example, were sufficiently depleted to threaten the population’s survival.<sup>112</sup>

Air power can now accomplish this industrial dislocation of a nation with great effect and with very little collateral damage. This counter-civilian strategy may cause the civilian population to insist on concession to avoid further hardship. It is important to remember, however, that this type of coercion is not likely to be successful if vital national interests are at stake. Additionally, a level of moral repugnance remains attached to targeting civilian interests. Identifying this civilian infrastructure as “dual-

---

<sup>109</sup> Overy, pp 132-133.

<sup>110</sup> Ibid, p133.

<sup>111</sup> Clodfelter, p 195.

<sup>112</sup> Ibid, p 196.

use”<sup>113</sup> sometimes mitigates this moral repugnance. Military capacity is derived from this dual-use infrastructure; for example, petroleum, power production, road and rail lines, factories and communication facilities have civilian and military uses and are, therefore, militarily viable targets. The effects of targeting dual-use infrastructure will be seen in Chapter 4.

Another coercive option, which comprises elements of counter-military and counter-civilian strategies, is decapitation. The neutralization of leadership disrupts command and control but also directly affects the adversary’s morale and will to fight. Decapitation, therefore, can destroy discipline, defeat organization, and alter the population’s perceptions of a common, viable, purpose.<sup>114</sup> Decapitation strategy is rooted in nuclear targeting theory. As a consequence of an October 1980 Presidential Directive (PD-59), a new Nuclear Weapons Employment Policy (NUWEP) was developed by the United States. NUWEP-2, for example, targeted Soviet military and political leadership as one of its priorities.<sup>115</sup>

John Warden has drawn on this nuclear targeting theory and proposes that the adversary be seen as a system comprising five distinct rings. At the center of the rings is leadership, opening outwards followed by organic essentials (petroleum, electricity, etc), infrastructure, population, and lastly, fielded military.<sup>116</sup> A decapitation strategy targets

---

<sup>113</sup> Lambeth, p xiv.

<sup>114</sup> Ash, p 35.

<sup>115</sup> Desmond Ball and Jeffrey Richelson, *Strategic Nuclear Targeting* (Ithaca: Cornell University Press, 1986), p 79.

<sup>116</sup> John Warden, “The Enemy as a System”, *Air Power Journal*, Volume 9, Number 1 (Spring 1995), pp 44-45.

the inner ring, the strategic leadership on which all other components of the system depend.<sup>117</sup> This strategy hopes to avoid massed force-on-force destruction. The enemy's fielded forces, which are normally the costliest to destroy, can be rendered ineffective through the neutralization of their central leadership. In Warden's words this "[s]trategic war is war to force the enemy state or organization to do what you want it to do."<sup>118</sup> And this, of course, is precisely what coercion aims to do. The effects of decapitation targeting will be seen in Chapter 4.

Warden asserts that the adversary's capabilities are the sum of physical strengths multiplied by morale strengths.<sup>119</sup> Rendering one of these strengths impotent results in the adversary possessing no capability to resist. From the coercion model at Figure 1, it can be seen that counter-military strategies target the physical strengths and counter-civilian strategies target the morale strengths. Decapitation strategies target both.

The following chapters will demonstrate, through the case study of Operation Allied Force, the application of modern air power in a coercive campaign. Both counter-military and counter-civilian strategies were employed in this air campaign, with vastly

### **Chapter 3: NATO's Initial Coercive Strategy for Operation Allied Force**

Coercive air power had succeeded once in the Balkans with Operation Deliberate Force, conducted from August 30 to September 20 1995. Here, NATO airpower under the authority of the United Nations (UN), conducted 3535 sorties and released 1026 bombs and missiles against Bosnian Serb Army (BSA) heavy weapons, command and control and combat support facilities.<sup>120</sup> Solely counter-military coercive force was applied in Deliberate Force. These limited NATO air strikes forced Milosevic to pressure the Bosnian Serbs to accept the NATO and UN terms in return for a cessation of the bombing.<sup>121</sup> As Ambassador Richard Holbrooke stated, “Deliberate Force was the decisive factor in bringing the Serbs to the peace table.”<sup>122</sup> And the result of these negotiations was the Dayton Peace Accords, which brought an end to the conflict in Bosnia. Buoyed by the success of these NATO air strikes, U.S. leaders turned again to air power as the solution to the crisis in Kosovo.

Kosovo, a province of the FRY, had been witness to continuous tensions between the overwhelmingly ethnic Albanian population and the smaller Serbian minority. Slobodan Milosevic manipulated these tensions and the resort to Serb nationalism in his rise to power.<sup>123</sup> Although only a small number of Serbs lived in Kosovo, the region was considered the birthplace of the Serb nation and was, therefore, viewed as sacred. In response to the re-assertion of Serbian nationalism in the province, factions of the

---

<sup>120</sup> Paul C. Forage, “Bombs for Peace: A Comparative Study of the Use of Air Power in the Balkans”, *Armed Forces and Society*, Volume 28, Issue 2 (Winter 2002), p 215.

<sup>121</sup> *Ibid*, p 220.

<sup>122</sup> *Ibid*, p 224.

<sup>123</sup> David Halberstam, *War in a Time of Peace: Bush, Clinton and the Generals* (New York: Scribner, 2001), p 365.

disaffected Albanian population formed the Kosovo Liberation Army (KLA) in 1997. The objective of the KLA was to engage the Serbs militarily and thereby provoke an aggressive response from Milosevic. This violent response would, it was hoped, draw in the Western powers much as events in Bosnia had.<sup>124</sup>

In May 1998, as the Serbs began retaliating against the KLA, the key Western power, the United States, began contemplating precisely this course of action. According to David Halberstam, Madeleine Albright, the Secretary of State, was an ardent advocate of the early use of air power to stop Milosevic and to coerce a solution to the crisis in Kosovo. Halberstam asserts that “Albright was absolutely sure that Kosovo was a repeat of Bosnia and that the United States would, sooner or later, have to take military action against Belgrade.”<sup>125</sup> In a PBS Frontline interview Albright stated, “[h]e [Milosevic] didn't see the light in Bosnia until the NATO bombing, and then he agreed to the Dayton Accords.”<sup>126</sup>

In his memoirs, General Clark reflected that he began preliminary planning for a military response to stop the ethnic cleansing in Kosovo as early as June 1998. He states, “the air strikes would be coercive in nature, following the Bosnia model, providing a strong incentive for Milosevic to halt operations.”<sup>127</sup> The notable difference, according to Clark, was the robust Serbian air defence capability; this integrated air defence system

---

<sup>124</sup> Ibid, pp 366-367.

<sup>125</sup> Ibid, p 376.

<sup>126</sup> PBS Frontline Interview, 22 February 2000, <http://www.pbs.org/wgbh/pages/frontline/shows/kosovo/interviews/> Website accessed at 2200 17 March 2003.

<sup>127</sup> Clark, p 122.

(IADS) would have to be dealt with first.<sup>128</sup> Once the IADS was disrupted, the air strikes would then decisively degrade the Serb's military capability. Clark asserted there would be, "No half measures. No Vietnam."<sup>129</sup>

Madeleine Albright, the Secretary of State, and General Wesley Clark, NATO's SACEUR, were distinctly hawkish in their approach to the crisis in Kosovo. Both believed coercive air power, applied in the same fashion as in Bosnia in 1995, would stop Milosevic. Senior military officers in the Pentagon took a more cautious approach. According to David Halberstam, "tensions between the senior military and the people in the administration remained substantial."<sup>130</sup> This tension is illuminated in the senior military leadership's adherence to the Powell doctrine as the essential guideline for the employment of U.S. military force.<sup>131</sup> While General Colin Powell had recently retired, the influence of his doctrine remained – namely, military missions must be clearly defined, overwhelming force with clear rules of engagement must be provided, and a clear departure policy must be established.<sup>132</sup> The doctrine is rooted in the U.S. military's Vietnam experiences and is intended to avoid American casualties, which Powell believed would not be acceptable to the U.S. public or to Congress.<sup>133</sup>

---

<sup>128</sup> Ibid, pp 122-123.

<sup>129</sup> Ibid, p 123.

<sup>130</sup> Halberstam, p 411.

<sup>131</sup> Campbell, Kenneth T., "Once Burned, Twice Cautious: Explaining the Weinberger-Powell Doctrine", *Armed Forces and Society*, Volume 24, Issue 3 (Spring 1998), pp 357-375.

<sup>132</sup> Halberstam, p 252.

<sup>133</sup> Jeffrey Record, "Force-Protection Fetishism", *Aerospace Power Journal*, Volume 14, Issue 2 (Summer 2000), p 6.

The Powell doctrine, according to Jeffrey Record, does not fit with coercive strategies because it implicitly dismisses force as an element of diplomacy. In doing so, he asserts, it “stands Clausewitz on his head by holding force to be a substitute for rather than a companion to diplomacy.”<sup>134</sup> As has been seen, the threat of and the use of actual force is integral to coercion, and historically, is very much a part of diplomacy.

General Clark’s initial Kosovo campaign plan was not accepted by NATO political leaders and was rejected, he contends, because “it sounded too large, too threatening.”<sup>135</sup> Additionally, there was considerable resistance to any strikes near Belgrade.<sup>136</sup> General Clark’s staff then began work on a compromise, five-phased campaign plan. Phase 0 would entail the deployment of aircraft to the European Theatre. Phase 1 would establish air superiority over Kosovo and degrade command and control and the IADS. Phase 2 would attack military targets in Kosovo and Phase 3 would expand operations against military and security targets throughout the FRY. Phase 4 would consist of the re-deployment of aircraft.<sup>137</sup>

Tellingly, this plan was not completed prior to the opening air strikes, illustrating NATO’s failure to fully comprehend the strategic situation. Bruce R. Nardulli asserts that NATO “continually reviewed lesser air options and never developed a full air campaign.” He adds, a “[f]orced-entry ground option remained beyond consideration.”<sup>138</sup>

---

<sup>134</sup> Jeffrey Record, “Weinberger-Powell Doctrine Doesn’t Cut It”, *Proceedings*, Volume 126, Issue 10 (October 2000), p 35.

<sup>135</sup> Clark, p 124.

<sup>136</sup> Ibid.

<sup>137</sup> United States, Department of Defense, *Report to Congress: Kosovo/Operation Allied Force After-Action Report* (Washington: DoD, January 31, 2000), pp 7-8.

<sup>138</sup> Bruce R. Nardulli, et al, *Disjointed War* (Santa Monica: Rand Corporation, 2002), p 19.

General Clark believed that by publicly rejecting the possibility of a ground invasion of Kosovo, “the basic recipe for NATO’s success during the Cold War [was lost]: preserve uncertainty in the mind of your opponent.”<sup>139</sup> Ivo H. Daalder and Michael E. O’Hanlon have concluded that “NATO’s campaign plan was unsound in the war’s early going.”<sup>140</sup> They assert that NATO, pushed by the U.S., cavalierly advocated bombing as an easy solution to the crisis that would minimize NATO casualties and commitment.<sup>141</sup>

While this planning was underway, widespread media attention was focused on Serbian actions in Kosovo. On January 15 1999, for example, strong evidence emerged that Serbian forces had massacred 45 ethnic Albanians in the village of Racak.<sup>142</sup> David Halberstam reflected that “Racak finally mobilized the West ... [a]lmost certainly there would be a military reckoning.”<sup>143</sup> Additionally, Serbian ethnic cleansing continued with a reported 250,000 Kosovar Albanians having fled their homes by the winter of 1999.<sup>144</sup> Concerns also arose over the possibility of a Serbian spring offensive against the KLA that would displace considerably more Albanians and expand the already significant humanitarian crisis in Kosovo.<sup>145</sup>

---

<sup>139</sup> Clark, p 166.

<sup>140</sup> Ivo H. Daalder and Michael E. O’Hanlon, *Winning Ugly: NATO’s War to Save Kosovo* (Washington: Brookings Institute, 2000), p 18.

<sup>141</sup> Ibid.

<sup>142</sup> Hosmer, *Why Milosevic Decided to Settle When He Did*, p 7.

<sup>143</sup> Halberstam, p 410.

<sup>144</sup> United Kingdom, Secretary of State for Defence, *Kosovo: Lessons from the Crisis* (London: The Stationery Office, June 2000), p 7.

<sup>145</sup> Ibid, p 10.

Against this backdrop, NATO leaders attempted to achieve a final negotiated settlement at Rambouillet, France, in February and March 1999. This effort would not succeed due to NATO's misunderstanding of Milosevic's political position and the importance of Kosovo to the Serbian people. Furthermore, NATO fundamentally misread the lessons of Operation Deliberate Force – the situation in Bosnia in 1995 was not the situation in Kosovo in 1999.<sup>146</sup>

Stephen T. Hosmer has identified four main reasons why Rambouillet was unacceptable to Milosevic. Firstly, the Serbian people had a very strong attachment to the province. Secondly, Milosevic had gained political popularity by championing the rights of the Serb minority in Kosovo. Thirdly, the Serbian Kosovo minority provided his ruling Socialist Party with essential seats in the Serb Parliament. And fourthly, he relied on the exploitation of Serb nationalism to maintain his political position.<sup>147</sup> It is important to note that Milosevic's power was not absolute and he still had to rely on elections to extend his rule.<sup>148</sup>

Following the failure at Rambouillet, NATO turned to General Clark to reinforce their diplomacy with Phase 1 of the military campaign. In developing and approving only Phase 1, the North Atlantic Council (NAC) maintained tight political control of the campaign and limited strikes to a small number of IADS and command and control targets.<sup>149</sup> A total of only fifty targets were approved in Phase 1 and the strikes were not expected to last beyond a few days. According to Anthony H. Cordesman, this limited

---

<sup>146</sup> Daalder and O'Hanlon, p 92.

<sup>147</sup> Hosmer, *Why Milosevic Decided to Settle When He Did*, pp 9-10.

<sup>148</sup> Ibid, p 10.

<sup>149</sup> Nardulli et al, p 4.

target set and constrained beginning “bordered on tokenism.”<sup>150</sup> NATO was not, he insists, prepared “to deal with the military realities that followed.”<sup>151</sup>

Following the opening strikes on 24 March 1999, President Clinton publicly outlined the following objectives:

Our strikes have three objectives: First to demonstrate the seriousness of NATO’s opposition to aggression and its support for peace. Second, to deter President Milosevic from continuing and escalating his attacks on helpless civilians by imposing a price for those attacks. And third, if necessary, to damage Yugoslavia’s capacity to wage war against Kosovo in the future by seriously diminishing its military capabilities.<sup>152</sup>

Clearly, the objectives were aimed primarily to coerce and to deter, and only secondarily to militarily impact Serbia’s actions in Kosovo.

Not only did Milosevic prove intransigent following the opening air strikes, he countered NATO’s coercion with the acceleration of the large scale ethnic cleansing of Albanian Kosovars.<sup>153</sup> The limited air strikes, it would appear, “convinced Milosevic that he could ride out the NATO attacks.”<sup>154</sup> He calculated that “he would be better off with NATO air strikes than with NATO ground troops in Kosovo.”<sup>155</sup> Faced with the failure of the opening show of force, and now publicly committed, NATO scrambled to devise a military solution. As Lieutenant-General Short, the Combined Forces Air Component Commander (CFACC) for the campaign, remarked, there was now “no

---

<sup>150</sup> Cordesman, p 22.

<sup>151</sup> Ibid, p 20.

<sup>152</sup> President Bill Clinton, “Statement by the President, March 24 1999” <http://www.fas.org/man/dod-101/ops/docs99/990324-wh3.htm> Website accessed at 1400 hrs 22 March 1999.

<sup>153</sup> Nardulli et al, p 2.

<sup>154</sup> Benjamin S. Lambeth, *NATO’s AirWar for Kosovo* (Santa Monica: Rand Corporation, 2001), p xxii.

<sup>155</sup> Hosmer, *Why Milosevic Decided to Settle When He Did*, p 17.

coherence to the targeting plan and no formal escalation.”<sup>156</sup> In describing NATO’s opening strategy, Halberstam states, “[t]here was no agreed-upon Plan B. As Powell had often asked, what happens if the bombing does not work?”<sup>157</sup>

NATO’s strategy for resolving the crisis in Kosovo was flawed for two fundamental reasons. Firstly, it assumed the limited coercive model applied in Bosnia in 1995 would be transferable to Kosovo in 1999. This assumption was destined to fail because Milosevic’s personal survival was linked to Kosovo, and additionally, the Serb people were very strongly attached to the province. This was not the case with Bosnia in 1995. Secondly, the military situation in Bosnia in 1995 was very much different from the situation in Kosovo in 1999. In Bosnia, the BSA faced a militarily potent threat from a major Croatian offensive (Operation Storm) coincidental with the NATO air strikes. The air strikes were militarily damaging to the BSA, which stood a very real chance of being defeated by the 100,000 man strong Croatian offensive.<sup>158</sup> Accordingly, the pressure for the Serbs to concede to UN and NATO demands was high. A purely counter-military strategy was appropriate and successful in this limited situation. In Kosovo in 1999, however, this military threat was not present. The KLA’s limited capabilities were significantly degraded by Serbian offensives and the KLA, therefore, presented no credible threat to the Serb military.<sup>159</sup> Accordingly, the pressure to concede to NATO demands was low.

---

<sup>156</sup> Personal Interview with U.S. Air Force Lieutenant-General (Ret) Michael A. Short, Combined Forces Air Component Commander (CFACC) Operation Allied Force, conducted 3 December 2002.

<sup>157</sup> Halberstam, p 422.

<sup>158</sup> Forage, p 215.

<sup>159</sup> Cordesman, p 26.

The initial bombing campaign would fail due to a fundamental misunderstanding of political coercion. The Bosnia model of 1995 was not transferable to Kosovo in 1999. Politically, the value of Serb resistance in Bosnia was quickly overcome by NATO air strikes; the value of Serb resistance in Kosovo was clearly much higher. Pape's cost-benefit analysis applied to NATO's initial strategy in Kosovo indicates that a show of force would not raise the cost of resistance  $[C]$ , raise the probability of suffering costs  $[p(C)]$ , or reduce the probability that resistance would be beneficial  $[p(B)]$  to Milosevic. NATO's show of force was not sufficiently damaging, militarily or politically, to coerce concessions from Milosevic. NATO would have to credibly escalate coercive pressure to decrease the value of resistance.

Militarily, the purely counter-military strategy succeeded in Bosnia due to the Croatian offensive that seriously threatened the BSA. This Croatian threat caused the BSA to mass on the defense, and in the process, opened them to decisive strikes by air power. The synergy achieved by simultaneous air and ground operations is well demonstrated in this case. This synergy between air and ground forces would not occur in Kosovo, and would seriously limit air power's ability to conduct counter-military coercion.

In an effort to bring more military pressure to bear during Operation Allied Force, the NATO air order of battle was increased significantly to 1055 aircraft, of which 730 were American.<sup>160</sup> Nonetheless, Lieutenant-General Short concluded that, "Milosevic

---

<sup>160</sup> David E. Johnson, Karl P. Mueller, and William H. Taft, *Conventional Coercion Across the Spectrum of Operations* (Santa Monica: Rand Corporation, 2002), p 104.

was brought to the table by happenstance rather than design. We just kept bombing in the hope that something would work out.”<sup>161</sup>

Clausewitz emphasized that “at the outset of a war its character and scope should be determined on the basis of the political probabilities ... and the more imperative the need not to take the first step without considering the last.”<sup>162</sup> As the subsequent 78 days of the campaign indicate, little coherent thought, it appears, was given to any steps beyond Phase 1 of the campaign.

Following the failure of this opening show of force, NATO was forced to choose between accepting defeat or escalating coercion. The coercion construct at Figure 1 indicates that the linear progression should have continued counter-militarily towards brute force. As will become clear in Chapter 4, however, this did not occur and NATO instead incoherently increased counter-civilian coercion to achieve success.

---

<sup>161</sup> Personal Interview with U.S. Air Force Lieutenant-General (Ret) Short, conducted 3 December 2002.

<sup>162</sup> Clausewitz, p 584.

#### **Chapter 4: The Application of Coercive Air Power in Operation Allied Force**

NATO's opening show of force was directed against purely military targets but failed, of course, to coerce concession from Milosevic, for the reasons outlined in Chapter 3. The alliance would subsequently struggle to craft a strategy that would successfully compel Milosevic to accept a negotiated settlement to the crisis in Kosovo. NATO's ultimately successful strategy relied upon counter-civilian coercion, including decapitation, employing the remarkable increases in bombing accuracy of modern air power.

NATO's opening strikes were directed primarily against Serbian integrated air defenses (IADS) and secondarily against command and control and other military targets.<sup>163</sup> On the opening night, approximately 160 air and sea launched cruise missiles were employed along with 120 NATO strike aircraft,<sup>164</sup> against 50 military targets in Serbia.<sup>165</sup> General Wesley Clark, SACEUR, believed these opening strikes “would be powerful incentives for the Serbs to halt what they were doing, rather than intensifying their actions.”<sup>166</sup> General Nebojsa Pavkovic, commander of the Serbian Third Army, while clearly biased, offered an interesting analysis of the opening bombing campaign in a PBS Frontline interview,

First, when the bombing started, the targets were exclusively military structures. They hit buildings we couldn't move, and all of them were empty, and therefore it

---

<sup>163</sup> Daalder and O'Hanlon, p 117

<sup>164</sup> Ibid

<sup>165</sup> Cordesman, p 21.

<sup>166</sup> Clark, p 123.

was a miss. When they saw it had no effect, they started to hit civilian targets...<sup>167</sup>

The failure of this opening show of force led to a hastily improvised escalation of NATO force against Serbia. Significantly, NATO's initial failure was met with large-scale counter-coercion from Milosevic, namely the ethnic cleansing of Kosovo. According to Daalder and O'Hanlon, the Kosovar Albanians paid the price for NATO's failure,

Up to 10,000 or so died at Serb hands, mostly innocent civilians; thousands more were raped or otherwise brutalized. Some 800,000 people were forcefully expelled from Kosovo, and hundreds of thousand more were displaced within the territory.<sup>168</sup>

Ironically, this counter-coercion which resulted in the largest humanitarian crisis on the European continent since the Second World War, hardened NATO's resolve to employ military force to stop Milosevic's actions and to compel concession. NATO responded militarily to this counter-coercion with 'Phase 2' of the air campaign, directing strikes against a wider array of targets in an attempt to halt the ethnic cleansing.<sup>169</sup> NATO's initial strategy had clearly not foreseen this extensive counter-coercion.

General Clark had considerable first hand experience with Milosevic, including the Dayton Peace Accord negotiations, and identified him as the dominant decision maker. Clark viewed Milosevic as a rational actor who would maximize utility and would, ultimately, act in his best interests. In discussing the likely success of NATO's threat to use air power in June 1998, for example, Clark writes, "I know Milosevic; he

---

<sup>167</sup> General Nebojsa Pavkovic, PBS Frontline interview, 22 February 2000 <http://www.pbs.org/wgbh/pages/frontline/shows/kosovo/interviews/pavkovic.html> Website accessed at 1300 hrs 22 March 2003.

<sup>168</sup> Daalder and O'Hanlon, p 3.

<sup>169</sup> Ibid, p 117.

doesn't want to get bombed.”<sup>170</sup> Unfortunately, as events would prove, Clark miscalculated what Milosevic believed to be in his best interest. Clearly, Clark's analysis of Milosevic's decision making was not predictive. This, of course, would lead to NATO's initial strategic failure in Operation Allied Force, and it also points to another considerable risk of coercion, its potential to backfire. As Byman et al point out, coercion may actually provoke a hostile, escalatory response from the adversary.<sup>171</sup> And this, in fact, occurred after the air strikes began and Milosevic exponentially expanded the ethnic cleansing campaign in Kosovo, displacing hundreds of thousands of Kosovar Albanians.<sup>172</sup>

Phase 2 of the air campaign, along with the provision of humanitarian support to the Kosovar Albanian refugees, was NATO's response to this counter-coercion. Importantly, the air campaign would have to increase coercive pressure against Milosevic and his regime and achieve 'escalation dominance'. In his memoirs, General Clark claims to have recognized the importance of escalation dominance, following the failure of the opening show of force. He writes,

I was pushing everyone hard to escalate the intensity of the campaign, out front of Washington and NATO, seeking resources and backing to achieve what we called “escalation dominance”.<sup>173</sup>

Consequently, as a result of NATO's opening failure and in response to Milosevic's expanded ethnic cleansing, Phase 2 of the campaign commenced on 27 March 1999 in an attempt to achieve escalation dominance. The Phase 2 target set expanded to include

---

<sup>170</sup> Clark, p 119.

<sup>171</sup> Byman et al, p 25.

<sup>172</sup> Nardulli et al, p 50.

<sup>173</sup> Clark, p 229.

“military infrastructure such as depots and airfields as well as Yugoslav forces in the field.”<sup>174</sup> The aim was to militarily impact the Serbian fielded forces by striking them at the tactical level where the ethnic cleansing was actually occurring, and to interdict their sources of supply and support. This classic military, force-on-force thinking by General Clark was flawed for two fundamental reasons: firstly, air power operating in isolation (without a ground force) was ineffective against fielded forces; and secondly, damage inflicted on Serbian fielded forces would not produce coercive pressure on Milosevic and his regime.

The Phase 2 target set reflects Clark’s limited knowledge of air power’s capabilities, and of political coercion. Air power would prove ineffective operating at the mandated high altitude (above 15,000 feet) against isolated Serbian forces in Kosovo. The altitude restriction made visual identification of targets extremely difficult and was intended to minimize risk, and therefore casualties, to NATO aircrew.<sup>175</sup> Furthermore, damage inflicted on the Third Army in Kosovo was unlikely to raise coercive pressure against Milosevic. Using Pape’s cost-benefit formula [ $R = B p(B) - C p(C)$ ], attacking the Third Army was intended to raise the cost of resistance [ $C$ ] to Milosevic, and decrease the probability of achieving benefits [ $p(B)$ ]. The loss of conscript troops in an army that had been involved in conflict for much of the decade, now fighting for the cradle of Serbian civilization, however, was unlikely to be seen by Milosevic as an unbearably high cost.

---

<sup>174</sup> Daalder and O’Hanlon, p 117.

<sup>175</sup> Lambeth, p xvii.

This Phase 2 target set selection resulted in a deep split between General Clark, SACEUR, and Lieutenant-General Short, the air component commander. In Benjamin S. Lambeth's words this resulted in,

... an internecine battle between the Supreme Allied Commander in Europe, U.S. Army General Wesley Clark, and his air component commander, USAF Lieutenant General Michael Short, over where the air attacks should be primarily directed.<sup>176</sup>

Short believed that “you need to bring pressure at the strategic level of war and that was Milosevic and the guys around him.”<sup>177</sup> Furthermore, he asserts, “air power ... is very ineffective against a fielded force if you don't have a force of your own on the ground to make the enemy predictable, to make them mass, to make them run, to make them fight.”<sup>178</sup> He continued, “attacking the Third Army in Kosovo was not to our advantage because of terrain, mixing of good folks and bad folks, and because we had no army in the field.”<sup>179</sup>

Despite these reservations, the limited number of NATO strike aircraft continued to be tasked against these tactical fielded forces. Furthermore, for the first thirty days of Allied Force, NATO conducted an average of only 92 strike sorties per day.<sup>180</sup> The average number of strike sorties in the Gulf War, by contrast, was 1300.<sup>181</sup> Escalation dominance could not be achieved with these limited assets, especially if these assets were

---

<sup>176</sup> Ibid, p xix.

<sup>177</sup> Personal Interview with U.S. Air Force Lieutenant-General (Ret) Short, conducted 3 December 2002.

<sup>178</sup> Ibid.

<sup>179</sup> Ibid.

<sup>180</sup> John Tirpak, “The First Six Weeks”, Air Force Magazine, Volume 82, Number 6 (June 1999), p 28.

<sup>181</sup> Ibid.

committed to targets that they could not effectively strike and that would not produce the necessary coercive effects.

Bomb Damage Assessment (BDA) figures remain controversial and widely disputed. The consensus of Rand Corporation analysts, however, points to a marginal impact on the Third Army; only small numbers of armoured vehicles and artillery were destroyed.<sup>182</sup> Anthony Cordesman has concluded that General Pavkovic's Serbian Third Army actually increased in size by 36 percent during the air campaign.<sup>183</sup> The Department of Defense methodology for determining the level of destruction inflicted on the Third Army relied almost exclusively on pilot reports, including cockpit video.<sup>184</sup> Based on this single source, analysts could not determine if the target was a decoy or, accurately, what level of damage was inflicted. For example, claims of Serbian tanks destroyed range from 120 by the Department of Defense, to 93 by SHAPE, and to as little as 14 by Newsweek Magazine.<sup>185</sup> In an attempt to buttress U.S. and NATO claims, General Clark authorized and dispatched to Kosovo the Munitions Effectiveness Assessment Team (MEAT) to conduct a post campaign analysis.<sup>186</sup> Clark subsequently claimed at a press conference on 16 September 1999, that the MEAT conclusively determined that "NATO carried out successful strikes against 93 tanks, [and] 153

---

<sup>182</sup> Nardulli et al, p 55.

<sup>183</sup> Cordesman, p 236.

<sup>184</sup> Nardulli et al, p 53.

<sup>185</sup> Ibid, p 51.

<sup>186</sup> Cordesman, p 160.

armoured personnel carriers...”<sup>187</sup> Significantly, the press conference did not claim the vehicles were destroyed, but that strikes were successfully carried out against them. The actual number of destroyed vehicles may never be known but the ability of the Third Army to carry out the ethnic cleansing campaign and then to withdraw without assistance in June 1999 would seem to indicate that it was not materially damaged. What damage was inflicted on it clearly did not compel Milosevic to concede.

Phase 2 of the air campaign failed to halt the ethnic cleansing and failed to coerce concession. This phase, along with Phase 1, was a counter-military denial campaign and failed for the reasons outlined. Following NATO’s 50<sup>th</sup> Anniversary Summit at Washington in April 1999, the alliance leaders stiffened their resolve and agreed to intensify the air campaign and to expand the target set in order to successfully conclude the campaign.<sup>188</sup> This target set expansion included military-industrial infrastructure, media, and other strategic targets.<sup>189</sup> Importantly, the NATO air order of battle would increase to 1055 aircraft<sup>190</sup> permitting the daily strike sortie rate to increase to a peak of 319 on 31 May 1999.<sup>191</sup> Significantly, NATO had concluded that it could not afford to lose and turned to a counter-civilian and decapitation strategy to achieve victory.

After the failure of Phases 1 and 2, Phase 3 of the air campaign commenced following the NATO Summit of late April 1999. A doubling of NATO strike aircraft

---

<sup>187</sup> NATO Website, “NATO and Kosovo: Kosovo One Year On – Could it Have Been Done Better?” <http://www.fas.org/man/dod-101/ops/2000/repo2000/better.htm> Website accessed at 1200 hrs 23 March 2003.

<sup>188</sup> Cordesman, p 27.

<sup>189</sup> Ibid.

<sup>190</sup> Johnson et al, p 104.

<sup>191</sup> Aubin, p 7.

marked the opening of Phase 3.<sup>192</sup> Additionally, and most importantly, the target set expanded to permit counter-civilian coercion and decapitation. NATO's Master Target File, for example, grew from 169 targets at the beginning of the air campaign to more than 976 at the end of the campaign in June 1999.<sup>193</sup> According to Benjamin S. Lambeth, the goal of Phase 3 "became punishing Belgrade's political and military elites, weakening Milosevic's power base, and demonstrating by force of example that he and his fellow perpetrators of the abuses in Kosovo would find no sanctuary."<sup>194</sup> To do so, Serbian infrastructure and leadership would be heavily targeted in Phase 3.

NATO's expanding air order of battle subsequently carried out strikes against all four pillars of Milosevic's power – the political machine, the media, the security forces and the economic system.<sup>195</sup> Attacks were carried out against national oil refineries, petroleum depots, road and rail bridges (including the Danube), railway lines, military communications sites, and factories that materially contributed to the war effort.<sup>196</sup> Attacks against media and political leadership targets had not been conducted during the first two Phases of the air campaign and had allowed Milosevic to "feed a steady diet of propaganda to his own people and to the international community."<sup>197</sup> To counter this, NATO struck state radio and television stations in Belgrade on April 21 shutting down

---

<sup>192</sup> Daalder and O'Hanlon, p 119.

<sup>193</sup> Lambeth, p 38.

<sup>194</sup> Ibid, pp 38-39.

<sup>195</sup> Ibid, p 39.

<sup>196</sup> Daalder and O'Hanlon, p 118.

<sup>197</sup> Aubin, p 7.

three television channels run by Milosevic's wife, Mira Markovic.<sup>198</sup> This escalation of force through counter-civilian coercion and decapitation very much brought the conflict directly to the political elite.

The subsequent application of counter-civilian coercion would result in the destruction of 70% of Serbia's road bridges, 50% of the rail bridges across the Danube, and 100% of the country's petroleum refinery production.<sup>199</sup> Additionally, the telecommunications industry was heavily damaged and the major power plants were operating at considerably reduced levels by the end of the campaign.<sup>200</sup> Electricity plants, for example, were destroyed in the major Serbian cities, which also affected water supplies.<sup>201</sup> Civilian interests with indirect military value were also struck; cigarette factories, the chemical industry and fertilizer plants, for example, were attacked.<sup>202</sup> A NATO attack on a vehicle factory in Krujevac resulted in 15,000 employees and 40,000 sub-contractor employees being put out of work.<sup>203</sup> Benjamin S. Lambeth estimates that these attacks on civilian interests put 100,000 Serbians out of work and halved the country's economic output.<sup>204</sup> These attacks on civilian interests owned or controlled by Milosevic's political elite added to the pressure to concede. The political elite itself was

---

<sup>198</sup> Lambeth, p 39.

<sup>199</sup> Aubin, p 8.

<sup>200</sup> Ibid.

<sup>201</sup> Daalder and O'Hanlon, p 142.

<sup>202</sup> Ibid, p 201.

<sup>203</sup> Lambeth, p 41.

<sup>204</sup> Ibid, pp 41-42.

also directly targeted; Milosevic's residences and command bunkers were subjected to NATO attacks.<sup>205</sup>

These strikes were conducted with precision throughout the air campaign. In the opening stages 90% of the weapons expended were precision guided.<sup>206</sup> In the latter stages of the campaign, as the weather improved, this number was reduced. Aircraft with precision aiming systems delivered a large number of unguided bombs against area targets that would not produce collateral damage.<sup>207</sup> B-1 and B-52 bombers, for example, delivered 70% of the total unguided bombs expended during the air campaign.<sup>208</sup> Over the 78 days of the air campaign, 34-37% of the total weapons expended were precision guided, as compared to 8% during the Gulf War.<sup>209</sup>

As a result of this application of precision technology, collateral damage was minimized during the air campaign. Rules of engagement, target selection, and attack profiles were carefully crafted to preclude civilian casualties.<sup>210</sup> NATO contends, based upon a Human Rights Watch Report, that less than 1% of the 10,484 NATO strike sorties led to civilian deaths.<sup>211</sup> This 1% amounted to approximately 500 civilian deaths.<sup>212</sup>

---

<sup>205</sup> The author participated in such a decapitation strike on Milosevic's country residence and command bunker to the West of Belgrade on 31 May 1999.

<sup>206</sup> Cordesman, p 44.

<sup>207</sup> Ibid, p 46.

<sup>208</sup> Ibid, p 269.

<sup>209</sup> Ibid, p 44.

<sup>210</sup> NATO Website, "NATO and Kosovo: Kosovo One Year On – Could it Have Been Done Better?" <http://www.fas.org/man/dod-101/ops/2000/repo2000/better.htm> Website accessed at 1200 hrs 23 March 2003.

<sup>211</sup> Ibid.

<sup>212</sup> Cordesman, p 122.

Anthony Cordesman has written that “NATO did make every possible effort to minimize collateral damage and did succeed in achieving the lowest levels of collateral damage in the history of any similar level of conflict.”<sup>213</sup>

In the end, it was the destruction of Serbian dual use infrastructure and its impact on Milosevic and his inner circle that created the necessary coercive pressure to achieve NATO’s objective.<sup>214</sup> The demonstrated resolve of NATO’s increasing air order of battle and willingness to target civilian interests and Serbian leadership resulted in the alliance achieving escalation dominance. Using Pape’s cost-benefit analysis [ $R = B p(B) - C p(C)$ ], Phase 3 of the air campaign significantly raised the cost of resistance [ $C$ ] to Milosevic and the political elite. Furthermore, the probability of suffering further costs [ $p(C)$ ] was increased, and the probability that resistance would be beneficial [ $p(B)$ ] was reduced. Accordingly, Milosevic conceded.

Benjamin S. Lambeth determined that the campaign concluded due to,

... mounting pressure from Milosevic’s cronies among the Yugoslav civilian oligarchy, prompted by the continued bombing of military-related industries, utilities, and other infrastructure targets in and around Belgrade in which they had an economic stake and whose destruction increasingly threatened to bankrupt them.<sup>215</sup>

Stephen Aubin has concluded that the “systematic erosion of Serbia’s economic infrastructure finally convinced Milosevic to cut a deal.”<sup>216</sup> He goes on to assert that “it was a deal, not a defeat.”<sup>217</sup> This is an important distinction. The Serbian Third Army

---

<sup>213</sup> Ibid, p 121.

<sup>214</sup> Nardulli et al, p 44.

<sup>215</sup> Lambeth, p xiv.

<sup>216</sup> Aubin, p 8.

<sup>217</sup> Ibid.

was not defeated in the field; the political leadership was coerced to accept NATO's terms.

Significantly, this coercion was not conducted in isolation. Serbia had been diplomatically isolated by the crisis, and in particular as a result of her brutal ethnic cleansing of Kosovo. The loss of Serbia's final ally, Russia, no doubt contributed substantially to this isolation. Russia's acceptance of the NATO terms for Kosovo eliminated any hope Milosevic may have had of withstanding NATO's expanding air campaign.<sup>218</sup>

---

<sup>218</sup> Cordesman, p 32.

## Conclusion

NATO's conduct of Operation Allied Force reveals a fundamental political and military misunderstanding of coercion. The political misunderstanding is evident in the Operation's underlying strategy based on the belief that just "the whiff of gunpowder"<sup>219</sup> would force Milosevic to back down. This strategy relied upon a show of force that was unlikely to succeed and revealed much about the coercer's resolve and commitment to militarily solving the humanitarian crisis in Kosovo. Combined with the alliance's public declaration that NATO ground troops would not forcibly enter Kosovo, it is not surprising that this half-hearted approach failed to impress Milosevic. The alliance fundamentally misread the importance of Kosovo to Milosevic and to the Serbian people and naively believed that a parallel could be drawn with the 1995 coercive bombing campaign against the Bosnian Serb Army during Operation Deliberate Force. Significantly, the opening NATO strikes were directed against exclusively military targets, and demonstrably failed to coerce concession.

The military misunderstanding of coercion is revealed in the doctrinal vacuum that only recognizes *military operations other than war*, requiring only a raid or a show of force to protect important interests, and *war*, requiring the application of overwhelming brute force in defense of vital national interests.<sup>220</sup> Operation Allied Force clearly does not meet either definition. Furthermore, U.S. military doctrine does not recognize the politics of coercion that may require the gradual escalation of force against

---

<sup>219</sup> Aubin, p 5.

<sup>220</sup> Department of Defense, *Joint Publication 1: Joint Warfare of the Armed Forces of the United States* (Washington: DoD U.S., 2000), p III-14

strategic targets.<sup>221</sup> Current military doctrine, reliant upon the Powell doctrine, “envision[s] a carefully integrated, swift, overwhelming and decisive initial blow.”<sup>222</sup> This doctrine is clearly at odds with coercive theory. Military power is not separate from, but is integral to diplomacy. And the threat and use of actual force is, of course, at the heart of coercion.

NATO’s strategy for Operation Allied Force was seriously flawed by an incomplete cost-benefit analysis. Significantly, NATO failed to consider Milosevic’s decision calculus with their opening strategy. Robert Pape’s cost benefit analysis  $[R = B p(B) - C p(C)]$  states that the coercer must raise the cost of resistance  $[C]$ , raise the probability of suffering costs  $[p(C)]$ , or reduce the probability that resistance will be beneficial  $[p(B)]$  if he is to succeed. NATO’s opening strategy would not successfully manipulate the elements of this equation to reduce the value of resistance  $[R]$ .

NATO’s failed opening strategy was met with Milosevic’s counter-coercive expansion of the ethnic cleansing campaign in Kosovo. While NATO strategy had not envisioned this counter-coercion, the barbarity of Milosevic’s actions worked against him and stiffened the alliance’s resolve to prevail. In response to this counter-coercion and in recognition of the failure of the opening show of force, NATO embarked on Phase 2 of the air campaign. This phase also relied upon counter-military coercion by attempting to interdict Milosevic’s forces in Kosovo. The inability of NATO aircraft to successfully engage these mobile fielded forces from high altitude and without the assistance of

---

<sup>221</sup> Ellwood P. Hinman, “Airpower’s Political-Military Gap”, *Strategic Review*, Volume 28, Number 4 (Fall 2000), p 25.

<sup>222</sup> *Ibid.*

NATO ground forces is evident in the desultory BDA figures and in the eventual success of Milosevic's ethnic cleansing campaign.

Following NATO's 50<sup>th</sup> anniversary celebrations at the Washington Summit in late April 1999, the alliance determined to succeed in Kosovo and radically altered its strategy in Phase 3 of the air campaign. Significantly, NATO recognized the failure of the denial strategies of Phases 1 and 2, and rather than escalate counter-military coercion towards brute force destruction, turned to counter-civilian coercion and decapitation.

Phase 3 was characterized by a doubling of the number of NATO strike aircraft and by the targeting of Serbian infrastructure and leadership targets. The application of precision weapons systems and guided weapons systematically destroyed large sections of the Serbian infrastructure and economic base. Milosevic, his ruling elite and their economic interests were targeted, exacting a direct cost for their support of the regime's actions in Kosovo. Benjamin S. Lambeth has concluded that Serbian economic output was halved as a result of this counter-civilian targeting.<sup>223</sup> Importantly, this counter-civilian coercion effectively undermined the functioning of the Serbian state without imposing unacceptable levels of collateral damage. The small number of civilians killed by the 28,018 high explosive weapons delivered is a testament to the exponential increase in weapons accuracy since the counter-civilian bombing campaigns of the Second World War.<sup>224</sup>

Combined with the diplomatic efforts to isolate Serbia, which eventually resulted in the loss of key Russian support to Serbia, the final phase of the air campaign proved

---

<sup>223</sup> Lambeth, pp 41-42.

<sup>224</sup> Cordesman, pp 61-64.

decisive.<sup>225</sup> NATO's new resolve, capabilities and the application of counter-civilian coercion and decapitation significantly raised the costs of Serbian resistance [C]. Additionally, the probability of suffering further costs [p(C)] was increased, and the probability that resistance would be beneficial [p(B)] was reduced. With Phase 3 of the air campaign, NATO finally manipulated the cost benefit calculus, achieved escalation dominance and coerced concession.

Four key lessons can be derived from Operation Allied Force for air power. Firstly, air power will continue to be seen as a "low cost, low commitment tool"<sup>226</sup> of choice for employment in limited wars where the U.S.' vital interests are not at stake. In the uni-polar world where the U.S. no longer has a peer competitor, American leaders have the freedom to threaten force or to apply force without fear of defeat or major consequence. A resort to the threat of force or the use of actual force to coerce a recalcitrant adversary, therefore, offers an enticing and likely solution to world crises. Accordingly, U.S. doctrine must adapt to recognize the middle ground of graduated, politically controlled, coercive military force. As Clausewitz wrote, "war ... is an act of policy." And policy he continued, "will permeate all military operations."<sup>227</sup>

Secondly, the exponential increase in weapon systems and guided weapons accuracy dictates a reappraisal of counter-civilian coercive strategies. The ability of these weapons to effectively undermine the functioning of an industrialized adversary state has been demonstrated in Operation Allied Force. The vastly increased destructive

---

<sup>225</sup> Daalder and O'Hanlon, p 184.

<sup>226</sup> Byman, et al, p xv.

<sup>227</sup> Clausewitz, p 87.

capability provided by the accuracy of these weapon systems also serves to significantly reduce and minimize collateral damage. A counter-civilian coercion strategy, based upon an accurate cost benefit analysis, therefore, should be considered a valid application of modern air power.

Thirdly, decapitation, which directly targets strategic decision makers and their interests, can be a very effective coercive strategy. Decapitation combines elements of counter-military and counter-civilian coercion and exacts a direct price from the adversary's strategic leaders. Operation Allied Force's targeting of the Serbian leadership's direct interests materially contributed to NATO's eventual victory.

Fourthly, Phase 2 of Operation Allied Force revealed the limited ability of air power to succeed independently against mobile, fielded forces. Without allied ground forces to fix, draw out, or force adversary forces on to the retreat, air power had only a marginal impact. This is especially true when operating at medium to high altitude to reduce aircrew casualties. Accordingly, when operating in isolation, air power's ability to conduct counter-military coercion is limited.

NATO's strategic failure nearly cost the alliance victory in its first conflict. A lack of comprehension of the nature of coercion was at the root of this failure. Historically consistent with the strategic bombing campaigns of the Second World War and the Linebacker campaigns, the alliance turned to a counter-civilian (and decapitation) bombing campaign following this strategic failure. Air power, with its vastly improved accuracy and destructive capability, effectively undermined the functioning of the Serbian state, directly threatened the strategic leadership, and coerced concession. Importantly, air power accomplished this with very little collateral damage. This hard

won success in Operation Allied Force portends the coercive application of air power in future limited wars.

## **BIBLIOGRAPHY**

- Art, Robert J., and Waltz, Kenneth N. *The Use of Force: Military Power and International Politics*. Lanham Maryland: Rowman and Littlefield Publishers, 1999.
- Ash, Eric. "Terror Targeting". *Aerospace Power Journal*, Volume 13, Issue 4 (Winter 1999), pp 33-47.
- Atkins, Albert. *Air War Over Kosovo*. San Jose: Writer's Club Press, 2000.
- Aubin, Stephen P. "Operation Allied Force: War or 'Coercive Diplomacy'?". *Strategic Review*, Volume 27, Number 3 (Summer 1999), pp 4-12.
- Auer, James E., and Halloran, Richard. "Looking Back at the Bomb". *Parameters*, Volume 26, Issue 1 (Spring 1996), pp 127-153.
- Ball, Desmond, and Richelson, Jeffrey. *Strategic Nuclear Targeting*. Ithaca: Cornell University Press, 1986.
- Ben-Eliahu, Eitan. "Air Power in the 21<sup>st</sup> Century". *Military Technology*, Volume 24, Issue 4 (April 2000), pp 38-43.
- British Bombing Survey Unit. *The Strategic Air War Against Germany 1939-1945*. London: Frank Cass, 1998.
- Brodie, Bernard. *Strategy in the Missile Age*. Princeton: Princeton University Press, 1959.
- Budiansky, Stephen. "Air War: Striking In Ways We Haven't Seen". *The Washington Post*, 06 April 2003. <http://www.washingtonpost.com/wp-dyn/articles/A32230-2003Apr4.html> Website accessed at 1100 hrs 15 April 2003.
- Byman, Daniel L.; Waxman, Mathew C.; and Larson, Eric. *Air Power as a Coercive Instrument*. Santa Monica: The Rand Corporation, 1999.
- Campbell, Kenneth, J. "Once Burned, Twice Cautious: Explaining the Weinberger-Powell Doctrine". *Armed Forces and Society*, Volume 24, Issue 3 (Spring 1998), pp 357-375.
- Clark, Wesley K. *Waging Modern War*. New York: PublicAffairs, 2001.
- Clausewitz, Carl Von. *On War*, ed and trans by Howard, Michael and Paret, Peter. Princeton: Princeton University Press, 1976.
- Clodfelter, Mark. *The Limits of Air Power*. New York: The Free Press, 1989.

Cohen, Eliot A. *Supreme Command*. New York: The Free Press, 2002.

Cordesman, Anthony H. *The Lessons and Non-Lessons of the Air and Missile Campaign in Kosovo*. Westport: Praeger, 2001.

Daalder, Ivo and O'Hanlon, Michael A. *Winning Ugly: NATO's War to Save Kosovo*. Washington: Brookings Institute, 2000.

Federation of American Scientists, <http://www.fas.org/>

Forage, Paul C. "Bombs for Peace: A Comparative Study of the Use of Air Power in the Balkans". *Armed Forces and Society*, Volume 28, Issue 2 (Winter 2002), pp 211-222.

Geva, Nehemia, and Mintz, Alex. *Decision-making on War and Peace: The Cognitive-Rational Debate*. Boulder: Lynne Rienner Publishers, 1997.

Halberstam, David. *War in a Time of Peace*. New York: Scribner, 2001.

Hallion, Richard P. "Precision Guided Munitions and the New Era of Warfare." *Air Power Studies Centre Paper Number 53*. RAAF Base Fairbairn: Commonwealth of Australia, 1995.

Herrly, Peter F. "The Plight of Joint Doctrine after Kosovo". *Joint Force Quarterly*, Number 22 (Summer 1999), pp 99-104.

Hinman, Maj Elwood. "The Politics of the Air Campaign: The Challenges for the U.S. Air Force in the Aftermath of Operation Allied Force". *Aerospace Power Journal*, Volume 14, Issue 1 (Spring 2000), pp 82-84.

Hinman, Maj Elwood. "Airpower's Political-Military Gap". *Strategic Review*, Volume 28, Number 4 (Fall 2000), pp 22-26.

Hosmer, Stephen T. *Psychological Effects of U.S. Air Operations in Four Wars 1941 – 1991*. Santa Monica: The Rand Corporation, 1996.

Hosmer, Stephen T. *Why Milosevic Decided To Settle When He Did*. Santa Monica: The Rand Corporation, 2001.

Johnson, David E.; Mueller, Karl P.; and Taft, William H. *Conventional Coercion Across the Spectrum of Operations*. Santa Monica: Rand Corporation, 2002.

Kahn, Herman. *On Thermonuclear War*. Princeton: Princeton University Press, 1961.

Lambeth, Benjamin S. *NATO's AirWar for Kosovo*. Santa Monica: Rand Corporation, 2001.

Lowe, Christian. "The New Art of War". The Weekly Standard, 03 April 2003.  
<http://www.weeklystandard.com/Content/Public/Articles/000/000/002/481lkpii.asp>  
Website accessed at 1100 hrs 15 April 2003.

Maoz, Zeev. *Paradoxes of War*. Boston: Unwin Hyman, 1990.

McMaster, H.R. *Dereliction of Duty*. New York: Harper Collins, 1997.

Mets, David R. *The Air Campaign: John Warden and the Classical Airpower Theorists*. Maxwell Air Force Base, Alabama: Air University Press, 1999.

Mets, David R. *The Long Search for a Surgical Strike: Precision Munitions and the Revolution in Military Affairs*. Maxwell Air Force Base, Alabama: Air University Press, 2001.

Nardulli, Bruce R.; Perry, Walter L.; Pirnie, Bruce.; Gordon, John.; and McGinn, John G. *Disjointed War*. Santa Monica: Rand Corporation, 2002.

NATO Website, "NATO and Kosovo: Kosovo One Year On – Could it Have Been Done Better?" <http://www.fas.org/man/dod-101/ops/2000/repo2000/better.htm> Website accessed at 1200 hrs 23 March 2003.

Olson, John A. "The Effect of Civilian Casualties on USAF Bombing Policy in Vietnam". Air Power History, Volume 46, Issue 4 (Winter 1999), pp 30-41.

Overy, Richard. *Why the Allies Won*. New York: W.W. Norton & Company, 1995.

Owens, Mackubin Thomas. "A Clausewitzian Read". National Review Online, 23 March 2003. <http://www.nationalreview.com/owens/owens032303.asp> Website accessed at 1100 hrs 15 April 2003.

Pape, Robert A. *Bombing to Win: Air Power and Coercion in War*. Ithaca: Cornell University Press, 1996.

PBS. "War in Europe". <http://pbs.org/wgbh/pages/frontline/shows/kosovo/> Website accessed at 2200 hrs 17 March 2003.

Peach, Stuart, ed. *Perspectives on Air Power*. London: The Stationery Office, 1998.

Powell, Colin. "U.S. Forces: Challenges Ahead". Foreign Affairs, Volume 71, Number 5 (Winter 1992-1993), pp 32-45.

Powell, Colin. *My American Journey*. New York: Random House, 1995.

Record, Jeffrey. "Force-Protection Fetishism". Aerospace Power Journal, Volume 14, Issue 2 (Summer 2000), pp 4-11.

Record, Jeffrey. "Weinberger-Powell Doctrine Doesn't Cut It". Proceedings, Volume 126, Issue 10 (October 2000), pp 35-36.

Reynolds, Richard T. *Heart of the Storm: The Genesis of the Air Campaign Against Iraq*. Maxwell Air Force Base: Air University Press, 1995.

Schelling, Thomas C. *Arms and Influence*. New Haven: Yale University Press, 1966.

Short, Lieutenant-General (Retired), Michael A. Personal Interview 03 December, 2002.

Strange, Joe. *Centers of Gravity & Critical Vulnerabilities: Building on the Clausewitzian Foundation so that we can Speak the Same Language*. Perspectives on Warfighting, Number 4, Second Edition. Quantico: Marine Corps University Foundation, 1996.

Sun Tzu. *The Art of War*, ed and trans by Samuel B. Griffith. London: Oxford University Press, 1971.

Tilford, Earl H. "Operation Allied Force and the Role of Air Power". Parameters, (Winter 1999-2000), pp 24-38.

Tirpak, John. "The First Six Weeks". Air Force Magazine, Volume 82, Number 6 (June 1999).

United Kingdom. Secretary of State for Defence. *Kosovo: Lessons from the Crisis*. London: The Stationery Office, June 2000.

United States. Congress Military Readiness Subcommittee. *Operations in Kosovo: Problems Encountered, Lessons Learned and Reconstitution*. Washington: U.S. Government Printing Office, 2000.

United States. Department of Defense. *Kosovo//Operation Allied Force After-Action Report*. Washington: DoD, January 31 2000.

United States. Department of Defense. *Joint Publication 1: Joint Doctrine of the Armed Forces of the United States*. Washington: DoD, 2000.

United States. Department of Defense. *Air Force Doctrine Document 1: Air Force Basic Doctrine*. Washington: DoD, 1997.

United States. Department of Defense. *Air Force Doctrine Document 2: Organization and Employment of Aerospace Power*. Washington: DoD, 2000.

United States. Department of Defense, *AIR FORCE PAMPHLET 14- 210 Intelligence, USAF INTELLIGENCE TARGETING GUIDE*, 1 FEBRUARY 1998.

United States. Department of Defense. *Air Force Doctrine Document 2-1.2: Strategic Attack*. Washington: DoD, 1998.

United States. Department of Defense, *Air Force Doctrine Document 2-1.3: Counterland*. Washington: DoD, 1999.

United States. *The United States Strategic Bombing Survey: Summary Report (European War)*. Washington: Government Printing Office, 1945.

Van Creveld, Martin. *Command in War*. Cambridge: Harvard University Press, 1985.

Vickers, Michael. "Ground War: Doing More With Less". Washington Post, 6 April 2003. <http://www.washingtonpost.com/wp-dyn/articles/A32232-2003Apr4.html>  
Website accessed at 1100 hrs 15 April 2003.

Warden, J.A. "The Enemy as a System". *Air Power Journal*, Volume 9, Number 1 (Spring 1995), pp 40-45.

Warden, John A. *The Air Campaign*. San Jose: toExcel Press, 2000.

Wendt, Diego M. "Using a Sledgehammer to Kill a Gnat". *Airpower Journal*, Volume 4, Number 2 (Summer 1990), pp 52-64.

Werrell, Kenneth P. "Did USAF Technology Fail in Vietnam?". *Aerospace Power Journal*, Volume 12, Number 1 (Spring 1998), pp 87-99.

Wilson, Stephen W. "Taking Clodfelter One Step Further: Mass, Surprise, Concentration, and the Failure of Operation Rolling Thunder". *Air Power History*, Volume 48, Issue 4 (Winter 2001), pp 40-47.

Y'Blood, William T. "Air War Over Korea". *Air Power Journal*, Volume 47, Issue 2 (Summer 2000), pp 44-47.