

# THE STRATEGIC PLAN: IS THERE SUCH A THING FOR THE REMOTELY PILOTED AIRCRAFT?

A Monograph

by

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## ABSTRACT

THE STRATEGIC PLAN: IS THERE SUCH A THING FOR THE REMOTELY PILOTED AIRCRAFT? by Major Julio E. Rodriguez, 50 pages.

The remotely piloted aircraft (RPA) provides combat power for the United States in today's uncertain operational environment. Dialogue on the strategic role of the RPA continues daily amongst the United States government, military, media, and academic community. This is in response to the novelty of the system and its various capabilities. This monograph examines the basic question between the various entities specifically asking how the United States can effectively plan and utilize the RPA in today's uncertain environment. A discussion of Henry Mintzberg's methodology of effective strategic planning and successfully crossing what he calls the Great Divide provides a useful point of departure for this monograph. Comparing Mintzberg's methodology to the use of the RPA through mid-2013 highlights incongruities, negating a successful bridging of the Great Divide. A historical example, the nuclear weapon, and the planning behind the Eisenhower administration of National Security Council 162/2, *A Report to the National Security Council by the Executive Secretary on Basic National Security Policy*, create a useful analogy of successfully crossing the Great Divide. Comparison of the development of the nuclear strategic plan with current RPA strategic planning creates a roadmap on the necessary steps of normalizing the RPA for use by the United States. A major obstacle, to date, is a readily defined strategy for the RPA. Research shows that until a specified strategy is stated, successful strategic planning for the RPA will suffer. However, research also shows that if planned appropriately, the RPA can provide a powerful instrument in combating potential enemies of the United States.

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## ACRONYMS

NSC	National Security Council
NSS	National Security Strategy
RPA	Remotely Piloted Aircraft

## INTRODUCTION

Once in a while, everything about the world changes at once. This is one of those times.

—Chuck Klosterman quoted in Singer, *Wired for War: The Robotics Revolution and Conflict in the 21st Century*

Today's operational environment is one of uncertainty. State and nonstate actors regularly influence world events through technological and primitive means instantly streamed across an interconnected world. In an unknown and budget-constrained environment, the United States is continuously searching and questioning various options to combat actors who pose a threat to the United States at home and abroad.

The remotely piloted aircraft (RPA) is a viable option. Increased dialogue on the role of the RPA is taking place amongst the United States government, military, media, and academic community. This is in response to the weapons system's novelty and various capabilities. Since the attacks of 9/11 on the United States, the American military's use of the RPA has increased exponentially. They provide a potentially inexpensive replacement to conventional forces on the battlefield. In the commercial sector, unmanned and robot technology is also increasing at unprecedented rates. Why? As many enthusiasts explain, robots are cool.<sup>1</sup>

The RPA is not the first new technological novelty the United States has dealt with in the past century. The nuclear technological breakthrough of the 1940s was another. Although nuclear weapons and the RPA appear very different, the challenges of creating a coherent, strategic plan for both are similar. Both systems challenge the conventional thinking of how to wage war as there is a perception that both can replace the conventional soldier providing a cheaper option than maintaining a large military force. Where nuclear technology changed the destructive

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<sup>1</sup>P. W. Singer, *Wired for War: The Robotics Revolution and Conflict in the 21st Century* (Mechanicsburg, PA: Penguin Books, 2009), 1.

firepower of war and created an enormous potential for collateral damage, the RPA moves in the opposite direction by providing a silent, surgical targeting capability, nearly eliminating collateral damage. The RPA provides a remote and austere capability for those who fight war. In his book, *Wired for War*, P.W. Singer states, “Humans’ 5,000-year-old monopoly over the fighting of war is over.”<sup>2</sup>

The RPA provides a military option for the United States. However, there is an ongoing debate between the government, academic community, and military as to the correct use of the RPA. This debate focuses on the following question, addressed by this monograph: how can the United States effectively plan and utilize the RPA in an uncertain world?

This monograph will focus on four areas in order to answer this question. The first section will introduce strategy and Henry Mintzberg’s methodology to strategically plan effectively. This section will establish the challenges of strategic planning, according to Mintzberg, and the need to cross the “Great Divide” of strategic planning. The second section will give a brief overview of the RPA, its capabilities, and some of the international perceptions of the system. Additionally, this section will discuss current challenges preventing coherent strategic planning and a failure to cross the Great Divide. The third section reviews the nuclear weapon and evaluates the development of nuclear deterrence theory and strategy. It steps through examples of the strategic planning process following Mintzberg’s suggestions for crossing the Great Divide. The final section applies the lessons learned in the case of nuclear strategy and develops insights into the strategic use of the RPA and how to cross the Great Divide. If utilized and planned with an eye towards crossing Mintzberg’s Great Divide, the RPA provides a powerful instrument for the United States in combating potential enemies found in today’s complex environment.

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<sup>2</sup>Singer, 194.

### Limitations

The joint doctrine definition for the unmanned aircraft system states, “[a] system whose components include the necessary equipment, network, and personnel to control an unmanned aircraft.”<sup>3</sup> This study will focus on the larger unmanned aircraft systems with significant loiter time. As the United States Air Force operates the majority of these larger systems, this study will use the Air Force terminology of RPA while discussing the system, as it connotes a “human in the loop.”<sup>4</sup> The reader may come across other terms for these systems in the news and elsewhere to include unmanned aerial vehicle and, most commonly, drones.

Discussion will not involve the morality of using either nuclear weapons or the RPA. This topic is extremely controversial and goes beyond the scope of this study.

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<sup>3</sup>United States Department of Defense, *Joint Publication 1-02, Department of Defense Dictionary of Military and Associated Terms* (Washington, D.C.: Government Printing Office, 8 November 2010, Amended through 15 November 2012), 325.

<sup>4</sup>United States Air Force, *Air Force Doctrine Document 3-52, Airspace Control* (Maxwell Air Force Base, AL: Government Printing Office, 2 February 2011), 82.

## STRATEGY AND STRATEGIC PLANNING

### Strategy

To understand strategic planning, a discussion on strategy is appropriate. Everett Dolman, an associate professor at the United States Air Force's School of Advanced Air and Space Studies, states that strategy is not a physical concept. He describes it as, "an idea, a product of the *imagination*. It is about the future, and above all, it is about change. It is anticipation of the probable and preparation for the possible. It is, in a word, alchemy; a method of transmutation from idea into action."<sup>5</sup> Dolman continues to explain that strategy should place one in a continual position of advantage.<sup>6</sup> Contrary thinking is that strategy is a static future state that is coordinated, approved, and distributed for general use. This is a misconception. In a similar vein, Dr. Steven Metz encourages that "we should see strategy as a consistent and long-term method of problem solving."<sup>7</sup> It is paramount to understand strategy is not static; it is about change and solving complex problems. This in turn implies that strategic planning is also a fluid process.

Strategic planning is a means to transform desired endstates into action. It is essential that a strategic planner understand strategy to plan effectively. This is the challenge of strategic planning. Strategy is about change and is subject to external forces. It is often difficult for the planner to specifically define the strategy for which he is planning. For this purpose, those who plan strategy often find themselves fulfilling various other roles. Henry Mintzberg asserts, "Many of the most important roles played by planners have nothing to do with planning."<sup>8</sup> These other

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<sup>5</sup>Everett Carl Dolman, *Pure Strategy: Power and Principles in the Space and Information Age* (New York, NY: Routledge, 2005), 1.

<sup>6</sup>*Ibid.*, 4–5.

<sup>7</sup>Steven Metz, *Eisenhower as Strategist: The Coherent Use of Military Power in War and Peace* (Carlisle, PA: Strategic Studies Institute, 1993), 6.

<sup>8</sup>Henry Mintzberg, *The Rise and Fall of Strategic Planning: Reconceiving Roles for Planning, Plans, Planners* (New York, NY: Free Press, 1994), 361.

roles, according to Mintzberg, include finders of strategies, analysts, catalysts, and strategists.<sup>9</sup> Thus the paradox for those who plan strategy is often the question, “Is the first step strategic planning or defining strategy?” While a perfect, well-defined strategy is not necessary to begin planning, the strategic planner needs some sort of starting point to plan effectively. Mintzberg’s writings on the subject in *The Rise and Fall of Strategic Planning* provide useful insights on how to accomplish and evaluate the strategic planning process.

#### Strategic Planning and Mintzberg’s “Great Divide”

Strategic planning involves defining a multitude of variables to include objectives, priorities, methods, concepts, and techniques.<sup>10</sup> Mintzberg specifically uses four interacting “hierarchies” when describing strategic planning. These hierarchies are objectives, budgets, strategies, and programs.<sup>11</sup> The challenge of any company, or government organization such as the military, is balancing all four of these hierarchies while planning. Each hierarchy has a useful and specific purpose in the overall strategic planning process.

Objectives and budgets provide motivation and control. Together Mintzberg calls these performance controls. He states planners make a common error when they rely on objectives to determine strategy. Often times, “objectives are decided upon by the top management . . . which in turn evoke the process of formulating strategy, and . . . provide incentives as well as means against which to assess performance.”<sup>12</sup> In military parlance, the objectives represent military “ends.” Ends answer the question, “What is the military end state that must be achieved, how is it

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<sup>9</sup>Mintzberg, 361.

<sup>10</sup>Metz, 6.

<sup>11</sup>Mintzberg, 67.

<sup>12</sup>Ibid., 71.

related to the strategic end state?”<sup>13</sup> Ineffective action and befuddled endstates arise when objectives define strategic development.

The second hierarchy of performance control is that of budgets. Organizations have limited resources, often presented as budgets, and must exercise some sort of resource allocation. The public supports governmental budget allocation, as “budgets are expressions of public policy.”<sup>14</sup> Therefore, in order for an organization, such as the military, to receive allocated funds, the populace must support the action. In military terms, resources are described as “means” and provide the answer to the question, “What resources are required to accomplish that sequence of actions within given or requested resources?”<sup>15</sup> Available resources are a result of a defined budget.

Mintzberg’s hierarchies of strategy and programs, called action planning, offset the performance controls.<sup>16</sup> As previously stated, strategy is not a thing, it is an idea and therefore, much more difficult to empirically measure or manipulate. Strategy does not adhere to the rules of mathematics, nor does it specifically reflect objectives, it provides direction. As outside influences and inputs change the operational environment and desired endstate, strategy must be able to adjust. Changing strategy and objectives creates the need for an open and iterative process. Defining strategy is a challenge even in the academic environment. Mintzberg claims that in many cases, planning literature fails to distinguish between objectives and strategy.<sup>17</sup>

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<sup>13</sup>United States Department of Defense, *Joint Publication 5-0, Joint Operation Planning* (Washington, D.C.: Government Printing Office, 2011), III-1.

<sup>14</sup>Mintzberg, 72-74.

<sup>15</sup>United States Department of Defense, *Joint Publication 5-0*, III-1.

<sup>16</sup>Mintzberg, 78.

<sup>17</sup>*Ibid.*, 75.

The military and business worlds use different methods of defining strategy. In the military, it is defined as, “an idea or set of ideas for employing the instruments of national power in a synchronized and integrated fashion to achieve theater, national, and/or multinational objectives.”<sup>18</sup> In business, the definition differs slightly as, “a study of conscious, intelligent, sophisticated conflict behavior” where success is devising a course of action countering the expected action of the competitor.<sup>19</sup> Although the military does not use this corporate definition, it provides useful insight. It accounts for the human element, or a thinking competitor, who exerts known and unknown influences on the system. Due to the constantly changing influences on the system, strategy requires continuous updating.<sup>20</sup> Developing strategy is extremely difficult. Successful strategy analysis takes place by utilizing both the military and business definition, a useful method when applying Mintzberg’s hierarchies to military strategic planning.

Mintzberg’s final hierarchy is that of programs. Programs are activities or actions that usually have a time or schedule attached to them. However, the challenge lies in determining how the programs relate to budgets, objectives, and strategies.<sup>21</sup> The military views programs as enablers of the objectives and calls the programs “ways.” Ways answer the question, “What sequence of actions are most likely to achieve those objectives and the end state?”<sup>22</sup> The point is not to determine which comes first as in the chicken or the egg dilemma, but to determine how strategic planning incorporates programs and why they are important.

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<sup>18</sup>United States Department of Defense, *Joint Publication 3-0, Joint Operations* (Washington, D.C.: Government Printing Office, 2011), I-13.

<sup>19</sup>Thomas C. Schelling, *The Strategy of Conflict* (Cambridge, MA: Harvard University Press, 1960), 3.

<sup>20</sup>M. Mitchell Waldrop, *Complexity: The Emerging Science at the Edge of Order and Chaos* (New York, NY: Simon & Schuster, 1993), 147.

<sup>21</sup>Mintzberg, 77.

<sup>22</sup>United States Department of Defense, *Joint Publication 5-0*, III-1.

The hierarchies of objectives, budgets, strategies, and programs interrelate when determining organizational action, accomplishing strategic planning, or designing an operational approach. There is a division between action planning and performance control that Mintzberg calls the “Great Divide.” He argues that the key to effective and efficient strategic planning is crossing the divide to link evolving strategies and programs to tangible objectives and budgets, a process often assumed but never specified in the majority of planning literature. There are conceptual differences between the two sides of the Great Divide: long- versus short-term, judgmental versus qualitative, goal-directed versus activity-focused, etc. In general, Mintzberg claims, “neither in the literature of corporate planning nor of budgeting is there any substantial explicit attention to integrating the two systems.”<sup>23</sup>

Mintzberg’s work provides a way to cross the Great Divide in three basic steps. These steps are: 1) Codifying the strategy; 2) Elaborating the strategy; and 3) Converting the elaborated strategy.<sup>24</sup> This is not the only method as there are multiple solutions to complex problems, such as crossing the Great Divide, but it does provide a benchmark for comparison.

The beginning step of strategic planning lies in codifying the strategy. This process involves defining the strategy sufficiently to provide an overall strategic endstate. This can be formally stated or a confluence of ideas on a whiteboard. In doing so, the detailed strategy can emerge and be disseminated for planning purposes.<sup>25</sup> A planner needs to use caution when interpreting undeveloped strategic thoughts so as not to change the desired endstate.

Step two breaks the strategy down into sub strategies, which enables one to determine the operational and program requirements that link the hierarchy of programs with strategy. This step

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<sup>23</sup>Mintzberg, 81.

<sup>24</sup>Ibid., 337–340.

<sup>25</sup>Ibid., 337.

helps work through the action planning side of the Great Divide. Mintzberg warns that a key qualifier of this step is that, “Strategy formation is expressly precluded from the model [of crossing the Great Divide]. In other words . . . the model is relevant for the programming or implementing of strategy but not for the initial creation of it.”<sup>26</sup> In other words, step two is ineffective without initial strategic guidance.

The final step is the actual crossing of the Great Divide. This takes place with a comparison of the strategy and programs to desired objectives. Comparison to the objective is a check to ensure that the program solves the correct problem and leads to the desired endstate. In this process, the series of reflective steps increases the effectiveness of crossing the Great Divide.<sup>27</sup> If there are changes in the environment that preclude solving the problem, a reworking of the strategy and program requirements may be necessary to ensure they meet the objectives and strategic endstates.<sup>28</sup> A fundamental imperative to using Mintzberg’s method is consistently re-orienting the system as changes occur. The final portion of the third step involves allocating an appropriate budget to the desired programs.

Mintzberg’s theoretical metaphor of the Great Divide between the performance control hierarchies of budgets and objectives, and the action planning hierarchies of strategies and programs provides a useful methodology for analyzing various programs in the public, private, and military sector. By applying Mintzberg’s steps of crossing the divide, one can determine the next appropriate steps of strategic planning. The question is, where is the development of RPA strategic planning in reference to Mintzberg’s Great Divide? Are there other military theories or

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<sup>26</sup>Mintzberg, 339-340.

<sup>27</sup>Donald A. Schoen, *Educating the Reflective Practitioner* (San Francisco, CA: Jossey-Bass, 1987), 27–29.

<sup>28</sup>Mintzberg, 340.

weapons programs that followed a similar method to cross the Great Divide as described by Mintzberg?

## REMOTELY PILOTED AIRCRAFT

Every now and then somebody like me has to take out their shotgun and fire it into the heavens to get somebody's attention.

—Senator John Warner quoted in Wilson, “A Chairman Pushes Unmanned Warfare”

### RPA History

In the spring of 2000, Senator John Warner, chairman of the Senate Armed Services Committee, mandated that the United States Air Force designate and integrate one-third of its deep strike aircraft as unmanned by 2010. Additionally, he directed that the United States Army develop driverless ground combat vehicles for one-third of its inventory by 2015.<sup>29</sup> Senator Warner directed accomplishment of an extremely ambitious goal, particularly as he was unaware of the impending terrorist attacks to the United States on September 11 of the following year. The terrorist acts on 9/11 launched the United States into a continuous state of war for the next 12-plus years. However, Senator Warner's desire to stimulate the development and use of unmanned systems was more prophetic for the United States military than even he may have guessed, most notably for the RPA.

Securing a camera or weapon to an unmanned, remotely controlled platform for target surveillance, reconnaissance, and potential strike is not a new concept. The United States first tested an unmanned aerial vehicle in World War I, but did not use it in combat.<sup>30</sup> The United States military began utilizing various versions of unmanned vehicles in the 1950s as an aerial gunnery target, expanded their use in the 1960s as an intelligence collection platform, and used the first unmanned vehicle in combat during the Vietnam War. However, significant funding for development of the RPA in the United States did not take place until the Reagan administration's

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<sup>29</sup>Mintzberg, 340.

<sup>30</sup>Jeremiah Gertler, *U.S. Unmanned Aerial Systems* (Washington, D.C.: Congressional Research Service, January 3, 2012), 1.

Fiscal Year 1987 budget.<sup>31</sup> The first United States RPA modified to deliver weapons in combat showed up in 2002 over the skies of Afghanistan.

Although development of the RPA in the United States took time, usage and funding have increased exponentially over the past decade. The Department of Defense's RPA inventory increased from 167 to 7,500 systems from 2002 to 2012. The total unmanned aircraft budget increased from the \$667 million in Fiscal Year 2001 to a requested \$3.9 billion in Fiscal Year 2012.<sup>32</sup>

### What Makes RPAs a Big Deal Anyway?

Specific attributes make the RPA an attractive element of combat power. These attributes include efficient, persistent, and flexible mission roles. They have led to the rapid expansion and demand of the RPA system by operational commanders.<sup>33</sup> The RPA is unique in additional ways. The human physiological factors that degrade manned performance, such as high G forces, long flight times, tedious tasks, and boredom, do not limit the RPA. The United States Air Force's MQ-1 (Predator), RQ-4 (Global Hawk), and MQ-9 (Reaper), can remain overhead for 18 to 28 hours.<sup>34</sup> This provides a sustained presence over the target area enabling an increased intelligence gathering capability. In contrast, an average manned fighter is able to provide approximately 90 minutes of sustained surveillance overhead, after which it needs to either aerial refuel or return to base. A flight of two fighter aircraft utilize techniques to maximize their flight time when

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<sup>31</sup>Gertler, 2.

<sup>32</sup>Ibid.

<sup>33</sup>Headquarters, United States Air Force, *United States Air Force Unmanned Aircraft Systems Flight Plan 2009-2047*, Federation of American Scientists, May 18, 2009, [http://www.fas.org/irp/program/collect/uas\\_2009.pdf](http://www.fas.org/irp/program/collect/uas_2009.pdf) (accessed February 16, 2013), 15.

<sup>34</sup>Ibid., 26–27.

monitoring an area of interest, however, these missions generally only last between four to eight hours.

The RPA is part of a system. The United States Air Force considers an operational RPA system one that consists of four aircraft, a satellite link, ground control station, spare equipment, and crews for operation and maintenance. In 2011 dollars, the Predator system cost \$21.9 million and the Reaper system, \$56.5 million.<sup>35</sup> The complete RPA system, minus manpower to analyze all of the intelligence data provided, provides a cheaper method of sustained flight operations and combat power for the United States in a fiscally constrained environment. For example, in 2011 dollars, a manned F-16 fighter, the least expensive of the fighter jets, costs approximately \$25.9 million each.<sup>36</sup> Although the purchase price of an F-16 is comparable to a Predator system and significantly cheaper than the Reaper, other variables make it more expensive to operate. Taking into account the F-16 always employs in pairs, stays overhead an area for a maximum of eight hours, and has a significantly higher operational cost per hour at \$10,000 an hour, the RPA has approximately a third of the hourly operating cost of an F-16.<sup>37</sup> In summary, the RPA is a less expensive method that provides similar capabilities.

The RPA reduces risk to pilots and is less intrusive than inserting combat troops. Since it is unmanned, it allows the system to operate over hostile territory without placing a pilot in

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<sup>35</sup>Official United States Air Force Website, "MQ-1B Predator," U.S Air Force, July 20, 2010, <http://www.af.mil/information/factsheets/factsheet.asp?id=122> (accessed March 10, 2013) and Official United States Air Force Website, "MQ-9 Reaper," U.S. Air Force, August 18, 2010, <http://www.af.mil/information/factsheets/factsheet.asp?fsID=6405> (accessed March 10, 2013).

<sup>36</sup>Official United States Air Force Website, "F-16 Fighting Falcon," U.S. Air Force, October 8, 2007, <http://www.af.mil/information/factsheets/factsheet.asp?id=103> (accessed March 12, 2013).

<sup>37</sup>F-16 operational capabilities are unclassified approximations provided by the author's operational experience as a qualified F-16 pilot.

danger. If something wrong happens with the unmanned system, there is no need, as a military member expressed, to “write a letter to its mother.”<sup>38</sup>

The Predator and Reaper RPA systems carry weapons. This capability provides a persistent armed overwatch capability on the battlefield. The capability shortens the joint forces targeting cycle steps of Find, Fix, Track, Target, Engage, and Assess (F2T2EA). Within minutes, the RPA system can satisfy all steps of F2T2EA, possibly undetected, provide a minimal collateral damage strike, and remain overhead to gather real time battle damage assessment.<sup>39</sup>

Engaging targets within minutes provides a substantial increase in combat power. Contrary to this capability is the example of the attempted cruise missile strike on Osama bin Laden in the summer of 1998. Intelligence officials had to predict Bin Laden’s location based on historical patterns, while legal officials secured the authority to strike, and operators programed and launched the weapons. Adding the flight time of the weapons, this process took four to six hours and subsequently failed.<sup>40</sup> If an armed RPA with a persistent capability was overhead, results may have differed.

Efficient, persistent, flexible, non-intrusive, and less risky to the military member are all characteristics operational commanders value. As such, the RPA provides an option for applying military power by threatening remote locations around the globe, with limited detection.

### The Current RPA Planning Environment

The United States military operates in a complex and uncertain operational environment. It will continue to do so in the future. Rapid increases in technology and information,

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<sup>38</sup>Singer, 21.

<sup>39</sup>United States Department of Defense, *Joint Publication 3-60, Joint Targeting* (Washington, D.C.: Government Printing Office, April 13, 2007), II-12 - II-14.

<sup>40</sup>Micah Zenko, “Reforming U.S. Drone Strike Policies,” *Council on Foreign Relations: Center for Preventive Action*, no. 65 (January 2013): 6.

proliferation of weapons of mass destruction, socioeconomic disparity, unrest, and other irregular and asymmetric threats contribute to this uncertain environment. The RPA has and will continue to play a vital role in the United States military as a method of applying combat power.<sup>41</sup> Its unique characteristics are useful and adaptable in the complex operational environment, allowing it to strike at these various threats.

At the onset of military operations in Iraq and Afghanistan, the RPA was an intelligence gathering platform, providing coverage for multiple areas of interest. These areas included friendly convoys, combat out posts, airfields, potential civilian targets, major routes historically laced with improvised explosive devices, and other similar areas. As the RPA proved itself useful in locating hostile forces, the United States Air Force weaponized them for rapid strike purposes. The systems were a force multiplier for fixed wing fighter aircraft by finding and tracking hostiles and when fixed wing aircraft were unavailable, striking the target. The RPA also provided a covert, surgical strike capability to further United States military objectives.<sup>42</sup>

With the rapid increase in RPA demand and the various mission capabilities the new systems provide, a gap in the Great Divide between action planning and performance control began to present itself. Singer's interview with a United States Air Force RPA pilot captures the basic problem, "There's no long-term plan for what you do (with the RPA). It's not 'Let's think this better.' It's just 'Give me more.'"<sup>43</sup>

The United States Department of Defense must balance the "give me more" approach with the fiscal realities of operating within a budget. In his book *Confront and Conceal*, David

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<sup>41</sup>Admiral James A. Winnefeld Jr., Vice Chairman of the Joint Chiefs of Staff and Frank Kendall, Acting Under Secretary of Defense for Acquisitions, Technology and Logistics, *Unmanned Systems Integrated Roadmap FY2011-2036*, Department of Defense, 2011, <https://extranet.acq.osd.mil/uwir/roadmap.html> (accessed February 21, 2013), 3-4.

<sup>42</sup>Ibid., 22.

<sup>43</sup>Singer, 210.

Sanger interviewed a presidential aide who discussed the usefulness of the RPA as a “tool” to help in situations requiring a smaller footprint. However, he warned of the risk of falling “in love with a whiz-bang new technology, because it’s easy to justify relying on it more and more. And that’s when a tactical weapon can begin defining your strategy.”<sup>44</sup> Although the RPA provides a potentially less expensive option for the military in providing combat power to remote parts of the world, there is no well-defined RPA strategy at this time.

Pursuing objectives before defining a clearly defined strategy can result in increased program spending and an overall loss of performance control. This harms the budgetary planning process. In relying on a new technology like the RPA, and using it to define a strategy, the sequencing of Mintzberg’s hierarchies become skewed and strategic planning suffers. Additionally, strategic planning with an emphasis on the budget frustrates a logical crossing of the Great Divide. Budget programming flows up from those who own the budget and essentially skip the strategy formation stage altogether. Mintzberg labels this phenomena capital budgeting.<sup>45</sup> Over the past 10 years, the RPA program has fallen prey to capital budgeting planning in an effort to control military spending.

Two basic problems present themselves when capital budgeting is the focus of strategic planning. The first is an inefficient allocation of resources. This is particularly important and challenging when funds are limited. The second problem is that there is little thought to the long-term strategy when selection of the project is a function of a rapid rate of return.<sup>46</sup> This often manifests itself when a prompt resolution to a problem is more desirable than searching for a long-term strategic endstate.

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<sup>44</sup>David E. Sanger, *Confront and Conceal Obama’s Secret Wars and Surprising use of American Power* (New York, NY: Crown Publishers, 2012), 243–244.

<sup>45</sup>Mintzberg, 87.

<sup>46</sup>*Ibid.*, 89.

The United States Executive Branch, beginning with President George W. Bush and continued by President Barak Obama, expanded the use of the RPA around the globe. They use the system as a coercive and deterrent instrument of military power. Even though this use of the RPA has taken place for many years, the first public acknowledgment by the Executive Branch did not occur until January 2012 at an Internet town hall meeting with President Obama. He described how the Central Intelligence Agency currently uses the RPA as a coercive power to initiate attacks on various terrorists worldwide. He stated that it provides, “precision strikes against al-Qaeda and their affiliates . . . this is a targeted, focused effort at people who are on a list of active terrorists.”<sup>47</sup> President Obama’s public description widened discussion on what were previously only rumors. President Obama described techniques used on enemies of the United States in order to get them to cease hostile acts, or face the risk of remote engagement.

With President Obama’s 2012 public statement, he began to define specific objectives for the RPA system. Additionally, during a Senate confirmation hearing in February 2013 for John Brennan, Brennan explained to the audience “the United States employs drone strikes only as a deterrent against imminent terrorist threats, not as punishment for previous actions.”<sup>48</sup> As President Obama’s top choice to head the Central Intelligence Agency, Brennan expounded on the narrative of RPA usage. These admissions by top-level officials have created a more transparent forum for academic and military subject matter experts to discuss the usefulness of the RPA as a form of military power.

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<sup>47</sup>Matt Compton, “President Obama Hangs Out with America,” *The White House Blog*, January 30, 2012, <http://www.whitehouse.gov/blog/2012/01/30/president-obama-hangs-out-america> (accessed April 7, 2013).

<sup>48</sup>Kimberly Dozier, “Brennan Defends U.S. Drone Strikes,” *Evansville Courier & Press*, February 8, 2013, <http://search.proquest.com/docview/1285530018?accountid=28992> (accessed May 1, 2013).

In simply describing objectives, however, without specifically addressing an overarching strategy, President Obama and Director Brennan's attempt to cross the Great Divide is in error. As Mintzberg explained, when objectives and strategies are lumped together to define an overall direction, there is a possibility that the objectives become more important than strategy.<sup>49</sup> When such action takes place by such prominent actors like the President of the United States, confusion on an international level occurs.

When objectives without a clear strategy are the priority of planning, secondary effects may occur. One of which is an international alienation of United States action. This comes when worldwide support of actions, such as remotely targeting terrorists with the RPA, is lost. Critics warn that if there is no defined strategy for the RPA, it increases international criticism and potential terrorist activity, rather than deterring the enemy. David Rohde, an investigative journalist for Thomson Reuters, writes about the confusing American strategy of the RPA. He states that it is a "potent, unnerving symbol of unchecked American power."<sup>50</sup> The concern is that the RPA makes killing too easy and impersonal. When dealing with adversaries motivated by ideology, the RPA conceivably creates feelings of fear, fright, and depression. Rami Khouri, a director at the American University of Beirut, describes how unmanned systems made him feel during the 2006 Israeli-Lebanese conflict. He states they "made him even more angry than the manned F-16s" and continues that, "the average person sees it as just another sign of coldhearted, cruel Israelis and Americans, who are also cowards because they send out machines to fight us."<sup>51</sup>

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<sup>49</sup>Mintzberg, 82.

<sup>50</sup>David Rohde, "The Obama Doctrine," *Foreign Policy* 192 (March/April 2012): 66, <http://search.proquest.com/docview/927664000?accountid=28992> (accessed May 1, 2013).

<sup>51</sup>Singer, 309.

Other critiques claim that the unchecked, or misunderstood, strategy of the United States suggests a form of imperial overreach.<sup>52</sup> This international confusion would not surprise Mintzberg, as he would not recognize a clear strategic planning bridge across the Great Divide. This is one undesired effect created by the recent public statements of President Obama and Director Brennan. Mintzberg's method of crossing the divide is such that if the strategy is unclear, unknown, or non-existent before the implementation of the program, then correct objectives, viable budgets, and the strategic endstates suffer.<sup>53</sup>

RPA strategic planning that is centered on budget and program development is equally ineffective as these hierarchies are on opposite sides of the Great Divide. While Mintzberg admits that the budget is a crucial element to any organizational plan, and programs are the actionable force of strategic planning, there are unintended consequences when developed in an uncoordinated manner.<sup>54</sup> The RPA provides a substantial leap in the technological development of warfare. Any new technology, or program, of this magnitude advances the continuously changing relationship between science and war. Antoine Bousquet describes technological advances, such as the RPA, as programs that rely on networks of information and feedback while providing decentralization and a swarming capability to the warfighter, but it comes with a heavy research and development cost.<sup>55</sup> It is possible that budgets can drive the overall direction of the program if left unchecked. If this occurs, the program has the potential of not satisfying the strategic endstate and, may be very costly.

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<sup>52</sup>Jacqueline L. Hazelton, "Drones: What Are They Good For?" *Parameters, US Army War College Quarterly* 42, no. 4/43 (Winter-Spring 2013): 31.

<sup>53</sup>Mintzberg, 336–339.

<sup>54</sup>*Ibid.*, 72–77.

<sup>55</sup>Antoine Bousquet, *The Scientific Way of Warfare: Order and Chaos On the Battlefields of Modernity* (New York, NY: Columbia University Press, 2009), 30.

Exclusively emphasizing programs while strategically planning, creates additional concerns. With an unchecked strategy, the possibility exists of developing, imitating, selling, and proliferating the RPA. This undermines the strategic endstate of the United States. To date, an estimated 75 countries are developing unmanned programs and the United States has sold armed versions of the RPA to Great Britain and Italy.<sup>56</sup> Additionally, Pakistan, Turkey, Saudi Arabia, and the United Arab Emirates have shown interest in purchasing the system. Technologically advanced countries such as South Korea, Taiwan, Iran, and Russia have robust programs that are developing and using the RPA for intelligence gathering purposes, but have publically stated that they have yet to successfully arm the systems.<sup>57</sup> Regardless, competitors developing and using the RPA benefit from the initial research and development provided by the United States.<sup>58</sup> This is an unintended consequence when programmatic planning takes place before a coherent strategy is developed.

Proliferation of the RPA creates inherent dangers to the United States. As the technology improves and becomes cheaper, potential enemies may follow the United States' example and develop or purchase their own unmanned systems. The enemy may feel that if the United States does not wish to face death on the enemy's homeland, why not fight on American soil.<sup>59</sup> The risk is even greater when considering the RPA.

A redistribution of global power is possible with greater proliferation of the RPA. The nation-state's rise to prominence occurred with the ability to mobilize, organize, equip, train, and employ mass armies used to defend national interests. This led to the creation of a state

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<sup>56</sup>Alan W. Dowd, "Drone Wars: Risk and Warnings," *Parameters, US Army War College Quarterly* 42, no. 4/43 (Winter-Spring 2013): 15.

<sup>57</sup>Zenko, 18–19.

<sup>58</sup>Singer, 239.

<sup>59</sup>Ibid., 313.

government and the institution of taxes to pay for a military that could provide military power when necessary.<sup>60</sup> The RPA provides the advantage of attacking from within the protective sovereignty of one's own country or providing the immunity desired by nonstate actors. This would essentially enable anyone with an unmanned system the capability to attack when and where they desire. In July 2012, a Massachusetts man named Rezwan Ferdaus pleaded guilty on two counts of attempting to use a large remote controlled airplane, armed with a small amount of C4 explosives, to damage federal buildings. This was a rehearsal for an attack on the Pentagon and United States Capitol building.<sup>61</sup> Ferdaus is only one of many recent examples of small-scale groups and individuals attempting to use an RPA to attack the United States from a position of security. Individuals like Ferdaus have proven that attacks on American soil are possible.

Micah Zenko, an academic at the Center for Preventive Action for the Council of Foreign Relations, sums up the RPA proliferation problem by describing “a world characterized by the proliferation of armed drones [RPAs]—used with little transparency or constraint—would undermine core U.S. interests.”<sup>62</sup> A focus on the RPA programs without identifying a coherent strategy does nothing to help cross the Great Divide. It potentially exacerbates the problem.

On May 23, 2013, President Obama again publically discussed RPA policy at the National Defense University commencement speech. His speech openly addressed the need to have a transparent, academic discussion on the RPA use, objectives, and strategic endstate.

President Obama described the RPA strategy as a component of a larger comprehensive

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<sup>60</sup>Azar Gat, *A History of Military Thought: From the Enlightenment to the Cold War*, (New York, NY: Oxford University Press, 2001), 23-24.

<sup>61</sup>Denise Lavoie, “Ashland Man to Plead Guilty in Terror Plot to Attack Pentagon, U.S. Capitol,” CBS Boston, July 10, 2012, <http://boston.cbslocal.com/2012/07/10/ashland-man-to-plead-guilty-in-terror-plot-to-attack-pentagon-u-s-capitol/> (accessed May 1, 2013); and Carmen M. Ortiz, “United States v. Rezwan Ferdaus,” CBS Boston, 2012, <http://cbsboston.files.wordpress.com/2012/07/ferdaus-plea.pdf> (accessed May 1, 2013).

<sup>62</sup>Zenko, 25.

counterterrorism strategy. He stated, “We must define our effort . . . as a series of persistent, targeted efforts to dismantle specific networks of violent extremists that threaten America.”<sup>63</sup> Describing this strategy, President Obama began to fulfill Mintzberg’s first step of codifying a strategy. He also addresses the second step of crossing the Great Divide by breaking down the strategy into sub-strategies and resulting programs in his National Defense University speech. The need to gather and share intelligence and take “lethal, targeted action against al Qaeda and its associated forces . . . with remotely piloted aircraft commonly referred to as drones.”<sup>64</sup> These are viable sub-strategies and initial objectives for RPA strategic planning.

To completely build a bridge across the Great Divide requires further refinement of the sub-strategies and programs. Comparing sub-strategies and programs to desired objectives, followed by implementing realistic budget controls completes Mintzberg’s strategic planning cycle. President Obama stated of the RPA strategy in his NDU speech, “This week, I authorized the declassification [of RPA usage] . . . to facilitate transparency and debate on this issue and to dismiss some of the more outlandish claims that have been made.”<sup>65</sup> This is positive movement in completing the strategic planning process, but opens up additional concerns, which President Obama acknowledges and warned against by Mintzberg. Some of these concerns include answering the following types of questions. Who has the authority and controls use of the RPA? What is the narrative the United States should present to the world regarding when, where, and how to use the system? How will the United States counter the proliferation of the RPA technology? Moreover, what are the abilities to counter an RPA threat? A historical analysis of

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<sup>63</sup>Barack Obama, “Remarks by the President at the National Defense University,” The White House, May 23, 2013, <http://www.whitehouse.gov/the-press-office/2013/05/23/remarks-president-national-defense-university> (accessed June 1, 2013).

<sup>64</sup>Ibid.

<sup>65</sup>Ibid.

another technological innovation using Mintzberg's methodology of strategic planning provides insight as to the direction RPA strategic planning should take from the current state forward in an effort to answer some of these questions.

A significant technological innovation of recent history that is useful as a case study is the nuclear weapon. The case study needs to continue with a comparison of the development of nuclear deterrence theory and subsequent nuclear strategy. The use of the nuclear weapon as an analogy to the RPA is appropriate and useful for a number of reasons. Like the RPA, the breakthrough in nuclear technology provided a significantly distinctive method of waging war. The awesome power of the nuclear and subsequent thermonuclear weapon was new and unknown. It necessitated an entirely new way of thinking. Additionally, like the RPA, discussion grew on replacing the conventional forces with the nuclear weapon. A less expensive, potentially more efficient method to wage war is very appealing to all political and military leaders as well as the nation's citizens. By understanding where RPA strategic planning currently is and comparing it to the development of nuclear deterrence strategy, various insights are gained as to how the United States currently uses the RPA and how it should next proceed. The following section will evaluate the effectiveness of planning for nuclear deterrence strategy and its crossing of the Great Divide.

## THE NUCLEAR REVOLUTION

Everything about the atomic bomb is overshadowed by the twin facts that it exists and that its destructive power is fantastically great.

—Brodie, Corbett, Dunn, Fox and Wolfers, *The Absolute Weapon*<sup>66</sup>

### Coercion and Deterrence Theory

A basic understanding of coercion and deterrence is important in understanding nuclear deterrence theory. In *Bombing to Win*, Robert Pape defines coercion as “persuading an opponent to stop an ongoing action or to start a new course of action by changing its calculations of costs and benefits . . . coercion occurs whenever a state must choose between making concessions or suffering the consequences of continuing its present course of action.”<sup>67</sup> Pape also describes that the coercer does not define successful coercion, the targeted actor determines when coercion is successful by deciding when the costs and benefits do not merit continual action.<sup>68</sup> Lawrence Freedman’s various works support Pape’s assertions and discuss a vital assumption made by the coercer. The coerced actor “will retain a capacity to make critical choices throughout the course of conflict” and, more importantly, all actors will follow similar logic patterns.<sup>69</sup> For coercion to work all actors must act on similar thought patterns throughout the interaction.

Ultimately, coercion involves violence. Violence provides the bargaining influence used to compel one’s enemy. Thomas Schelling states that, “To be coercive, violence has to be anticipated. And it has to be avoidable by accommodation,” however, to actually impose the

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<sup>66</sup>Bernard Brodie, Percy E. Corbett, Frederick S. Dunn, William T.R. Fox, and Arnold Wolfers, *The Absolute Weapon*, ed. Bernard Brodie (New York, NY: Harcourt, Brace and Company, 1946), 52.

<sup>67</sup>Robert A. Pape, *Bombing to Win: Air Power and Coercion in War* (Ithaca, NY: Cornell University Press, 1996), 12.

<sup>68</sup>Ibid., 12.

<sup>69</sup>Lawrence Freedman, *Deterrence* (Cambridge, UK: Polity Press, 2004), 26.

violence it, “gains nothing and saves nothing directly.”<sup>70</sup> Stathis Kalyvas highlights this thought in *The Logic of Violence in Civil War*, as he states “coercion fails if it merely destroys the subject whose compliance is sought.”<sup>71</sup> The threat of violence is most appropriate and successful when it is simply that, a threat, and never used.<sup>72</sup> Therefore, the challenge is to determine when the action of the coerced satisfies the coercer, without being cost prohibitive.

Deterrence is a form of coercion. It is the influence or perceived expectation created by an actor to discourage or restrain another. A credible and capable threat, adequately controlled, and communicated, accomplishes this influence.<sup>73</sup> Deterrence manipulates behavior by threats and fear, not action. When planning to use deterrence, Schelling asserts that the military needs to focus on the enemy’s intentions, not capabilities, as deterrence is about influencing intentions.<sup>74</sup>

Coercion is an active form of influence, whereas deterrence is a passive method of exerting influential control. Coercion and deterrence both assume that all parties follow similar logic patterns that are rational without extremist inputs when determining future actions. The basis of nuclear deterrence theory is deterrence. Rational logic patterns assume that the basis of nuclear deterrence is on the threat of use, not the actual use of nuclear weapons. This is a fundamental difference between nuclear weapons and the RPA. A nuclear weapon is a deterrent, where an RPA can be both coercive and deterrent due to its various capabilities.

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<sup>70</sup>Thomas C. Schelling, *Arms and Influence* (New Haven, CT: Yale University Press, 1998), 2.

<sup>71</sup>Stathis N. Kalyvas, *The Logic of Violence in Civil War* (New York, NY: Cambridge University Press, 2006), 27.

<sup>72</sup>Schelling, *Arms and Influence*, 10.

<sup>73</sup>Schelling, *The Strategy of Conflict*, 13.

<sup>74</sup>Schelling, *Arms and Influence*, 35.

### The Development of Nuclear Deterrence Theory and Nuclear Strategy

Bousquet's second period of scientific warfare culminated on July 16, 1945, when a technological breakthrough took place on New Mexico's Alamogordo Bombing Range, the detonation of the first nuclear weapon.<sup>75</sup> The detonation demonstrated the massive destructive capacity and physical disorder caused by unleashing thermodynamic power. The destructive power and new technology of the atomic and subsequent thermonuclear bomb required re-evaluating how to wage war.

Discussion by political science and national security academics on nuclear deterrence theory and a strategic use of the weapon began immediately after July 16, 1945, and continues presently. Tracing the development of the nuclear strategy and comparing it to Mintzberg's methodology of strategic planning provides a useful tool in evaluating the past and future planning direction of RPA.

Robert Jervis writes that there are various stages of nuclear deterrence theory. These stages are a starting point in defining nuclear strategy.<sup>76</sup> The first stage developed rapidly with the bombing of Hiroshima and Nagasaki on August 6 and August 9, 1945, respectively. A small group of intellectuals such as Bernard Brodie, Arnold Wolfers, Percy Corbett, and others, recognized the need to research and publish academic works on the use of nuclear weapons. Following the use of nuclear weapons and end of World War II in 1945, the academic community had minimal involvement with national security issues, nor did the community foresee the usefulness in discussing deterrence theory and strategy for the use of nuclear weapons.<sup>77</sup>

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<sup>75</sup>Bousquet, 30.

<sup>76</sup>Robert Jervis, "Deterrence Theory Revisited," *World Politics* 31, no. 2 (1979): 289–324. Jervis references an unpublished manuscript by James King entitled "The New Strategy."

<sup>77</sup>*Ibid.*, 291.

Therefore, it was the politicians, military officers, and employees of the Department of State who initially sought a method of planning for how and when to use the new nuclear technology.

The initial focal point of nuclear strategic planning became Mintzberg's action planning hierarchies of programs and strategy. On November 15, 1945, President Truman, Prime Minister Attlee of the United Kingdom, and Prime Minister King of Canada, released a broad statement on the matter. They said,

We recognize that the application of recent scientific discoveries to the methods and practice of war has placed at the disposal of mankind means of destruction hitherto unknown, against which there can be no adequate military defense, and in the employment of which no single nation can in fact have a monopoly.<sup>78</sup>

These political leaders attempted to develop initial guidance on a strategy and sub-strategies needed to cross the Great Divide. Hindsight highlights some flaws in the assumptions and assertions, nevertheless, it is important to note that this statement made the use of nuclear technology, as a destructive means to wage war, transparent to the world. It also began an open academic discussion on how to best use the new technology.

Initially, the international community looked to develop atomic power peacefully. Even the United States and the Soviet Union engaged in diplomatic talks, as early as December 27, 1945, with the intent to normalize the use of nuclear power.<sup>79</sup> These talks continued through June 1946 with the proposal of the Burch Plan. This plan sought to place the nuclear weapon technology under the international supervision of the United Nations with the understanding that the United States would give up its nuclear monopoly in exchange for stringent controls and

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<sup>78</sup>Harry S. Truman, C. R. Attlee, and W. L. MacKenzie King, *Declaration on Atomic Bomb By President Truman and Prime Ministers Attlee and King*, Nuclear Age Peace Foundation, November 15, 1945, [http://www.nuclearfiles.org/menu/key-issues/nuclear-energy/history/dec-truma-atlee-king\\_1945-11-15.htm#](http://www.nuclearfiles.org/menu/key-issues/nuclear-energy/history/dec-truma-atlee-king_1945-11-15.htm#) (accessed April 7, 2013).

<sup>79</sup>James F. Byrnes, Ernest Bevin, and V. Molotov, "A Decade of American Foreign Policy 1941-1949 Interim Meeting of Foreign Ministers, Moscow," Yale Law School Lillian Goldman Law Library, December 27, 1945, [http://avalon.law.yale.edu/20th\\_century/decade19.asp](http://avalon.law.yale.edu/20th_century/decade19.asp) (accessed April 7, 2013).

international inspections. The Soviet Union viewed the plan as “too intrusive” and declared it unacceptable “either as a whole or in separate parts.”<sup>80</sup> The plan failed to pass in the United Nations as the Soviet Union and Soviet controlled Poland abstained from voting. An irony of the Baurch Plan is that the United States military, specifically the Joint Chiefs of Staff, supported the plan, and was willing to implement it upon ratification by the United Nations and the United States Government.<sup>81</sup> This level of cooperation has not occurred again.

The desire for peaceful, international control of the nuclear weapon is at the center of Jervis’ initial stage of nuclear deterrence theory. Coercion and deterrence were less of a priority, while putting nuclear weapons and programs under institutional control remained the emphasis. Mintzberg warns against strategic planning based on programs without definitive strategic direction. The Baurch Plan ended up failing, as Mintzberg would expect of programmatic planning, but it did set the stage for developing a viable strategy. History quickly demonstrated that peaceful development of the nuclear weapon would not be likely.

Jervis states that the second stage of nuclear deterrence theory developed because of the inability of international institutions to control the destructive nuclear technology. Bernard Brodie ushered in the second stage of nuclear deterrence development when he published his first work, *The Absolute Weapon*, in 1946. This initiated discussion on the topic as it described the major characteristics of the nuclear weapon, the delivery methods, destruction capabilities, and ability of an actor to counter a nuclear attack. Brodie introduced the world to the premise of a nuclear arms race and potential nuclear confrontation. He quotes Professor Oppenheimer as saying, “they (nuclear) are weapons of aggression, of surprise, and of terror.”<sup>82</sup> Brodie explains that an actor

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<sup>80</sup>Steven L. Rearden, *Council of War: A History of the Joint Chiefs of Staff 1942-1991* (Washington, D.C.: National Defense University Press, 2012), 62.

<sup>81</sup>Ibid., 63.

<sup>82</sup>Brodie et al., 73.

who has nuclear weapons can threaten anyone else, to include another nuclear power. However, the aggressor must also fear retaliation. The time span of attack is such that as soon as a nuclear launch occurs a similar retaliatory response may transpire.<sup>83</sup> Even if the aggressor is the ultimate victor, they may suffer an incomparably greater defeat than any recorded in history. Hence, coercion becomes problematic and deterrence becomes the only rational alternative. Jervis describes the deterrence model where, “each side decides whether to stand firm by examining its payoffs, and estimating the likelihood that the other will retreat.”<sup>84</sup>

By 1950 and the advent of the Korean War, the Truman administration signed into effect National Security Council 68, *A Report to the National Security Council by the Executive Secretary of United States Objectives and Programs for National Security* (NSC 68), an aggressive strategy to counter the Soviet Union’s developing nuclear capability and threat.<sup>85</sup> The committee that drafted NSC 68, chaired by Paul Nitze, was formed under the conflicting pressures of the Korean War, budgetary constraints, post-World War II draw down, formation of the United Nations, and the failed Baruch Plan. NSC 68 had four potential options. Two of the options were a continuation of the status quo or moving towards a foreign policy of isolation, both of which proved ineffective in deterring the Soviet Union’s nuclear development through 1950. A third option involved inciting war, which in 1950 was considered morally and militarily unfeasible, and the fourth option included a rapid build-up in political, economic, and military strength, to include an increase in nuclear weapon production.<sup>86</sup> President Harry Truman elected

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<sup>83</sup>Brodie et al., 73-74.

<sup>84</sup>Jervis, 292.

<sup>85</sup>Robert R. Bowie and Richard H. Immerman, *Waging Peace: How Eisenhower Shaped an Enduring Cold War Strategy* (New York, NY: Oxford University Press, 1998), 3.

<sup>86</sup>James A. Lay Jr., National Security Council 68, *A Report to the National Security Council by The Executive Secretary on United States Objectives and Programs for National Security*, Harry S. Truman Library and Museum, April 14, 1950, <http://www.truman>

to pursue the final course of action and by the time he left office in January of 1953 the defense budget had tripled, North Atlantic Treaty Organization forces had been established, and West Germany had begun to rearm militarily. This led to confusion between objectives and programs and created an enormous fiscal strain on the United States.<sup>87</sup>

When President Dwight Eisenhower and Secretary John Dulles took over foreign policy development in 1953, they were convinced that President Truman's NSC 68 policy lacked a "grand strategy."<sup>88</sup> Mintzberg would also recognize this and point out that this lack of a developed strategy led to ill-defined objectives, rushed nuclear weapons programs, and produced an incoherent and inefficient bridge over the Great Divide that were all issues leading to an expensive financial requirement as well. A consolidation of scholarly work from the academic circles of Bernard Brodie, Paul Nitze, Thomas Schelling, and the newly elected Eisenhower administration took place to create an updated national security policy titled National Security Council 162/2, *A Report to the National Security Council by the Executive Secretary on Basic National Security Policy* (NSC 162/2), signed into effect on October 30, 1953. The desired endstate of NSC 162/2, and for the Eisenhower administration, was a long-term strategy to help guide day-to-day decisions and actions of the United States and its allies.<sup>89</sup> This was necessary to effectively and efficiently cross the Great Divide.

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library.org/whistlestop/study\_collections/coldwar/documents/pdf/10-1.pdf (accessed May 28, 2013).

<sup>87</sup>Bowie and Immerman, 3.

<sup>88</sup>Ibid., 4.

<sup>89</sup>James A. Lay Jr., National Security Council 162/2, *A Report to the National Security Council by The Executive Secretary on Basic National Security Policy*, Federation of American Scientists, October 30, 1953. <https://www.fas.org/irp/offdocs/nsc-hst/nsc-162-2.pdf> (accessed May 28, 2013).

NSC 162/2 defined a strategy combining academic thoughts on nuclear deterrence theory and foreign policy of the day. With an established strategy, Mintzberg's steps in effectively crossing the Great Divide commenced. President Eisenhower instituted a unique process showing a mastery of strategic planning methodology. He developed a Planning Board and an Operations Coordinating Board. The Planning Board's mandate was to think and answer the means and ends questions.<sup>90</sup> The Planning Board, comprised of academics and engineers, functioned in an action planning role by breaking the defined strategy down into sub-strategies and determining the needed programs. The Operations Coordinating Board took the recommendations of the Planning Board and coordinated, developed, and executed the plans. In this way the Operations Coordinating Board acted as a performance control by developing objectives, cross checking them with the desired strategic ends, and establishing feasible budgets for implementation.<sup>91</sup> Mintzberg would recognize this as a viable method to strategically plan and cross the Great Divide.

Following the publication and dissemination of the NSC 162/2 strategy, development of sub-strategies and programs occurred. The Eisenhower administration reined in budgetary spending while still meeting the objectives of deterring the Soviet Union and spread of communism by increasing the production of nuclear weapons and controlling the size of the conventional armed forces.<sup>92</sup> This is a tangible example of the United States effectively crossing the Great Divide.

It is important to note that by the end of the Eisenhower administration and into the 1960s, the nuclear environment changed and would continue to change through the present day as

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<sup>90</sup>Bowie and Immerman, 91.

<sup>91</sup>Ibid., 93.

<sup>92</sup>James A. Lay Jr., National Security Council 162/2.

a function of the international system in which it functions. World events advanced these changes, some of which are the Cuban Missile Crisis of 1962, the Vietnam War, and proliferation of nuclear weapons in countries such as China, England, France, India, Pakistan, and Israel. Additional major events requiring change to nuclear deterrence theory and strategy include the fall of the Berlin Wall in 1989, the breakup of the Warsaw Pact in 1990, and the subsequent dissolution of the Soviet Union in 1991.<sup>93</sup> With each event came a new set of concerns. Academics such as Herman Kahn, Bernard Brodie, Thomas Schelling, Lawrence Freedman, and others all wrote extensively on potential strategies and programs. The politicians and military subject matter experts were the mechanism to successfully bridge the Great Divide. They accomplished this by cross checking the programs with the desired objectives and implementing the programs in a fiscally responsible manner.<sup>94</sup>

Budgets are a common motif in academic writing and political discussion. Brodie states that, “the question of how much is enough is naturally influenced, if not determined, by considerations of how much we can afford.”<sup>95</sup> The budget is a performance control and often influenced the nuclear strategy of the United States. Again, Mintzberg warns that strategic planning with an overwhelming emphasis on budgets is an ineffective method to cross the Great Divide. It is important to be conscious of the budgets as it is an aspect of performance control, but the budget should not be the starting point in strategic planning. In the United States, Congress inadvertently forced budgetary planning, as Congress is responsible for developing a national

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<sup>93</sup>David M. Kunsman and Douglas B. Lawson, *A Primer on U.S. Strategic Nuclear Policy* (Albuquerque, NM: Sandia National Laboratories, January 2001), 19–65.

<sup>94</sup>Examples of some of these writings include: Schelling, *The Strategy of Conflict*; Schelling, *Arms and Influence*; Brodie, *Strategy in the Missile Age*; Lawrence Freedman, *The Evolution of Nuclear Strategy*, 3rd ed. (London, UK: Palgrave Macmillan, 2003); and Herman Kahn, *On Thermonuclear War*, 2nd ed. (Princeton, NJ: Princeton University Press, 1960).

<sup>95</sup>Brodie, 365.

budget. Therefore, Congress often requires the military to determine their desired programs before completely nesting the programs with the strategy. This ineffective crossing of the Great Divide occasionally limited the military and executive branch of the government in effectively establishing a strategic nuclear plan.<sup>96</sup> Brodie claimed that the military often presented arbitrary requirement and program needs to Congress who in turn controlled the performance of the nuclear strategy.<sup>97</sup> This is an ineffective way to strategically plan as it slows down the process and may not fit in with the strategic endstate.

From the fall of the Soviet Union and dissolution of the Warsaw Pact in the 1990s, a shift in strategy, programs, and objectives was necessary as proliferation of nuclear weapons and technology became a more realistic threat. The potential for the nuclear capability to fall into the hands of a rogue nation or terrorist group negates the deterrence theory assumptions of a rational actor. Therefore, the United States and her allies had to reassess how to cross the Great Divide between performance control and action planning. Lawrence Freedman captured the problem by stating, “The major task for the future must be to address the problems of nuclear arsenals in a world of political change.”<sup>98</sup>

The 1999 national security strategy, entitled *A National Security Strategy for a New Century*, released by the White House re-defined the nuclear strategy stating,

Our nuclear deterrent posture is one example of how U.S. military capabilities are used effectively to deter aggression and coercion against U.S. interests. Nuclear weapons serve as a guarantee of our security commitments to allies and a disincentive to those who would contemplate developing or otherwise acquiring their own nuclear weapons.<sup>99</sup>

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<sup>96</sup>Brodie, 362.

<sup>97</sup>Ibid., 363.

<sup>98</sup>Freedman, *The Evolution of Nuclear Strategy*, 463.

<sup>99</sup>Kunsman and Lawson, 68.

Eleven years later, the 2010 *National Security Strategy (NSS)* again re-framed the nuclear strategy. It opens with a warning, “The American people face no greater or more urgent danger than a terrorist attack with a nuclear weapon” and states the overall strategy of reversing the proliferation of nuclear weapons and securing nuclear material.<sup>100</sup> The 2010 *NSS* then defines specific objectives, “pursue the goal of a world without nuclear weapons . . . strengthen the nuclear Non-Proliferation Treaty (NPT) . . . secure vulnerable nuclear weapons and material.”<sup>101</sup> These overarching ideas provide a strategy that is scoped in purpose, allowing the academic community and military operators the opportunity to academically debate and refine the sub-strategies, evaluate viable programs, accomplish objectives, and determine required budgets.

The United States currently collaborates with a global network of allies to strategically plan and implement the 2010 *NSS*. Implementation includes using a variety of tools such as, “ballistic missile defense, antisubmarine warfare, intelligence-surveillance-and-reconnaissance systems, offensive cyber warfare, conventional precision strike, and long-range precision strike, in addition to nuclear strike capabilities.”<sup>102</sup> A specified strategy, sub-strategy, and a mixture of programs that support objectives are the bridge across the Great Divide of today’s nuclear planning. Budgetary constraints act in conjunction with the objectives and provide the performance controls of nuclear deterrence strategy. The current strategy and strategic plan draws upon the example set by Eisenhower, his administration, and the development of NSC 162/2.

A commonality from the beginning of nuclear strategy development to the actions of today is the challenge of linking current strategies and programs with constantly changing objectives and budgets. The Carnegie Endowment for International Peace, Monterey Institute for

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<sup>100</sup>Barack Obama, *National Security Strategy* (Washington, D.C.: The White House, May, 2010), 23.

<sup>101</sup>*Ibid.*, 23-24.

<sup>102</sup>*Ibid.*, 5.

International Studies, the USAF Counter Proliferation Center, and other academic circles all research, publish, and struggle with this challenge.<sup>103</sup> Regardless of the method used to cross the Great Divide, it is important to consider all variables of action planning and performance control while strategically planning.<sup>104</sup>

Effective planning across the Great Divide has helped nuclear strategy adapt to change. It should focus, as Everett Dolman argues, less on, “determining specific actions to be taken and far more on manipulating the structure within which all actions are determined.”<sup>105</sup> The mechanism enabling an effective crossing is a constant interaction of academic historians and social scientists who use theory and history to inform those who are experts in politics and military practice. Dolman states, “Nuclear deterrence strategy was accepted because the best minds of political and social science applied their collective wisdom to it.”<sup>106</sup>

Bridging the Great Divide involves taking a strategy, breaking it down into sub-strategies, linking programs with objectives, and defining required budgets to accomplish strategic ends. Theoretically, these steps will solidify a strategy into actions that provide a desired endstate leading to this continuous state of advantage. The basic methodology used to plan for and use nuclear weapons is beneficial in discussing RPA strategic planning and determining potential future courses of action.

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<sup>103</sup>George Perkovich and James M Acton, *Abolishing Nuclear Weapons, A Debate* (Washington D.C.: Carnegie Endowment for International Peace, 2009); Ken Berry, Patricia Lewis, Benoit Pelopidas, Nikolai Sokov, and Ward Wilson, *Delegitimizing Nuclear Power Weapons Examining the Validity of Nuclear Deterrence* (Monterey, CA: James Martin Center for Nonproliferation Studies, Monterey Institute of International Studies, 2010); and Barry R. Schneider and Patrick D. Ellis, *Tailored Deterrence: Influencing States and Groups of Concern*, ed. Barry R. Schneider and Patrick D. Ellis (Maxwell Air Force Base, AL: USAF Counterproliferation Center, 2011).

<sup>104</sup>Mintzberg, 78–80.

<sup>105</sup>Dolman, 4.

<sup>106</sup>*Ibid.*, 92.

## CROSSING THE GREAT DIVIDE OF RPA PLANNING

The RPA has the potential to provide combat power in today's operational environment. It does so through the remote capability to surgically strike and degrade the enemies' capabilities by disrupting operations, providing operational and strategic paralysis, or causing equipment shortages.<sup>107</sup> A key to normalizing strategic planning for the RPA is an approach that mirrors the evolution and development of nuclear deterrence strategy. Specifying a defined strategy, as President Obama did in May of 2013, is a major step towards effective planning and crossing the Great Divide. Defining strategic ends is necessary before specifying programs, objectives, and budgets.

An extensive discussion between the academic communities, to include military subject matter experts, did not immediately negate the possibility of a nuclear holocaust. In fact, a seven-year gap existed between the writings of Bernard Brodie and the first useful and sustainable nuclear strategy found in NSC 162/2. The nuclear weapon program was new and had assisted in ending World War II, but open discussion between the academic community and government officials enabled subsequent development of nuclear deterrence theory and strategy. This helped define a strategy that assisted in outlining the programs and objectives needed to accomplish the mission and define the budget. Efforts to successfully cross the Great Divide took place and a nuclear deterrent strategy emerged that helped negate nuclear war. According to Micah Zenko, policies that determine the use of "nuclear weapons, offensive cyber capabilities, and space . . . [are] a long and arduous process" and, as experienced in the nuclear world, are continuously in need of updating.<sup>108</sup> As threats and technology changed, academic discussions identified

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<sup>107</sup>Hazelton, 31.

<sup>108</sup>Zenko, 25.

shortcomings in the programs and objectives, requiring an update to strategy, and refining the overall use of the nuclear programs.

Academic research and writing influences policy makers. Scholastic writing has an enormous influence on the executive branch of the United States government throughout the years. Academic authors such as John Lewis Gaddis, Henry Kissinger, Robert Wright, and Robert Kaplan have all had significant influence on President Obama's National Security Council. In an essay submitted to *The New York Times*, Emily Parker writes, "A book, by its mere existence, can lend legitimacy to an argument in a sound-bite-driven debate."<sup>109</sup> Scholastic work helped with the development of nuclear deterrence strategy and can help develop a useful strategy for the RPA.

With the broad endstates set forth by President Obama, academic discussion will assist in developing the sub-strategies needed to assist in planning steps to cross the Great Divide. Some of these sub-strategies have challenges, one of which is RPA, however, open scholastic debate on the international stage over RPA strategy can help limit proliferation. In sponsoring and taking part in this dialogue, the United States can help influence worldwide RPA strategy by design, not by default.<sup>110</sup>

There currently is no end to the rapid growth and utilization of the RPA. They are extremely beneficial to combatant forces around the globe. This makes planning across the Great Divide more important than ever. Present day academics like Micah Zenko, P.W. Singer, Rosa Brooks, Alan Dowd, David Sanger, and others all discuss the need to have open conversations about the strategic direction and usage of the RPA between national leadership, military operators, engineering subject matter experts, foreign policy members, and others. These dialogues help determine the proper strategic use and desired capabilities of the weapon system.

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<sup>109</sup>Emily Parker, "To Be Read by All Parties, The Impact of Books on Washington Policy," *The New York Times*, February 17, 2012.

<sup>110</sup>Zenko, 22.

Ms. Jacqueline Hazelton, a visiting professor for the University of Rochester, writes that in regards to this exchange of information “many good minds are already at work, and more evidence should become available as time passes and, perhaps, as the United States makes its drone programs more transparent.”<sup>111</sup> These types of activities will foster development of sub-strategies and programs. The sub-strategies and programs are essential as they link with the performance controls of objectives and budgets. This is the key to effectively bridging the Great Divide.

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<sup>111</sup>Hazelton, 32.

## CONCLUSION

President Obama began an unclassified dialogue on the strategic use for the RPA during his Internet panel in January 2012 and explicitly defined his desired endstate while addressing students and faculty of the National Defense University in May of 2013. Observers note that President Obama is attempting, “to undo the damage from arms races of the past” and the administration is attempting to manage and strategically plan for the use of the RPA.<sup>112</sup>

This monograph began by exploring Mintzberg’s methodology of strategic planning and crossing the Great Divide. By comparing this methodology to the current direction and planning of the remotely piloted aircraft, it is apparent that although effective strategic use of the RPA is the desired endstate, the United States has had trouble with defining a viable strategy and moving through Mintzberg’s steps of crossing the Great Divide.

It is challenging to strategically plan for the RPA due to its novel technological capabilities, the various mission roles it fills, and its potential to change the basic method of waging war, but it is similar to a momentous technological advance of the past. The discussion of the development of nuclear deterrence theory and strategy overlaid with Mintzberg’s strategic planning model provide a useful analogy as to the direction RPA strategic planning should take in the future.

Currently, RPA national strategy is in the early formulation stages. Unfortunately, 10 years have passed since the arming of the RPA and over this period, the use of the system has increased exponentially. This time gap causes considerable confusion and potential harm in the perception, development, and proliferation of the system. Defining the strategy is the first step in effective strategic planning for the RPA. As the RPA provides a substantial military capability for

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<sup>112</sup>Sanger, 270.

the United States, it is essential that the strategic plan be one that is efficient and effective. This is particularly true during times of United States' fiscal challenges.

Mintzberg's method of crossing the Great Divide is one way to plan strategically. There are other methods of planning, but scholars agree that some sort of strategy, endstate, or goals need clear definition before dealing with a complex problem.<sup>113</sup> RPA strategic planning, just like any other aspect of waging war, is a complex problem. Although Mintzberg's method is useful in analyzing the planning steps, a recommendation for further study and research is a focus on where and how feedback loops would be beneficial in Mintzberg's methodology. As the complex, unknown operational environment rapidly changes; it is useful to ensure the strategic plan will place one in a position of advantage over the enemy.

The United States can effectively plan and utilize the RPA in an uncertain world by encouraging open and transparent discussion between the government, academic, and military community to help refine the strategy and sub-strategies. In this manner the action planning and performance control section of Mintzberg's Great Divide can be addressed. Assessment of current RPA programs is essential to ensure that they are capable of meeting the strategies and sub-strategies before crossing the Great Divide and addressing the performance controls. In this way, much like the development of nuclear deterrence strategy, coordinated planning for the RPA is possible.

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<sup>113</sup>Dietrich Dorner, *The Logic of Failure, Recognizing and Avoiding Error in Complex Situations* (New York, NY: Metropolitan Books, 1996), 43.

## BIBLIOGRAPHY

- Abbott, H. Porter. *The Cambridge Introduction to Narrative*. 2nd ed. Cambridge, MA: Cambridge University Press, 2008.
- Berry, Ken, Patricia Lewis, Benoît Pélopidas, Nikolai Sokov, and Ward Wilson. *Delegitimizing Nuclear Power Weapons Examining the Validity of Nuclear Deterrence*. Monterey, CA: James Martin Center for Nonproliferation Studies, Monterey Institute of International Studies, 2010.
- Bousquet, Antoine. *The Scientific Way of Warfare: Order and Chaos On the Battlefields of Modernity*. New York, NY: Columbia University Press, 2009.
- Bowie, Robert R. and Richard H. Immerman. *Waging Peace: How Eisenhower Shaped an Enduring Cold War Strategy*. New York, NY: Oxford University Press, 1998.
- Brodie, Bernard. *Strategy in the Missile Age*. Princeton, NJ: Princeton University Press, 1959.
- Brodie, Bernard, Percy E. Corbett, Frederick S. Dunn, William T.R. Fox, and Arnold Wolfers. *The Absolute Weapon*. Edited by Bernard Brodie. New York, NY: Harcourt, Brace and Company, 1946.
- Brooks, Rosa. "10 Ways to Fix the Drone War." *Foreign Policy*, April 11, 2013. [http://www.foreignpolicy.com/articles/2013/04/11/10\\_ways\\_to\\_fix\\_the\\_drone\\_war](http://www.foreignpolicy.com/articles/2013/04/11/10_ways_to_fix_the_drone_war) (accessed June 9, 2013).
- Byrnes, James F., Ernest Bevin, and V. Molotov. "A Decade of American Foreign Policy 1941-1949 Interim Meeting of Foreign Ministers, Moscow." Yale Law School Lillian Goldman Law Library, December 27, 1945. [http://avalon.law.yale.edu/20th\\_century/decade19.asp](http://avalon.law.yale.edu/20th_century/decade19.asp) (accessed April 7, 2013).
- Carr, David. "Debating Drones, in the Open." *New York Times*, February 11, 2013. <http://search.proquest.com/docview/1285436345?accountid=28992> (accessed May 1, 2013).
- Clausewitz, Carl von. *On War*. Edited by Michael Howard and Peter Paret. Princeton, NJ: Princeton University Press, 1984.
- Clinton, Hillary R. "Press Availability on the London Conference". U.S. Department of State, February 23, 2012. <http://www.state.gov/secretary/rm/2012/02/184577.htm> (accessed March 23, 2013).
- Compton, Matt. "President Obama Hangs Out with America." *The White House Blog*, January 30, 2012. <http://www.whitehouse.gov/blog/2012/01/30/president-obama-hangs-out-america> (accessed April 7, 2013).
- Dolman, Everett Carl. *Pure Strategy: Power and Principles in the Space and Information Age*. New York, NY: Routledge, 2005.
- Dorner, Dietrich. *The Logic of Failure, Recognizing and Avoiding Error in Complex Situations*. New York, NY: Metropolitan Books, 1996.

- Dowd, Alan W. "Drone Wars: Risk and Warnings." *Parameters, US Army War College Quarterly* 42, no. 4/43 (Winter-Spring 2013): 7–16.
- Dozier, Kimberly. "Brennan Defends U.S. Drone Strikes." *Evansville Courier & Press*, February 8, 2013. <http://search.proquest.com/docview/1285530018?accountid=28992> (accessed May 1, 2013).
- Fallman, Daniel. "The Interaction Design Research Triangle of Design Practice, Design Studies, and Design Exploration." *Design Issues* 24, no. 3 (2008): 4–18. <http://www.mitpressjournals.org/doi/abs/10.1162/desi.2008.24.3.4> (accessed June 28, 2013).
- Freedman, Lawrence. *Deterrence*. Cambridge, UK: Polity Press, 2004.
- \_\_\_\_\_. *The Evolution of Nuclear Strategy*. 3rd ed. London, UK: Palgrave Macmillan, 2003.
- Friedman, K. "Theory construction in design research: criteria: approaches, and methods." Edited by John Shackleton and David Durling. *Design Studies* 24, no. 6 (2003): 507–522. <http://linkinghub.elsevier.com/retrieve/pii/S0142694X03000395> (accessed July 25, 2013).
- Gat, Azar. *A History of Military Thought: From the Enlightenment to the Cold War*. New York, NY: Oxford University Press, 2001.
- Gawrych, George W. *The 1973 Arab-Israeli War: The Albatross of Decisive Victory*. Fort Leavenworth, KS: Combat Studies Institute Press, 1996.
- Gertler, Jeremiah. *U.S. Unmanned Aerial Systems*. Washington D.C.: Congressional Research Service, January 3, 2012.
- Hazelton, Jacqueline L. "Drones: What Are They Good For?" *Parameters, US Army War College Quarterly* 42, no. 4/43 (Winter-Spring 2013): 29–33.
- Headquarters, United States Air Force. *United States Air Force Unmanned Aircraft Systems Flight Plan 2009-2047*. Federation of American Scientists, May 18, 2009. [http://www.fas.org/irp/program/collect/uas\\_2009.pdf](http://www.fas.org/irp/program/collect/uas_2009.pdf) (accessed February 16, 2013).
- Jervis, Robert. "Deterrence Theory Revisited." *World Politics* 31, no. 2 (January, 1979): 289–324.
- Kahn, Herman. *On Thermonuclear War*. 2nd ed. Princeton, NJ: Princeton University Press, 1978.
- Kalyvas, Stathis N. *The Logic of Violence in Civil War*. New York, NY: Cambridge University Press, 2006.
- Keaney, Thomas A. and Eliot A. Cohen. *Gulf War Air Power Survey Summary Report*. Washington D.C.: Government Printing Office, 1993.
- Klosterman, Chuck. Quoted in P. W. Singer. *Wired for War: The Robotics Revolution and Conflict in the 21st Century*. Reprint, Mechanicsburg, PA: Penguin Books, 2009.

- Kunsman, David M. and Douglas B Lawson. *A Primer on U.S. Strategic Nuclear Policy*. Albuquerque, NM: Sandia National Laboratories, January, 2001.
- Lavoie, Denise. "Ashland Man to Plead Guilty in Terror Plot to Attack Pentagon, U.S. Capitol." CBS Boston, July 10, 2012. <http://boston.cbslocal.com/2012/07/10/ashland-man-to-plead-guilty-in-terror-plot-to-attack-pentagon-u-s-capitol/> (accessed May 1, 2013).
- Lay, James A. Jr. National Security Council 68, *A Report to the National Security Council by The Executive Secretary on United States Objectives and Programs for National Security*. Harry S. Truman Library and Museum, April 14, 1950. [http://www.trumanlibrary.org/whistlestop/study\\_collections/coldwar/documents/pdf/10-1.pdf](http://www.trumanlibrary.org/whistlestop/study_collections/coldwar/documents/pdf/10-1.pdf) (accessed May 28, 2013).
- \_\_\_\_\_. National Security Council 162/2, *A Report to the National Security Council by The Executive Secretary on Basic National Security Policy*. Federation of American Scientists, October 30, 1953. <https://www.fas.org/irp/offdocs/nsc-hst/nsc-162-2.pdf> (accessed May 28, 2013).
- Lieber, Keir A., and Daryl G. Press. "The New Era of Nuclear Weapons, Deterrence, and Conflict." *Strategic Studies Quarterly* 7, no. 1 (Spring 2013): 3–14.
- Metz, Steven. *Eisenhower as Strategist: The Coherent Use of Military Power in War and Peace*. Carlisle, PA: Strategic Studies Institute, 1993.
- Mintzberg, Henry. *The Rise and Fall of Strategic Planning: Reconceiving Roles for Planning, Plans, Planners*. New York, NY: Free Press, 1994.
- Nye, Joseph S. Jr. *The Future of Power*. New York, NY: PublicAffairs, 2011.
- Obama, Barack. *National Security Strategy*. Washington, D.C.: The White House, May, 2010.
- \_\_\_\_\_. "Remarks by the President at the National Defense University." The White House, May 23, 2013. <http://www.whitehouse.gov/the-press-office/2013/05/23/remarks-president-national-defense-university> (accessed June 1, 2013).
- Official United States Air Force Website. "F-16 Fighting Falcon." U.S. Air Force, October 8, 2007. <http://www.af.mil/information/factsheets/factsheet.asp?id=103> (accessed March 12, 2013).
- \_\_\_\_\_. "MQ-1B Predator." U.S. Air Force, July 20, 2010. <http://www.af.mil/information/factsheets/factsheet.asp?id=122> (accessed March 10, 2013).
- \_\_\_\_\_. "MQ-9 Reaper." U.S. Air Force, August 18, 2010. <http://www.af.mil/information/factsheets/factsheet.asp?fsID=6405> (accessed March 10, 2013).
- Ortiz, Carmen M. "United States v. Rezwan Ferdaus." CBS Boston, 2012. <http://cbsboston.files.wordpress.com/2012/07/ferdaus-plea.pdf> (accessed May 1, 2013).
- Osinga, Frans P.B. *Science, Strategy, and War: The Strategic Theory of John Boyd*. London, UK: Routledge, 2006.

- Pape, Robert A. *Bombing to Win: Air Power and Coercion in War*. Ithaca, NY: Cornell University Press, 1996.
- Paret, Peter, ed. *Makers of Modern Strategy: from Machiavelli to the Nuclear Age*. Princeton, NJ: Princeton University Press, 1986.
- Parker, Emily. "To Be Read by All Parties, The Impact of Books on Washington Policy." *The New York Times*, February 17, 2012.
- Perkovich, George, and James M Acton. *Abolishing Nuclear Weapons, A Debate*. Washington D.C.: Carnegie Endowment for International Peace, 2009.
- Rearden, Steven L. *Council of War: A History of the Joint Chiefs of Staff 1942-1991*. Washington D.C.: National Defense University Press, 2012.
- Rohde, David. "The Obama Doctrine." *Foreign Policy* 192 (March/April 2012): 65–69. <http://search.proquest.com/docview/927664000?accountid=28992> (accessed May 1, 2013).
- Sanger, David E. *Confront and Conceal Obama's Secret Wars and Surprising use of American Power*. New York, NY: Crown Publishers, 2012.
- Schelling, Thomas C. *Arms and Influence*. New Haven, CT: Yale University Press, 1998.
- \_\_\_\_\_. *The Strategy of Conflict*. Cambridge, MA: Harvard University Press, 1960.
- Schlesinger, James R. "The Evolution of American Policy towards the Soviet Union." *International Security* 1, no. 1 (1976): 37–48. <http://www.jstor.org/stable/2538575> (assessed March 12, 2013).
- Schneider, Barry R., and Patrick D. Ellis. *Tailored Deterrence: Influencing States and Groups of Concern*. Edited by Barry R. Schneider and Patrick D. Ellis. Maxwell Air Force Base, AL: USAF Counterproliferation Center, May 2011.
- Schoen, Donald A. *Educating the Reflective Practitioner*. San Francisco, CA: Jossey-Bass, 1987.
- Sheehan, Neil. *A Fiery Peace in a Cold War: Bernard Schriever and the Ultimate Weapon*. New York, NY: Random House, 2009.
- Sheikh, Abdi. "Four Foreign Militants Killed in Somalia Missile Strike." *Reuters*, February 24, 2012. <http://in.reuters.com/article/2012/02/24/somalia-conflict-idINDEE81N0C820120224> (accessed March 23, 2013).
- Singer, P. W. *Wired for War: The Robotics Revolution and Conflict in the 21st Century*. Reprint, Mechanicsburg, PA: Penguin Books, 2009.
- Strachan, Hew. "The Lost Meaning of Strategy." *Survival* 47 (Autumn 2005): 33–54.
- Truman, Harry S., C. R. Attlee, and W. L. MacKenzie King. *Declaration on Atomic Bomb By President Truman and Prime Ministers Attlee and King*. Nuclear Age Peace Foundation,

- November 15, 1945. [http://www.nuclearfiles.org/menu/key-issues/nuclear-energy/history/dec-truma-atlee-king\\_1945-11-15.htm#](http://www.nuclearfiles.org/menu/key-issues/nuclear-energy/history/dec-truma-atlee-king_1945-11-15.htm#) (accessed April 7, 2013).
- United States Air Force. *Air Force Doctrine Document 3-52, Airspace Control*. Maxwell Air Force Base, AL: Government Printing Office, February 2, 2011.
- United States Department of Defense. *Joint Publication 1-02, Department of Defense Dictionary of Military and Associated Terms*. Washington, D.C.: Government Printing Office, November 8, 2010 (Amended through November 15, 2012).
- \_\_\_\_\_. *Joint Publication 3-0, Joint Operations*. Washington, D.C.: Government Printing Office, August 11, 2011.
- \_\_\_\_\_. *Joint Publication 3-60, Joint Targeting*. Washington, D.C.: Government Printing Office, April 13, 2007.
- \_\_\_\_\_. *Joint Publication 5-0, Joint Operation Planning*. Washington, D.C.: Government Printing Office, August 11, 2011.
- Waldrop, M. Mitchell. *Complexity: The Emerging Science at the Edge of Order and Chaos*. New York, NY: Simon & Schuster, 1993.
- Warner, John, Senator. Quoted in George Wilson. "A Chairman Pushes Unmanned Warfare." *National Journal* 32, no. 10 (2000): 718–719.
- Winnefeld, Admiral James A. Jr., Vice Chairman of the Joint Chiefs of Staff and Frank Kendall, Acting Under Secretary of Defense for Acquisitions, Technology and Logistics. *Unmanned Systems Integrated Roadmap FY2011-2036*. Department of Defense, 2011. <https://extranet.acq.osd.mil/uwir/roadmap.html> (accessed February 21, 2013).
- Zenko, Micah. "Reforming U.S. Drone Strike Policies", *Council on Foreign Relations: Center for Preventive Action*, no. 65 (January 2013).