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An analysis of successful recent predictions about future war shows that the best predictions have four components: using history to understand warfare, recognizing factors beyond military and technology that change warfare, assuming that both regular and irregular warfare will continue in the future, and assuming that adversaries will adapt to one another and to their environments. Using those four components, this paper analyzes three current predictions about future warfare and two current DoD policy documents.

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FUTURE WAR PAPER

Predicting Future War: Identifying Techniques for Asking the Right Questions

SUBMITTED IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF OPERATIONAL STUDIES

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THE OPINIONS AND CONCLUSIONS EXPRESSED HEREIN ARE THOSE OF THE INDIVIDUAL STUDENT AUTHOR AND DO NOT NECESSARILY REPRESENT THE VIEWS OF EITHER THE SCHOOL OF ADVANCED WARFIGHTING OR ANY OTHER GOVERNMENTAL AGENCY. REFERENCES TO THIS STUDY SHOULD INCLUDE THE FOREGOING STATEMENT

To be ready to fight the next war, militaries must make useful predictions about the future of warfare. An understanding of the character of future wars is essential for a military to create a concept of employment, build a force, and equip that force properly. Even though it will never be possible to predict the future with perfect accuracy, some approaches to making predictions are more effective than others. We can identify the best approaches to making predictions by examining the accuracy of past predictions. Then we can use those approaches to make the best possible predictions and more effectively understand and prepare for future wars.

I will analyze predictions about the future of warfare from the last 15 years to identify the most effective methods of prediction. This analysis will show that the best predictions about future warfare have four components: using history to understand warfare, recognizing factors beyond military and technology that change warfare, assuming that both regular and irregular warfare will continue in the future, and assuming that adversaries will adapt to one another and to their environments. Next, I will review a sample of past documents from the U.S. Department of Defense (DOD). Then I will evaluate current predictions about future warfare by testing whether those predictions apply these four methods. Finally, using the lessons from my analysis of past predictions and DOD documents, I will examine current DOD guidance for fighting future wars to determine if that guidance is based on high quality predictions of future warfare.

Before going any further, I will define regular and irregular warfare. Regular warfare is when both sides of a conflict are uniformed members of a military employing force under direction from a national government. Irregular warfare is every other organized use of force for a political objective. Examples of forces in irregular warfare are: insurgent forces, privatized military contractors working for a national government, and violent extremist organizations that have political objectives. Wars are not exclusively regular or irregular. Wars often include both

regular and irregular warfare. Distinguishing between regular and irregular warfare should not make us think of them as distinct and separate, but help us to describe how the two forms coexist.¹

The beginning of American wars in Afghanistan and Iraq, in the early years of the 21st century, prompted scholars to try to understand the current character of warfare and to make predictions and recommendations about warfare in the near future. I will begin by analyzing some of these predictions, comparing those predictions to the warfare that actually unfolded, and looking for common elements of successful predictions.

Dr. Stephen Biddle wrote his paper, “Afghanistan and the Future of Warfare: Implications for Army and Defense Policy,” in 2002, shortly after the U.S. victory in Afghanistan but before Operation Iraqi Freedom began. The paper’s outlook ranges from the immediate future to a decade or more from the time of writing. Dr. Biddle looks at ground combat at the tactical level of war, examining the performance of special operations forces and precision guided munitions (PGMs), which appeared to be most important aspects of the successful beginning of Operation Enduring Freedom. Examining the overall success of U.S. forces with their Afghan partners, Dr. Biddle identifies shortcomings of PGMs in the recent conflict. He puts these recent events into context, using the historical record since World War I and finds a consistent challenge for all militaries—balancing fires and maneuver.² Dr. Biddle points out limitations of PGMs, explaining that U.S. PGMs in Afghanistan had difficulty destroying enemies fighting from prepared defensive positions.³ This leads to his prediction about future war, in which the enemies of the U.S. will adapt to American sensor and PGM technology to counter the U.S. technological advantage, thereby continuing the requirement for skilled dismounted infantry.⁴ Dr. Biddle explains that, even with fire support, the quality of

ground forces makes a difference. Fire support can be a decisive advantage for equally matched ground forces, but will not allow a poorly trained and led ground force to defeat a superior foe.⁵ Dr. Biddle adds historical examples—Israeli overreliance on maneuver forces in 1973 and the Army of the Republic of Vietnam failing, despite U.S. fire support, from 1972 to 1975.⁶

Dr. Biddle's predictions fared well as the U.S. and its partners struggled to defeat their enemies in Iraq and Afghanistan. The U.S. war in Iraq began in March 2003, the last U.S. combat brigade departed in August 2010, and the last U.S. forces departed Iraq in 2011, though U.S. forces returned in 2014 to assist Iraq in the fight against Islamic State with approximately 5,200 U.S. troops remaining in Iraq as of early 2019.⁷ The U.S. war in Afghanistan that began in October 2001 continues to this writing in February 2019. Despite air supremacy, vast sensor networks, and effectively unlimited PGMs, the U.S. and its partners struggled in both Iraq and Afghanistan. In his predictions, Dr. Biddle draws from history to provide context to recent events and recognizes that enemies will adapt in ways that avoid or mitigate friendly strengths, in this case precision aviation fires. He recognizes the importance of both fires and maneuver, and he correctly predicts the requirement for capable maneuver forces. Dr. Biddle's use of history and expectation of an adaptive enemy should appear in other successful predictions.

In 2004 Dr. Daniel Marston wrote a paper, "Force Structure for High- and Low-Intensity Warfare: The Anglo-American Experience and Lessons for the Future," in which he predicts the character of future conflict in order to recommend force structures. Specifically, Dr. Marston evaluates the likelihood of those forces fighting low-intensity wars. Like Dr. Biddle, Dr. Marston's time horizon ranges from the immediate to the more distant future. Dr. Marston looks at wars since 1945, concluding "the future of war is likely to include a greater focus on low-intensity operations."⁸ Dr. Marston notes the prevalence of low-intensity conflict, "Since 1945,

of all the conflicts in the world, only 12% can be classified as high-intensity wars (e.g., the Arab-Israeli and India-Pakistan conflicts).”⁹ He also explains how high-intensity wars can change into low-intensity wars. Adding to this, Dr. Marston says the skill of U.S. high-intensity forces is one reason adversaries will not engage the U.S. in high-intensity conflict.¹⁰ Similar to Dr. Biddle, Dr. Marston explains the limitations of technology, specifically its ability to gather only certain kinds of intelligence, creating an imperfect understanding of the situation.¹¹ Dr. Marston’s analysis has proven prescient in the 14 years since he wrote it. Not only do the wars in Iraq and Afghanistan support Dr. Marston’s prediction, but the conflicts in Syria and eastern Ukraine do as well. Dr. Marston’s prediction, “the future of war is likely to include a greater focus on low-intensity operations,”¹² does not preclude the possibility of regular, state-on-state warfare, but it has served as an accurate prediction of the 14 years since he made it. His prediction was informed by history and has been shown to be accurate by subsequent history. Dr. Marston’s recommendation to train conventional forces for counter-insurgency operations addresses the immediate challenge, but he does not examine the tradeoffs in readiness that such a policy would require.¹³

In *Another Bloody Century*, written in 2005, Dr. Colin Gray examines war and makes general predictions about the future of warfare. Dr. Gray explains, “war is a political, social, and cultural phenomenon, not only a military one.”¹⁴ This idea leads to his prediction that future warfare will be driven by political, social, and cultural factors in addition to technological factors.¹⁵ Similar to Dr. Biddle, Dr. Gray notes that any competent force which fights the U.S. will find ways to avoid U.S. advantages including advanced technology.¹⁶ Predictions that recognize a thinking and adapting enemy are less likely to expect too much from recent technological innovations.

Most of Dr. Gray's predictions are too general or focused too far in the future to test. However, he discusses regular and irregular warfare and makes some predictions that are already testable. Dr. Gray addresses different types of warfare, separating warfare into regular, "combat between the regular armed forces of states," and irregular "between the armed forces of states and other belligerent entities."¹⁷ Dr. Gray predicts "a blurring, perhaps we should say a further blurring, of warfare categories."¹⁸ In the 14 years since he wrote *Another Bloody Century*, this prediction has proven true in conflicts in Ukraine and Syria. Dr. Gray bases his prediction on the long history of irregular warfare, citing three historical examples from previous centuries— conflict in the Balkans, partisans fighting Napoleon, and *franc-tireurs* fighting the Prussians.¹⁹ These examples illustrate that irregular warfare is not new, supporting the conclusion that irregular warfare will continue in the future. Dr. Gray adds the prediction that regular and irregular will blur, which has proven, so far, to be a correct prediction.

The forecasts of Dr. Biddle, Dr. Gray, and Dr. Marston all contain accurate predictions about warfare. All three men use historical evidence to evaluate current trends. They also emphasize how adversaries adapt, making any advantage, whether a new technology or new tactic, less significant over time. Dr. Gray's emphasis on the roles of political, social, and cultural contexts gives forecasters a better understanding of the wide array of factors that influence how people wage war. Dr. Gray and Dr. Marston both examine the roles regular and irregular conflict will play in future wars. As we evaluate other predictions about the future of war, we should look for predictions that are founded on historical evidence, acknowledge additional factors, not just technology, when predicting changes to warfare, recognize the combination of both regular and irregular warfare, and assume adaptive opponents.

I will analyze three documents from the Department of Defense (DOD) published from ten to fifteen years ago to examine what predictions were included, how those predictions informed any directives in the document, and evaluate how their predictions fared. In 2004, the Chairman of the Joint Chiefs of Staff published *The National Military Strategy of the United States of America: A Strategy for Today; A Vision for Tomorrow (2004 NMS)*. The 2004 NMS directs the military to be prepared for both regular and irregular warfare against a range of adversaries from states to non-state actors.²⁰ The 2004 NMS also anticipates adaptive adversaries, specifically mentioning enemies that will avoid precision-strike capabilities and target U.S. political will.²¹ Speaking of the U.S. military, the 2004 NMS assesses, “we have adapted these forces successfully in OEF [Operation Enduring Freedom] and OIF [Operation Iraqi Freedom], success in future operations will require further and more substantive changes.”²² The 2004 NMS appropriately anticipates irregular warfare against adaptive enemies, and it has useful directives about conducting stability operations, such as improving integration across government agencies.²³ However, it was wrong to look forward to subsequent wars when the U.S. military was still learning how to succeed in the wars it was fighting at the time. The 2004 NMS correctly describes a wide range of potential enemies. Unfortunately, it fails to recognize the situation at the time, leading to generalizations and vague prescriptions that fail to direct the 2004 military to adapt to the challenges and enemies of the present. Without proper top-down direction, the military would go on to adapt more slowly than it could have, had it been given clear direction. The 2004 NMS is correct to address threats and concepts beyond Afghanistan and Iraq, but its incorrect interpretation of OEF and OIF leads to incorrect predictions, which translate to some of the prescriptions being misdirected.

The Secretary of Defense released *The National Defense Strategy of The United States of America* in March 2005 (*2005 NDS*). This document explains “an array of traditional, irregular, catastrophic, and disruptive capabilities and methods that threaten U.S. interests.”²⁴ [italics in the original] It clarifies that traditional threats are from states employing armed forces. Irregular threats include terrorism, insurgency, and adversaries trying to erode U.S. political will. Catastrophic challenges are primarily weapons of mass destruction. Disruptive challenges, which “in rare instances, revolutionary technology and associated military innovation can fundamentally alter long-established concepts of warfare... including advances in biotechnology, cyber operations, space, or directed-energy weapons.”²⁵ The *2005 NDS* cautions that adversaries are likely to use combinations of these four threats. The traditional, catastrophic, and disruptive threats did not materialize against the U.S. during the time after the *2005 NDS*, but the irregular threats continued. The *2005 NDS* predictions are useful for two reasons: they include regular and irregular warfare and the disruptive challenges description shows creativity by thinking beyond current trends along with providing specific possibilities for future threats. The predictions in the *2005 NDS* are strong, facilitating better prescriptions.

The Marine Corps published *Marine Corps Operating Concepts for a Changing Security Environment* in March 2006 (*2006 MOC*). This document explains the operating concepts the Marine Corps planned to use for the next ten years, informed partly by *the Marine Corps Midrange Threat Estimate: 2005-2015*.²⁶ The *2006 MOC* says Marines will be ready for major combat but are more likely to fight irregular wars. It emphasizes “thinking enemies using asymmetric tactics.”²⁷ The *2006 MOC* uses the language of “traditional, irregular, catastrophic, and disruptive” threat capabilities from the *2005 NDS*.²⁸ It becomes more specific by repeating a list of missions from the *Midrange Threat Estimate*: “Stability and Support Operations, Small

Wars and Counterinsurgency, Humanitarian Assistance, Disaster Relief and Nation Building, Peace Operations, Combating Terrorism, Counter-Proliferation and Non-Proliferation, Combating Drug Trafficking and Crime, Non-combatant Evacuation Operations.”²⁹ Although conventional Marine units would not conduct counter-proliferation operations, the list in the *2006 MOC* is otherwise a fair summary of what the Marine Corps did during the ten years after the *2006 MOC* was published. Another strong section in the *2006 MOC* is the extensive research for the chapter on counterinsurgency, evident in citations for nine history books and eleven books or journal articles about counterinsurgency theory.³⁰ The *2006 MOC* uses a threat estimate that expects adaptive enemies and is sufficiently specific to list likely missions for the Marine Corps, which proves largely accurate. The operating concepts described in the *2006 MOC* are based on those predictions.

With the lessons from scholars’ predictions about warfare and DOD directives from the early 2000’s, I will examine recent predictions by U.S. military planners. I will review one prediction from the Joint Staff, one from the Marine Corps Futures Directorate, and one from a single cohort inside the Army Future Studies Group. To evaluate these predictions, I will assess whether history, non-military or technological contexts of war, a consideration of both regular and irregular warfare, and adaptive adversaries were incorporated in the predictions.

The U.S. Joint Staff produced *Joint Operating Environment 2035 (JOE 2035)* in July 2016 to inform U.S. military planning, looking approximately 20 years into the future in a broad evaluation of the future security environment. *JOE 2035* meets three of the four criteria for high quality predictions about future warfare. It assumes adaptive adversaries, addresses influences other than technology, and anticipates both regular and irregular warfare. *JOE 2035* likely uses history as a guide, but the scarcity of historical citations makes it hard to determine exactly

where history informs the document. *JOE 2035* assumes adversaries will adapt to the U.S., including its predictions that revisionist states will use hybrid approaches to include proxy warfare, and that regional powers will contest the U.S. in space and cyber-space.³¹ *JOE 2035* assumes adversaries will look for ways to negate or avoid U.S. strengths including countermeasures to U.S. strike capabilities. Adversaries will use a mixture of regular and irregular forces according to *JOE 2035*, and the U.S. Joint Force will have missions in both regular and irregular warfare. *JOE 2035* discusses political and cultural factors, mostly as reasons wars will begin, but to a lesser degree as drivers influencing how wars are fought. Two examples are: non-state entities gaining greater power and cooperation between terrorist and criminal organizations.³²

JOE 2035 makes a wide range of predictions that apply to the U.S. Joint Force. Those predictions include: adversaries using hybrid approaches and proxy forces, adversaries attacking or disrupting U.S. satellites in space, weapons of mass destruction spreading to hostile non-state actors, cooperation among and the greater reach of criminal and terrorist groups, proliferation of technology leading to more sophisticated drones and IEDs, improved fuels and batteries, autonomous robots and proliferation of advanced sensors.³³ This extensive list of predictions is one particularly useful part of *JOE 2035* for U.S. forces to as they plan for the next 20 years. These predictions will not all come to fruition, and some will develop differently than *JOE 2035* anticipated, but the predictions provide specific ideas to help inform preparation. *JOE 2035* would benefit from more detailed citations and explanations of how it is informed by history, but it meets the other criteria for a good predictive study because it assumes adaptive adversaries, addresses context beyond military factors, and predicts a future with both regular and irregular warfare.

The Futures Directorate in Marine Corps Combat Development and Integration published the *Marine Corps Security Environment Forecast: Futures 2030-2045 (MCSEF)* in 2015 to inform Marine Corps planning by predicting and explaining the character of future conflict and by describing plausible futures. *MCSEF* includes an explanation of how its authors conducted forecasting, along with detailed footnotes with explanations and sources. *MCSEF* briefly addresses adaptive adversaries with a footnote about the shortcomings of PGMs and how adversaries use irregular warfare to counter conventional advantages, particularly of the U.S.³⁴ It also mentions how political and cultural factors could impact the character of conflict. *MCSEF* recognizes how common irregular warfare has been historically, specifically referencing U.S. wars in Afghanistan and Iraq and implying a larger set of conflicts.³⁵ *MCSEF* uses historical context, mostly extending trends that started during or after World War II, in its analysis.

MCSEF's use of history is not sufficiently rigorous. *MCSEF* predicts that globalization, "will continue to connect the world in all domains."³⁶ This prediction already appears unlikely as repressive states limit internet content and other states restrict connections to world markets. Another prediction in *MCSEF* is that combat casualty rates will decline. *MCSEF* cites data from World War II to the present, but this limited span of history, while optimistic, may be dangerously misleading. *MCSEF*'s support for declining casualty rates comes from a single *New York Times* op-ed from 2011.³⁷ Both the prediction about globalization and the prediction about casualty rates are extrapolations of trends from the last 75 years that would not be true if the analysis extended to a slightly longer view of history. With a limited use of history, *MCSEF* runs the risk of using facts outside appropriate context and drawing the wrong conclusions, which then become foundations for other predictions.

MCSEF makes five predictions about the character of future war. Those predictions are greater reliance on technology, reduced destruction and casualties, “increased detachment” due to powerful nations using both proxies and unmanned vehicles, increased complexity, and a reduction in the utility of force.³⁸ The first three predictions are clear, but the last two require some explanation. *MCSEF* explains increased complexity as a result of a wider variety of participants in wars, creating alliances of state and non-state actors with different goals and the possibility of groups splintering during conflict. The increase in participants and objectives will make determining and achieving victory more difficult. The reduced utility of force *MCSEF* forecasted is based on the idea that “the legitimacy of military force is more widely challenged in the West.”³⁹ This is a strong part of the document because it analyzes cultural and political aspects of warfare. *MCSEF* may or may not be correct in this prediction, but it is worthwhile that the analysis looks for influences on warfare beyond the military and technology. By looking beyond the narrow scope of traditionally military subjects, the *MCSEF* authors are more likely to recognize, if not necessarily anticipate, non-military factors that affect the character of war. *MCSEF* contains flaws in its use of history, but its recognition of adaptive adversaries, discussion of regular and irregular warfare, and inclusion of social and political factors make its predictions about the future valuable for military planners.

In 2017, the U.S. Army Future Studies Group published a paper titled *The Character of Warfare 2030 to 2050: Technological Change, the International System, and the State* in an effort to predict the future operating environment and future character of warfare. This study includes sources from not only U.S. allies, but also competitors, along with academia and the private sector. This is a good technique to achieve different perspectives, although the interviewees are all confidential, allowing limited visibility on the specific sources.⁴⁰ It is not

clear to what extent this document uses history, because few historical references appear, but history probably factored into some of the interviewees' statements. Other than history, *The Character of Warfare 2030 to 2050* uses all the techniques I identified for good predictions.

The Character of Warfare 2030 to 2050 takes adaptive adversaries into account, most significantly in how adversaries are likely to use information against the U.S., use proxy forces, and deter U.S. intervention through threats of cyber, nuclear, and conventional ballistic missiles.⁴¹ Political context and demographics appear in the paper's analysis. Cultural components are not explicit, but are most likely incorporated into the interviewees' analyses. *The Character of Warfare 2030 to 2050* directly addresses the future prospects for regular and irregular warfare, including a prediction that the future will be a mix of regular and irregular wars, though likely more irregular wars. *The Character of Warfare 2030 to 2050* predictions include an increase in adversary precise strike capabilities that place U.S. ports of debarkation in danger, and other types of PGMs, GPS denial, and electronic warfare that will limit tactical and operational mobility.⁴² Yet another prediction is that the fight for information and use of information will be more important in the future. Perhaps the most interesting prediction is that technological innovation may slow in the coming years, which would contribute to a period of particular danger to the U.S. between 2025 and 2030 when China and Russia could close the technological gap with the U.S.⁴³ *The Character of Warfare 2030 to 2050* uses a broad group of sources, along with most, if not all, of the best prediction-making techniques identified. Using these techniques leads to a study with well-reasoned predictions that are useful for preparing the U.S. military for future wars.

The official, prescriptive directives from the U.S. DOD are brief and do not have many citations. It is not possible to analyze how history informed those directives. Examining

whether DOD directives incorporate political and cultural contexts in their analysis is challenging, because the context may have informed the analysis without being explicit. DOD directives may analyze and predict cultural and political influences, both domestic and international, but as official documents of the U.S. Government they may not explicitly state those predictions due to political sensitivities. Not stating those predictions is acceptable, as long as the authors of DOD directives are taking cultural and political factors into account in their predictions about future warfare. The other two tests for accurate prediction-making—whether or not they address both regular and irregular conflict and whether or not they recognize that adversaries will adapt—are easy to assess in the DOD documents.

The *2018 National Defense Strategy (NDS)* is the current overview of DOD strategy. The *2018 NDS* addresses a broad range of challenges to U.S. security, but its focus is on Russia and China. It is unclear whether or not cultural context influenced the *2018 NDS*, but political contexts are clearly evident when the document discusses adversary nations. The *2018 NDS* also mentions history, though very briefly, stating that professional military education includes knowing history. It addresses adaptive adversaries in its direction to DOD to prepare for adversaries using new concepts and technologies, which aligns with the Secretary of Defense's emphasis that, "America has no preordained right to victory on the battlefield."⁴⁴ Lastly, the *2018 NDS* addresses regular and irregular warfare by directing "proficiency across the entire spectrum of conflict."⁴⁵ The *2018 NDS* incorporates each of the four characteristics of accurate prediction-making, so its predictions are grounded in proven techniques. The *NDS's* sound predictions inform the joint force's preparation for future wars and are a good starting point for defense readiness.

The Marine Corps regularly publishes an operating concept, the most recent of which was released in September 2016. The current *Marine Corps Operating Concept: How an Expeditionary Force Operates in the 21st Century* (2016 MOC) predates the 2018 NDS, but remains the current Marine Corps plan for future warfare. The 2016 MOC is specific, unlike the 2018 NDS, in that it addresses a ten-year time horizon. The 2016 MOC does not address historical analysis or political and cultural contexts of future warfare. This is understandable because the 2016 MOC is just a brief description of a concept for warfighting, different from predictions of future warfare. The 2016 MOC is clear about how the enemy will respond to U.S. forces; it mentions “adaptive enemies” seven times in just 29 pages. The 2016 MOC also addresses regular and irregular forces and military operations, stating that the Marine Corps will be prepared for the full range of operations.⁴⁶ Like the 2018 NDS, the 2016 MOC meets the criteria for making the best predictions about future warfare. These predictions inform preparations for future wars.

Accurate predictions by Dr. Biddle, Dr. Gray, and Dr. Marston reveal four approaches that are likely to produce higher quality forecasts of future war: using history to understand recent events and trends, using political and cultural context to anticipate changes in warfare, addressing both regular and irregular warfare, and understanding that adversaries will adapt. My review of past predictions and directives shows the utility of using these four approaches to prepare for conflict. Predictions of future warfare are necessary to inform planning and concept implementation, as demonstrated in the 2018 NDS and the 2016 MOC. These two documents assume adaptive enemies and regular and irregular warfare—two of the four characteristics of sound prediction-making. While the predictions of the 2018 NDS and the 2016 MOC may not prove to be correct, they rest on a solid foundation for predicting future warfare and those same

techniques should be used to test future concepts and plans. All DOD guidance will need updating as the world changes, but planners should use history to test predictions and guidance, continually improving the next iteration of predictions and guidance.

¹ Colin Gray. *Another Bloody Century* (London: Weidenfeld & Nicolson, 2005), 168, 215 and Daniel Marston, *Force Structure for High-and Low-Intensity Warfare: The Anglo-American Experience and Lessons for the Future*. National Intelligence Council Global Context 2020 Project. (Alexandria, VA: CNA Corporation), 1-2.

² Stephen Biddle, “Afghanistan and the Future of Warfare: Implications for Army and Defense Policy,” *Strategic Studies Institute* (2002): 49.

<https://ssi.armywarcollege.edu/pubs/display.cfm?pubID=109>

³ Biddle, 34-35.

⁴ Biddle, 56.

⁵ Biddle, 42.

⁶ Biddle, 46.

⁷ Adam Taylor, “Do U.S. troops have a future in Iraq?” *Washington Post*, February 7, 2007,

<http://washingtonpost.com>.

⁸ Marston, 16.

http://www.offnews.info/downloads/2020force_structure.pdf

⁹ Marston, 4.

¹⁰ Marston, 9.

¹¹ Marston 17

¹² Marston, 16.

¹³ Marston, 14.

¹⁴ Gray, 101.

¹⁵ Gray, 103.

¹⁶ Gray, 209.

¹⁷ Gray, 168.

¹⁸ Gray, 199.

¹⁹ Gray, 222-3.

²⁰ Chairman of the Joint Chiefs of Staff, *The National Military Strategy of the United States of America: A Strategy for Today; A Vision for Tomorrow* (Washington, DC, 20318, 2004), 3-4.

<https://archive.defense.gov/news/Mar2005/d20050318nms.pdf>

²¹ *The National Military Strategy of the United States of America: A Strategy for Today; A Vision for Tomorrow*, 5.

²² *The National Military Strategy of the United States of America: A Strategy for Today; A Vision for Tomorrow*, 22.

²³ *The National Military Strategy of the United States of America: A Strategy for Today; A Vision for Tomorrow*, 14.

²⁴ Office of the Secretary of Defense, *The National Defense Strategy of The United States of America* (Washington, DC, 20301, March 2005), 2.

https://history.defense.gov/Portals/70/Documents/nds/2005_NDS.pdf?ver=2014-06-25-124535-143

²⁵ *The National Defense Strategy of The United States of America*, 3.

²⁶ Marine Corps Combat Development Command. *Marine Corps Operating Concepts for a Changing Security Environment* (Quantico, VA, 22134, March, 2006), 8.

²⁷ *Marine Corps Operating Concepts for a Changing Security Environment*, v.

²⁸ *Marine Corps Operating Concepts for a Changing Security Environment*, 8.

²⁹ *Marine Corps Operating Concepts for a Changing Security Environment*, 9.

³⁰ The books are Rupert Smith’s *The Utility of Force*, Michael Howard’s *Clausewitz*, Robert Asprey’s *War in the Shadows*, Ted Gurr’s *Why Men Rebel*, Jeffrey Race’s *War Comes to Long An*, Max Manwaring and William Olson’s (editors) *Managing Contemporary Conflict: Pillars of Success*, Edgar O’Balance’s *The Algerian Insurrection: 1954-1962*, Napoleon Valeriano and Charles Bohannon’s *Counter-Guerilla Operations: the Philippine Experience*, Max Manwaring and Anthony Joes’s (editors) *Beyond Declaring Victory and Coming Home: The Challenges of Peace and Stability Operations*, Sam Sarkesian’s *America’s Forgotten Wars: The Counterrevolutionary Past and Lessons for the Future*, and Max Boot’s *The Savage Wars of Peace: Small Wars and the Rise of American Power*; and the journal articles are Antulio Echevarria’s “The Trouble With History” from *Parameters*, Bernard Fall’s “The Theory and Practice of Insurgency and Counterinsurgency” from *Naval War College Review*, Max Manwaring’s “The Inescapable Global Security Arena from the Strategic Studies Institute, Stephen Krasner and Carlos Pascual’s “Addressing State Failure” from *Foreign Affairs*, David Kilcullen’s “Countering Global Insurgency” from *Small Wars Journal*, Peter Chiarelli and Patrick Michaelis’s “Winning the Peace: The Requirement for Full Spectrum Operations” from *Military Review*, Kalev Sepp’s “Best Practices in Counterinsurgency” from *Military Review*, Paul

Melshen's "Tribalism and African Nationalist Wars of Liberation, 1945-80" from *Low Intensity Conflict & Law Enforcement*, and John Lynn's "Patterns of Insurgency and Counterinsurgency" from *Military Review*,

³¹ US Department of Defense, *Joint Operating Environment 2035* (Washington, DC: Joint Chiefs of Staff, July 2016), 6.

³² *Joint Operating Environment 2035*, 13.

³³ *Joint Operating Environment 2035*, 5.

³⁴ *Marine Corps Security Environment Forecast: Futures 2030-2045*, 66.

³⁵ Futures Directorate. *Marine Corps Security Environment Forecast: Futures 2030-2045*, staff study, 2015, 67.

³⁶ *Marine Corps Security Environment Forecast: Futures 2030-2045*, v.

³⁷ *Marine Corps Security Environment Forecast: Futures 2030-2045*, 68. The op-ed cited is Joshua S. Goldstein and Steven Pinker, "War Really is Going Out of Style," *New York Times*, 17 December 2011.

³⁸ *Marine Corps Security Environment Forecast: Futures 2030-2045*, 76.

³⁹ *Marine Corps Security Environment Forecast: Futures 2030-2045*, 66.

⁴⁰ U.S. Army Future Studies Group, Cohort IV. *The Character of Warfare 2030 to 2050: Technological Change, the International System, and the State*, staff study, 2017, 18.

⁴¹ *The Character of Warfare 2030 to 2050: Technological Change, the International System, and the State*, 56.

⁴² *The Character of Warfare 2030 to 2050: Technological Change, the International System, and the State*, 50.

⁴³ *The Character of Warfare 2030 to 2050: Technological Change, the International System, and the State*, 57.

⁴⁴ Office of the Secretary of Defense, *Unclassified Summary of the 2018 National Defense Strategy* (Washington, DC, 20301), 5. <https://dod.defense.gov/Portals/1/Documents/pubs/2018-National-Defense-Strategy-Summary.pdf>

⁴⁵ *Unclassified Summary of the 2018 National Defense Strategy* (Washington, DC, 20301), 1.

⁴⁶ Headquarters US Marine Corps. *The Marine Corps Operating Concept: How an Expeditionary Force Operates in the 21st Century* (Washington, DC: Headquarters US Marine Corps, September, 2016), 4.

-
- Alexander, John B. *The Evolution of Conflict Through 2020: Demands on Personnel, Machines, and Missions*. National Intelligence Council Global Context 2020 Project, 2004.
- Barnett, Thomas P.M. *Does the U.S. Face a Future of Never-ending Subnational & Transnational Violence?* National Intelligence Council Global Context 2020 Project, May 2004. <http://www.au.af.mil/au/awc/awcgate/cia/nic2020/violence.pdf>
- Biddle, Stephen. *Afghanistan and the Future of Warfare: Implications for Army and Defense Policy*. Strategic Studies Institute, 2002.
<https://ssi.armywarcollege.edu/pubs/display.cfm?pubID=109>
- Chairman of the Joint Chiefs of Staff. *The National Military Strategy of the United States of America: A Strategy for Today; A Vision for Tomorrow*. Washington, DC, 20318.
<https://archive.defense.gov/news/Mar2005/d20050318nms.pdf>
- Chambers, John C., Satinder K. Mullick, and Donald D. Smith. "How to Choose the Right Forecasting Technique." *Harvard Business Review* (July 1971):
<https://hbr.org/1971/07/how-to-choose-the-right-forecasting-technique>
- Futures Directorate. *Marine Corps Security Environment Forecast: Futures 2030-2045*. Staff study, 2015.
- Gray, Colin. *Another Bloody Century*. London: Weidenfeld & Nicolson, 2005.
- Headquarters U.S. Marine Corps. *The Marine Corps Operating Concept: How an Expeditionary Force Operates in the 21st Century*. Washington, DC: Headquarters U.S. Marine Corps, September, 2016.
- Hoffman, Frank and Pat Garrett. "The Great Revamp: 11 Trends Shaping Future Conflict." *War on the Rocks*. 8 October 2014. <https://warontherocks.com/2014/10/the-great-revamp-11-trends-shaping-future-conflict/>
- Jennings, Nathan, Amos Fox, and Adam Taliaferro. "The US Army is Wrong on Future War." *Modern War Institute*. 18 December 2018. <https://mwi.usma.edu/us-army-wrong-future-war/>
- Jensen, Benjamin and Neil Hollenbeck. "The Futures Problem: Why Big Organizations Have Problems Making Long-Term Forecasts and What to Do About It." *War on the Rocks*. 21 November, 2017. <https://warontherocks.com/2017/11/futures-problem-big-organization-problems-making-long-term-forecasts/>
- Johnson, Robert A. "Predicting Future War." *Parameters* 44(1) (Spring 2014): 65-76,
https://ssi.armywarcollege.edu/pubs/parameters/issues/Spring_2014/6_Johnson.pdf

Marine Corps Combat Development Command. *Marine Corps Operating Concepts for a Changing Security Environment*. Quantico, VA, 22134, March, 2006.

Marine Corps Warfighting Lab Futures Directorate. *2015 Marine Corps Security Environment Forecast: Futures 2030-2045*. Quantico, VA 22134, 2015.
<https://www.mcwl.marines.mil/Portals/34/Documents/2015%20MCSEF%20-%20Futures%202030-2045.pdf>

Marston, Daniel. *Force Structure for High-and Low-Intensity Warfare: The Anglo-American Experience and Lessons for the Future*. National Intelligence Council Global Context 2020 Project. Alexandria, VA: CNA Corporation, 2004.
http://www.offnews.info/downloads/2020force_structure.pdf

National Intelligence Council. *Global Trends 2030: Alternative Worlds*. Washington, DC, 20505, December 2012. https://www.dni.gov/files/documents/GlobalTrends_2030.pdf

National Intelligence Council. *Mapping the Global Future: Report of the National Intelligence Council's 2020 Project*. Washington, DC, 20505, December 2004.
https://www.dni.gov/files/documents/Global%20Trends_Mapping%20the%20Global%20Future%202020%20Project.pdf

Office of the Secretary of Defense. *The National Defense Strategy of The United States of America*. Washington, DC, 20301, March 2005.
https://history.defense.gov/Portals/70/Documents/nds/2005_NDS.pdf?ver=2014-06-25-124535-143

Office of the Secretary of Defense. *Unclassified Summary of the 2018 National Defense Strategy*. Washington, DC, 20301, 2018.
<https://dod.defense.gov/Portals/1/Documents/pubs/2018-National-Defense-Strategy-Summary.pdf>

Scales, Bob. *Scales on War: The Future of America's Military at Risk*. Annapolis, MD: Naval Institute Press, 2016.

Scharre, Paul. *Uncertain Ground: Emerging Challenges in Land Warfare*. CNAS Future of the Ground Forces Project. Washington, DC: Center for New American Security, 10 December 2015. https://s3.amazonaws.com/files.cnas.org/documents/CNAS-Report_Uncertain-Ground_151203-v02.pdf?mtime=20160906081918

Scharre, Paul and Shawn Brimley. "20YY: The Future of Warfare." *War on the Rocks*. 29 January 2014. <https://warontherocks.com/2014/01/20yy-the-future-of-warfare/>

U.S. Army Future Studies Group, Cohort IV. *The Character of Warfare 2030 to 2050: Technological Change, the International System, and the State*. Staff study, 2017.

U.S. Department of Defense. *Joint Operating Environment 2035*. Washington, DC: Joint Chiefs of Staff, July 2016.

Walonick, David S. "An Overview of Forecasting Methodology." 1993.
<http://www.statpac.org/research-library/forecasting.htm>