

Large-Scale Combat Operations, Casualties, and the All-Volunteer Force

A Monograph

by

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2019

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REPORT DOCUMENTATION PAGE

*Form Approved
OMB No. 0704-0188*

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1. REPORT DATE (DD-MM-YYYY) 23-05-2019	2. REPORT TYPE MASTER'S THESIS	3. DATES COVERED (From - To) JUNE 18-MAY 19
--	--	---

4. TITLE AND SUBTITLE Large-Scale Combat Operations, Casualties, and the All-Volunteer Force	5a. CONTRACT NUMBER
	5b. GRANT NUMBER
	5c. PROGRAM ELEMENT NUMBER

6. AUTHOR(S) MAJ David R. Jones, USA	5d. PROJECT NUMBER
	5e. TASK NUMBER
	5f. WORK UNIT NUMBER

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) U.S. Army Command and General Staff College ATTN: ATZL-SWD-GD Fort Leavenworth, KS 66027-2301	8. PERFORMING ORGANIZATION REPORT NUMBER
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9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) ADVANCED MILITARY STUDIES PROGRAM	10. SPONSOR/MONITOR'S ACRONYM(S)
	11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION/AVAILABILITY STATEMENT
Approved for Public Release; Distribution is Unlimited

13. SUPPLEMENTARY NOTES

14. ABSTRACT
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15. SUBJECT TERMS
Large Scale Combat Operations (LSCO), Casualties, All-Volunteer Force (AVF), Draft, Conscription, Volunteers

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT (U)	18. NUMBER OF PAGES 47	19a. NAME OF RESPONSIBLE PERSON
a. REPORT (U)	b. ABSTRACT (U)	c. THIS PAGE (U)			19b. TELEPHONE NUMBER (Include area code) 913 758-3300

Monograph Approval Page

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Monograph Title: Large-Scale Combat Operations, Casualties, and the All-Volunteer Force

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Abstract

Large-Scale Combat Operations, Casualties, and the All-Volunteer Force, by MAJ David R. Jones, USA, 47 Pages.

This monograph examines the origins of the current assumption that the All-Volunteer Force will be sufficient to meet all manpower requirements for the US Army in future conflicts and the risk inherent in that assumption.

More than forty years of US reliance solely on volunteers, combined with the absence of a peer threat, continuously eroded the notion of any possible situation requiring a draft. However, the increasing likelihood of inter-state conflict between the United States and adversaries with capabilities that meet or exceed its own should give pause and drive a reassessment of volunteer force capability. In armed conflict against a peer threat, historic data suggests that the US Army may incur a massive number of casualties. If conflict is short, such losses may be sustainable. However, if such a conflict lasts longer than anticipated, losses may quickly outpace the supply of volunteers and imperil prospects for victory. Whether or not the United States returns to the draft is a political decision, but the US Army should not continue to assume that volunteers alone will be sufficient to meet its manpower needs.

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Acknowledgements

I would like to give my sincere gratitude to my monograph advisor, Dr. Anthony E. Carlson, and seminar leader, COL Andrew Watson. Both provided excellent recommendations and guidance throughout the process and undoubtedly made this a better monograph. Additionally, thank you to my classmates who made the process more enjoyable and served as a great sounding board for ideas.

Most of all, I would like to thank my wife, Crystal. Her support throughout this process was simply amazing. I truly appreciate all of the extra time and effort she made to ensure I was able to complete this monograph.

Acronyms

ADP	Army Doctrine Publication
ADRP	Army Doctrine Reference Publication
AVF	All-Volunteer Force
BCT	Brigade Combat Team
DOD	Department of Defense
DOW	Died of Wounds
ETO	European Theater of Operations
FM	Field Manual
IRR	Individual Ready Reserve
KIA	Killed in Action
LSCO	Large-Scale Combat Operations
MEDEVAC	Medical Evacuation
WIA	Wounded in Action

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The All-Volunteer Force

For nearly fifty years, the United States has relied solely on volunteers to fill the ranks of its military. Although significantly strained at various points in its history, the All-Volunteer Force (AVF) has managed to provide the personnel necessary to support a wide range of military operations. Volunteers faced down the threat of Soviet attack until the collapse of the Soviet Union. They have manned positions in South Korea as a safeguard against North Korean aggression. From the 1980s to the 2000s, volunteers supported combat operations ranging from small-scale interventions in Grenada and Panama to major ground conflicts in the 1991 Gulf War and the 2003 Invasion of Iraq. The success of the AVF for more than a generation has firmly solidified volunteerism as the foundation of the US military today.¹

However, the relegation of the draft to the dustbin of history and an unwavering commitment to an AVF may underestimate risk in the decades to come. Despite past successes, the AVF never participated in a major conflict against a peer threat with capabilities that matched or exceeded its own. Yet current US Army doctrine and training priorities emphasize readiness to fight and prevail in large-scale combat operations (LSCO) against a peer as the most pressing imperative for the Army.² Underpinning LSCO is the assumption that all manpower needs will continue to be met by volunteers.³ This monograph explores the emergence of this assumption, the nature of LSCO, and the risk inherent in the assumption that the AVF is sufficient to meet the manpower requirements for the anticipated future operating environment.

¹ Donald H. Rumsfeld, foreword to *The All-Volunteer Force: Thirty Years of Service*, ed. Barbara A. Bicksler, Curtis L. Gilroy, and John T. Warner (Washington, DC: Brassey's Inc., 2004), vii-ix.

² US Department of the Army, *Field Manual (FM) 3-0, Operations* (Washington, DC: Government Printing Office, 2017), forward, ix, 1-1 to 1-5.

³ Brenda Farrell, *DoD Should Reevaluate Requirements for the Selective Service System* (Washington, DC: Government Accountability Office, 2012), 2; US Department of the Army, *TRADOC Pamphlet (TP) 525-3-1, The U.S. Army Operating Concept: Win in a Complex World, 2020-2040* (Washington, DC: Government Printing Office, 2014), 6; US Department of the Army, *TRADOC Pamphlet (TP) 525-3-1, The U.S. Army in Multi-Domain Operations, 2028* (Washington, DC: Government Printing Office, 2018), A-1.

A Brief History of the Draft in the United States

That the United States relies upon a volunteer force is by no means an historic anomaly. In the 235 years since the end of the Revolutionary War, the United States only enacted a draft during four separate periods, for a total of some 39 years. In March 1863, Congress passed the first authorization for a draft as manpower requirements for the Civil War exceeded the number of volunteers. Even with the new authority to draft, the government still received the majority of its manpower through volunteers, either true volunteers or those who were enticed by monetary or family reasons to volunteer in place of a draftee. In May 1917, the United States reinstated the draft to provide the uniformed personnel needed to meet the demands of the First World War. Upon conclusion of that conflict, the draft rapidly ended and the nation returned to a volunteer force.⁴

When Congress acted in 1863 and 1917 to impose conscription, the nation was at war in a major conflict. In 1940, Congress took the unprecedented step of authorizing a peacetime draft to prepare for the growing prospect of US involvement in an overseas war. The draft, not voluntary enlistment, constituted the primary source of US manpower during the Second World War with more than 10 million draftees serving in the conflict. When congressional authority for the wartime draft expired in 1947, the military found itself ill prepared to meet the growing Soviet threat due to a significant shortage of volunteers.⁵ As a result, in 1948, Congress again authorized a peacetime draft. In the 1960s, this last iteration of the draft became a driving force for political discontent and ultimately prompted the creation of the modern AVF.⁶

⁴ Watler Y. Oi, "Historical Perspectives on the All-Volunteer Force: The Rochester Connection," in *Professionals on the Front Line: Two Decades of the All-Volunteer Force*, ed. Eric J. Fredland, Curtis Gilroy, Roger D. Little, and W. S. Sellman (Washington, DC: Brassey's Inc., 1996), 38-40.

⁵ *Ibid.*, 40. The military took little action to prepare for the end of the draft, making the attempt almost certain to fail. This is in notable contrast to the steps taken in the early 1970s.

⁶ Bernard Rostker, *I Want You! The Evolution of the All-Volunteer Force* (Santa Monica, CA: RAND Corporation, 2006), 27, accessed August 02, 2018, <https://www.rand.org/pubs/monographs/MG265.html>.

Even though compulsory military service remains anomalous in the span of US history, since 1863 the draft has been the norm during periods of large-scale ground combat against peer threats or when the prospect of such conflict created an urgent need for peacetime preparedness.⁷ Therefore, the current push to prepare for LSCO, when combined with the assumption that volunteers will meet all manpower requirements during LSCO, does not align with historic norms. A brief examination of the decision to end the draft in 1973 and the history of the AVF provide insight into how the US military arrived at the current assumption of AVF suitability.

Creation of the All-Volunteer Force and the Standby Draft

We unanimously believe that the nation's interests will be better served by an all-volunteer force, supported by an effective stand-by draft, than by a mixed force of volunteers and conscripts.

— Thomas S. Gates, Chairman, President's Commission on an All-Volunteer Armed Force⁸

In the early 1960s, the combination of an increasingly large draft-eligible population and reduced military requirements led to a very small percentage of draft-eligible men called for military service. In light of the relatively limited use of the draft and under pressure from Congress, the Department of Defense (DOD) undertook a major study on military manpower in 1964. The study examined the feasibility of shifting the United States to a voluntary system, and the DOD ultimately reached a conclusion favoring elimination of the draft. However, the rapid increase in requirements for personnel in Vietnam led the DOD to withhold the study's release until 1966 over fears that it could imperil US efforts in Vietnam.⁹

Even if post-1965 manpower requirements in Vietnam precluded ending the draft, the growing unpopularity of the military intervention in Southeast Asia and the inequity inherent in

⁷ Although the Gulf War and the operations in Iraq and Afghanistan involved major commitments of US forces, the adversaries in those conflicts were by no means peer threats to the United States.

⁸ Thomas S. Gates to Richard M. Nixon, February 20, 1970, in *Report of the President's Commission on an All-Volunteer Force* (Washington, DC: Government Printing Office, 1970), iii.

⁹ Rostker, *I Want You*, 27-30.

not all eligible persons serving demanded action. To that end, on July 2, 1966, President Lyndon B. Johnson directed a presidential commission. The report of that commission, *In Pursuit of Equality: Who Serves When Not All Serve*, led to the creation of the national draft lottery and the reduction of available deferments.¹⁰ These changes were not enough to alter public hostility to the draft, particularly as the 1968 presidential election drew closer. News of the Tet Offensive, when combined with General William Westmoreland's March 1968 request for an additional 206,000 men in Vietnam and the draft requirements it would entail, only served to further hostility toward the draft.¹¹

Within this context, in a speech on October 17, 1968, Republican presidential candidate Richard Nixon made ending the draft a key policy of his campaign. He stated that the nation had lived with a draft for so long, "that too many of us now accept it as normal and necessary."¹² On March 27, 1969, President Nixon followed through on his campaign promise by announcing the creation of a committee to "develop a comprehensive plan for eliminating conscription and moving toward an all-volunteer armed force."¹³ Here, the wording was significant. Nixon did not ask for an assessment of the feasibility of a volunteer force or the risks of eliminating the draft. He had already arrived at the conclusion to end the draft, and simply wanted an independent assessment of how to do so. Thomas S. Gates, a former secretary of defense, served as chair of

¹⁰ Rostker, *I Want You*, 30-31; Oi, "Historical Perspectives on the All-Volunteer Force: The Rochester Connection," 46.

¹¹ Ronald H. Spector, *After Tet: The Bloodiest Year in Vietnam* (New York: Vintage Books, 1994), 5-10.

¹² Martin Anderson, "The Making of the All-Volunteer Force," in *The All-Volunteer Force, Thirty Years of Service*, ed. Barbara A. Bicksler, Curtis L. Gilroy, and John T. Warner (Washington, DC: Brassey's Inc., 2004), 18.

¹³ Richard M. Nixon, statement on March 27, 1969 in *Report of the President's Commission on an All-Volunteer Force* (Washington, DC: Government Printing Office, 1970), vii.

the committee boasting a diverse mix of leaders with military, government, academic, and business backgrounds.¹⁴

In early 1970, the so-called Gates Commission reached a unanimous conclusion that a volunteer force would best serve the interests of the nation. The primary argument supporting this conclusion was economic. According to the Commission's logic, the use of conscription was simply a form of taxation and payment of that tax unfairly rested upon the nation's young male population. In addition, draftees also suffered from underpayment for their labor. Because the nation could impose draft laws at any time, there was no requirement to make compensation for military service on par with what would have been required to induce citizens to volunteer for such service. The Gates Commission argued that providing appropriate compensation would allow the military to sustain personnel requirements through volunteers, eliminate the inequities inherent in the draft, and economize costs for American taxpayers.¹⁵

Even though the Gates Commission supported a transition to an AVF, it did not dismiss conscription's utility and included statements to that effect in its report. The report stated, "We cannot foresee the shape of future threats to the security of the United States, and prudence requires that provision be made for mobilizing civilian manpower by conscription if necessary."¹⁶ To that end, the Commission proposed a three-tiered system of active duty forces, reserve forces, and a stand-by draft. The purpose of the reserves was to reinforce the active force, and the stand-by draft to provide raw manpower should financial incentives prove insufficient to persuade a sufficient number of volunteers to serve.¹⁷ This very system continues today with the Army's

¹⁴ Rostker, *I Want You*, 66-67; Frederick B. Dent, "Reflections from the Gates Commission," in *The All-Volunteer Force: Thirty Years of Service*, ed. Barbara A. Bicksler, Curtis L. Gilroy, and John T. Warner (Washington, DC: Brassey's Inc., 2004), 8-9.

¹⁵ *Report of the President's Commission on an All-Volunteer Force* (Washington, DC: Government Printing Office, 1970), 19-20, 23-24, 27-30.

¹⁶ *Ibid.*, 154.

¹⁷ *Ibid.*, 120, 154.

total force of active, reserve, and guard components, along with the existence of the Selective Service System. Even though a stand-by draft system as recommended by the Gates Commission exists, once the military made the transition to the AVF there has been a steady erosion in the idea of any situation ever requiring a return to the draft. Over time, this erosion led to the current assumption inherent in US Army doctrine that even during LSCO the AVF will be able to meet manpower requirements.

From 1973 to Today: Arriving at the Current Paradigm

The United States' reliance on the AVF has been the norm for so long that it too is now the accepted paradigm. Army doctrine emphasizes this point, describing the AVF as "our greatest strategic asset," rejecting conscripts as unsuited to the demanding and complex contemporary operating environment, and discussing the draft only as an aspect of Army history with no mention of possible future use.¹⁸ For the broader DOD, the stated position is that the AVF remains sufficient to meet all manpower needs and that no plans exist that envision the reauthorization of a draft.¹⁹ Furthermore, while the DOD insists that the Selective Service System is an insurance policy for the unknown, it has not undertaken any review of potential draft manpower and timing requirements since 1994.²⁰ Within the legislative branch, the most recent bill to reinstate the draft made it to the House of Representatives in 2004. Even amidst the significant manpower requirements for operations in Iraq and Afghanistan, the bill failed 402 to

¹⁸ US Department of the Army, *Army Doctrine Publication (APD) 1, The Army* (Washington, DC: Government Printing Office, 2012), 4-6, B-5 to B-6.

¹⁹ Farrell, *DoD Should Reevaluate Requirements for the Selective Service System*, 2; Martin E. Dempsey, *The National Military Strategy of the United States of America* (Washington, DC: Government Printing Office, 2015), 7. Active, Reserve, and National Guard "provide the force depth needed to achieve victory while simultaneously deterring other threats."

²⁰ *Ibid.*, 1.

2. ²¹ Though the AVF is firmly entrenched as the way the military meets its manpower needs, this was by no means a foregone conclusion in 1973.

There is little question that the AVF encountered significant growing pains in its early years. Indeed, Nixon faced notable opposition from members of Congress, the military, and many of his own national security advisors.²² It was not simply differences of opinion that triggered the opposition. Having operated under a peacetime draft since 1947, the military lacked many of the authorities and organizational structures necessary to enable recruiting true volunteers. These shortcomings manifested themselves throughout 1973 as the DOD struggled to meet recruitment quotas and had to accept lower quality standards for new recruits. Despite these challenges, the DOD quickly turned the tide with all services exceeding recruiting goals by fiscal year 1975.²³

However, the increasing financial costs associated with meeting recruiting goals led many members of Congress, the press, and the American public to mull returning to the draft. In the mid-1970s, Congress declined to reinstate the draft but also imposed significant cuts to personnel compensation and recruiting, undermining the nascent AVF. By 1979, all services again failed to meet their recruiting goals for active forces and experienced significant manning shortfalls for medical occupations and the reserve components. Of those recruited, the quality declined dramatically from previous years.²⁴ The challenges were such that in 1979, polling

²¹ Bernard Rostker, *What to Do with the Selective Service System, Historical Lessons and Future Posture* (Santa Monica, CA: RAND Corporation, 2018), 2, accessed August 03, 2018, <https://www.rand.org/pubs/perspectives/PE197.html>.

²² Anderson, "The Making of the All-Volunteer Force," 15.

²³ Rostker, *I Want You*, 273-285; Gordon R. Sullivan, "The Volunteer Force and the Burden of Peace," in *Professionals on the Front Line: Two Decades of the All-Volunteer Force*, ed. J. Eric Fredland, Curtis Gilroy, Roger D. Little, and W. S. Sellman (Washington, DC: Brassey's Inc., 1996), 29. Among the challenges described by Rostker include the lack of legal authorities over the qualitative standards for new recruits, personnel compensation, and advertising budgets. Additionally, lack of organizations within the DOD to conduct analytic efforts for manpower planning and market research as well as competition between service branches for the same population of possible recruits compounded challenges.

²⁴ Rostker, *I Want You*, 291-299, 301-302, 383-384, 386. Congress created the Defense Manpower Commission on November 16, 1973 to assess the increasing costs of military manpower.

indicated a 45 percent national approval for the draft's return.²⁵ Even former President Nixon, who championed the creation of the AVF, called it a failure and said the nation should return to the draft.²⁶

At the same time, in 1979, the Soviet Union invaded Afghanistan. This significantly raised the prospect of major war and the possibility of large-scale mobilization. With weakened active and reserve forces due to recruiting quantity and quality shortfalls, the only available options for securing additional personnel if war erupted were pre-trained manpower pools or post-trained individuals (those trained after mobilization through a draft). The pre-trained manpower pool, though large in the early-to-mid 1970s, experienced a rapid decline as draftees timed out of the Individual Ready Reserve (IRR).²⁷ The post-trained manpower pool existed in theory, but the nation suspended draft registration in 1975 and the Selective Service was not in a position to support mobilization requirements in the late 1970s.²⁸

Rather than concede defeat, Congress took action to remedy the shortcomings. After President Jimmy Carter's call during the 1980 State of the Union Address to revitalize the Selective Service System, Congress approved legislation to create the system still in use today.²⁹ Additionally, Congress provided military pay raises of 11.7 percent and 14.3 percent for the 1981 and 1982 budgets, respectively. By 1982, all services met their recruitment targets, discipline issues in the military dropped dramatically, and Selective Service registration compliance rates

²⁵ Robert F. Hale, "Congressional Perspectives on Defense Manpower Issues," in *The All-Volunteer Force after a Decade: Retrospect and Prospect*, ed. William Bowman, Roger Little, and G. Thomas Sicilia (Washington, DC: Pergamon-Brassey's, 1986), 238.

²⁶ Rostker, *I Want You*, 303.

²⁷ John R. Brinkerhoff and David W. Grissmer, "The Reserve Forces in An All-Volunteer Environment," in *The All-Volunteer Force after a Decade: Retrospect and Prospect*, ed. William Bowman, Roger Little, and G. Thomas Sicilia (Washington, DC: Pergamon-Brassey's, 1986), 221-225. The IRR strength of the US Army dropped from 1.06 million in 1972 to 206 thousand in 1979.

²⁸ Rostker, *I Want You*, 426-427.

²⁹ James E. Carter, State of the Union Address, January 21, 1980, The Jimmy Carter Presidential Library, accessed November 10, 2018, <https://www.jimmycarterlibrary.gov/assets/documents/speeches/su80jec.phtml>.

surged into the mid-90 percent range (compared to only the mid-70 percent range during the Vietnam War).³⁰ At a conference to discuss the AVF at its ten-year birthday, then Secretary of Defense Caspar Weinberger remarked that, “The experiment is over...an All-Volunteer force can succeed, and we know what it takes to make it succeed.”³¹

Many of the conference participants concurred with the position of Secretary Weinberger, but some cautioned that a return of recruiting troubles could reignite the debate over the AVF.³² More interesting is the shared position among nearly all contributors to the conference regarding draft registration, the Selective Service System, and the draft in the event of a major war. Participants expressed overwhelming support for registration and maintenance of strong standby draft machinery. This position mirrored statements by the Chairman of the Joint Chiefs of Staff, General John Vessey, Jr., and the Chief of Staff of the Army, General John Wickham, Jr., that the military would require compulsory service in a time of war.³³

If the AVF’s first decade validated its ability to sustain manpower requirements during peacetime, the second decade tested it in the crucible of combat. The US military conducted numerous operations from 1983 to 1992, including involvement in Lebanon, Operation Urgent Fury in Grenada, Operation Just Cause in Panama, and Operations Desert Shield and Desert Storm in the Middle East. While each of these operations served as a testing ground of the AVF, there is no question that Desert Shield and Desert Storm solidified the AVF as a proven concept to most observers.

³⁰ Rostker, *I Want You*, 448 and 503.

³¹ Caspar Weinberger, “The All-Volunteer Force in the 1980s: DoD Perspective,” in *The All-Volunteer Force after a Decade: Retrospect and Prospect*, ed. William Bowman, Roger Little, and G. Thomas Sicilia (Washington, DC: Pergamon-Brassey’s, 1986), 5.

³² William Bowman, Roger Little, and G. Thomas Sicilia, eds., *The All-Volunteer Force after a Decade: Retrospect and Prospect* (Washington, DC: Pergamon-Brassey’s, 1986), x.

³³ John G. Kester, “The Reasons to Draft,” in *The All-Volunteer Force after a Decade: Retrospect and Prospect*, ed. William Bowman, Roger Little, and G. Thomas Sicilia (Washington, DC: Pergamon-Brassey’s, 1986), 292.

At the AVF's twenty-year conference, multiple participants insisted that the Persian Gulf War validated it as a resounding success. Unlike at the ten-year conference, conferees also declared the draft obsolete. Two major factors contributed to this sentiment. First, the ability to commit large numbers of active, reserve, National Guard, and IRR forces to the Gulf, combined with the decisive victory, seemed to prove that forces-in-being were more than able to fight and win without breaking the AVF. Second, the 1991 demise of the Soviet Union vastly reduced the prospect of large-scale conflict.³⁴

However, this second factor also served as the justification for a major reduction in the size of the US military throughout the 1990s. In 1989, the Army's total strength approximated 1.83 million, with 770,000 in the active component, 467,000 in the National Guard, and 594,000 in the reserves.³⁵ By 2000, total strength dropped to approximately 1 million with 480,000 active, 350,000 National Guard, and 205,000 reserves.³⁶ For 2019, authorized US Army end-strength remains little changed from that in 2000.³⁷ This means any assessment of AVF suitability for LSCO based upon the Persian Gulf War experience should be suspect since that conflict occurred with an army nearly twice its current size.

At the time of the thirty-year conference on the AVF in late 2003, US military forces remained in Afghanistan and were deeply involved in operations in Iraq. Though participants in the conference expressed a firm commitment to the AVF, uncertainty over its suitability for

³⁴ Edwin Dorn, "Sustaining the All-Volunteer Force," in *Professionals on the Front Line: Two Decades of the All-Volunteer Force*, ed. J. Eric Fredland, Curtis Gilroy, Roger D. Little, and W. S. Sellman (Washington, DC: Brassey's Inc., 1996), 20; Oi, "Historical Perspectives on the All-Volunteer Force," 48-49; Maxwell R. Thurman, "On Being All You Can Be: A Recruiting Perspective," in *Professionals on the Front Line: Two Decades of the All-Volunteer Force*, ed. J. Eric Fredland, Curtis Gilroy, Roger D. Little, and W. S. Sellman (Washington, DC: Brassey's Inc., 1996), 55; Rostker, *I Want You*, 532.

³⁵ John Sloan Brown, *Kevlar Legions: The Transformation of the U.S. Army, 1989-2005* (Washington, DC: US Army Center of Military History, 2011), 38.

³⁶ National Defense Authorization Act for Fiscal Year 2000, Public Law 106-65, 106th Cong., 401,411.

³⁷ John S. McCain National Defense Authorization Act for Fiscal Year 2019, Public Law 115-232, 115th Cong., 401, 411.

sustained combat began to show. Dr. David S. C. Chu, the Under Secretary of Defense for Personnel and Readiness, expressed concerns over managing stress on the force and its ability to conduct prolonged operations. He pointed out that the Gates Commission offered up reserve force call-ups as the means to provide manpower for sustained operations, but “the report does not address what to do after that.”³⁸

On that point, Dr. Chu was wrong. The Gates Commission clearly supported the draft to provide manpower for major combat, but by the early 2000s, reliance on a volunteer-only force was firmly entrenched. Neither Dr. Chu, nor any other participant at the thirty-year conference, discussed the draft as a possible solution to the manpower challenges. Belief in the AVF was such that even the use of stop-loss and IRR recalls received significant condemnation from the American public as a backdoor draft not in the spirit of the AVF.³⁹

Despite the challenges of the 2000s, the strain on the AVF from Iraq and Afghanistan was not enough to break it and force a return to conscription. In that respect, the recent experience with the Global War on Terrorism serves as a perceived final validation of the AVF. Multiple presenters at the forty-year conference in 2014 remarked on this point. To them, even though the number of casualties was notably lower than major conflicts of the past, the duration was already longer than any other US conflict with no clear end in sight. At the same conference, presenters were also quick to dispel any notion of returning to a draft, even in the event of a major war mirroring the scale of the Second World War.⁴⁰ Simply put, by the time the AVF reached its

³⁸ David S. C. Chu, “Looking Ahead: The 40th Anniversary,” in *The All-Volunteer Force: Thirty Years of Service*, ed. Barbara A. Bicksler, Curtis L. Gilroy, and John T. Warner (Washington, DC: Brassey’s, Inc., 2004), 351.

³⁹ Rostker, *I Want You*, 694-696.

⁴⁰ David S. C. Chu, “Current Issues and Future Challenges of the All-Volunteer Force,” Discussion panel, *The All-Volunteer Force: A Symposium in Honor of Walter Oi*, Center for Naval Analyses, Arlington, VA, September 23, 2014, accessed October 30, 2018, https://www.cna.org/CNA_files/PDF/all-volunteer-force/Chu-Panel-Presentation-and-Slides.pdf.

fortieth birthday, there was no longer any belief in anything other than a volunteer military. Conscription in the United States now belonged only to the past.

A Vision of Future Conflict: Large-Scale Combat Operations

The contemporary National Security Strategy, National Defense Strategy, and Army doctrine present a unified narrative about the anticipated nature of future military conflict. After decades of US global hegemony with violent extremist organizations and rogue states as the country's greatest challenges, strategy and doctrine foresee a rapidly shifting tide toward inter-state competition. In that realm, China and Russia stand as the greatest global threats to the United States, with Iran and North Korea as major regional powers challenging US interests. Each of these state actors, to varying degrees of magnitude, possess an ever-increasing ability to contest US dominance across all domains – air, maritime, land, space, and cyberspace.⁴¹ Although the stated US intent is to counter the threats without major war, prudent policy requires that the US military be prepared to fight and win across all domains against an enemy with capabilities that meet or exceed its own.⁴²

In this context, the US Army Field Manual (FM) 3-0, *Operations* solidified in doctrine the concept of LSCO. According to that manual, LSCO represents “major operations and campaigns aimed at defeating an enemy’s armed forces and military capabilities in support of national objectives.”⁴³ Even though the Army conducted major operations in Iraq and Afghanistan, the nature of LSCO described in the manual represents a significant departure from the conflicts faced by the Army over the past thirty years.

⁴¹ James N. Mattis, *Summary of the 2018 National Defense Strategy of the United States of America* (Washington, DC: Government Printing Office, 2018), 1-3; Donald J. Trump, *National Security Strategy of the United States of America* (Washington, DC: The White House, 2017), 2.

⁴² Trump, *National Security Strategy*, 28-29; US Army, *The U.S. Army in Multi-Domain Operations*, iii. This monograph is not an assessment of the likelihood of LSCO. Rather, it assumes the proposition as fact and assesses the assumption of the suitability of the AVF for such a conflict.

⁴³ US Army, *FM 3-0 (2017)*, 1-1.

In the land domain, the Army envisions LSCO involving one or more corps, possibly operating under a field army, maneuvering against an enemy with similarly large forces possessing equivalent or superior capabilities.⁴⁴ Though the United States employed such large-scale formations against Iraq in 1991 and 2003, the difference between those conflicts and LSCO rests with adversary capabilities.

Likely adversaries in future conflicts may have the capability through irregular forces and long-range fires to target Army forces at home station, in transit to theater, and at ports of debarkation.⁴⁵ Once in theater, Army forces would be subject to attacks from the enemy integrated fires complex where enemy cannon, rocket, and missile artillery vastly outnumber and outrange US capabilities.⁴⁶ The contest over control of the air and sea also places US forces at risk from attacks originating in those domains. As part of these attacks, US adversaries are likely to incorporate chemical, biological, or nuclear weapons to target ground forces.⁴⁷

Where US Army forces meet the enemy on the battlefield, the close fight will look significantly different from anything in recent memory. The fight is likely to occur in urban terrain where cover, concealment, and non-combatant considerations further degrade US advantages, potentially limiting options for fires employment.⁴⁸ Adversary possession of advanced technologies, including unmanned aircraft, anti-tank missiles, and air defense systems, will enable them to target US formations, defeat modern armored vehicles, and neutralize US air

⁴⁴ US Army, *FM 3-0* (2017), 2-11.

⁴⁵ *Ibid.*, 1-4.

⁴⁶ Thomas G. Bradbeer, introduction to *Large-Scale Combat Operations Series*, vol. 3, *Lethal and Non-Lethal Fires: Historical Case Studies of Converging Cross-Domain Fires in Large-Scale Combat Operations*, ed. Thomas G. Bradbeer (Ft. Leavenworth, KS: Army University Press, 2018), xi.

⁴⁷ US Army, *FM 3-0* (2017), 1-4.

⁴⁸ *Ibid.*, 5-5 to 5-6.

operations. In the close fight, these threat capabilities mean the United States must expect massive casualties and the loss of entire units.⁴⁹

In a further departure from recent experience where large-scale ground operations were of short duration and limited intensity, the Army views it as unlikely that campaigns will achieve a swift end. To the Army, this means that it must be prepared to endure “intense, lethal, and brutal” fights that may span months to years rather than the days to weeks of Desert Storm and the initial 2003 invasion of Iraq.⁵⁰

Preparing for this future operational environment is what US Army and DOD leadership holds as the most urgent imperative for US forces. To prepare, there is a significantly increased emphasis on personnel and equipment readiness. Additionally, there is an unmistakable shift in the Army away from a sole focus on counterinsurgency operations and rotational deployments. Instead, Army forces are training to deploy, fight, and win against a peer threat.

Research Question and Hypothesis

In his introduction to *The U.S. Army in Multi-Domain Operations, 2028*, on the topic of ensuring the ability to win in future conflicts, US Army Chief of Staff General Mark A. Milley states that, “we must challenge our underlying assumptions.”⁵¹ Similarly, in his forward to the *US Army Large-Scale Combat Operations Series*, Lieutenant General Michael Lundy, the commanding general of the Combined Arms Center at Fort Leavenworth, emphasizes that the US Army is in the midst of an attempted change in culture from a contingency operation focus to peer-competition and LSCO. Despite significant adjustments to Army doctrine to reflect the

⁴⁹ Peter J. Schifferle, introduction to *Large-Scale Combat Operations Series*, vol. 2, *Historical Case Studies of Combined Arms Maneuver in Large-Scale Combat Operations*, ed. Peter J. Schifferle (Ft. Leavenworth, KS: Army University Press, 2018), xi.

⁵⁰ US Department of the Army, *Army Doctrine Publication (ADP) 3-0, Operations* (Washington, DC: Government Printing Office, 2017), 4; US Army, *FM 3-0* (2017), 1-2.

⁵¹ Mark A. Milley, foreword to US Department of the Army, *TRADOC Pamphlet (TP) 525-3-1, The U.S. Army in Multi-Domain Operations, 2028* (Washington, DC: Government Printing Office, 2018).

renewed focus on major combat in order to drive cultural change, one significant aspect of Army culture remains consistent: a commitment to an AVF.

Reliance on the AVF remains not simply officially unchallenged, but wholeheartedly endorsed as sufficient to meet LSCO manpower requirements.⁵² In the very publication where General Milley calls on the force to challenge underlying assumptions, the first listed baseline assumption is, “the U.S. Army will remain a professional, all-volunteer force, relying on all components of the Army to meet future commitments.” This assumption remains unchanged from the 2014 *U.S. Army Operating Concept*, reflecting a continuation of support about AVF capability dating to at least the Gulf War and the collapse of the Soviet Union.

This monograph argues that as the likelihood of LSCO against a peer-threat increases, the United States must no longer assume that volunteerism is sufficient to meet manpower requirements. Casualties during LSCO are likely to outpace the DOD’s ability to regenerate forces through volunteers. If predictions of inter-state conflict come true and the next war is short, the US military may prevail but could require significant time to rebuild the force. If the war follows historic trends for large-scale combat and is long, a failure to consider a draft, combined with mounting losses, may prevent US victory. While this is not a call for a return to the draft, it is a call to be prepared for that contingency and to make such preparations openly.

To test this hypothesis, this monograph examines both historic information on casualties during major combat operations and factors influencing willingness and availability of volunteers. This data will make it possible to assess the impact of casualties in future LSCO and the ability of the US Army, through various force management tools, to sustain operations despite losses.

⁵² US Army, *The US Army in Multi-Domain Operations, 2028*, A-1; US Army, *Win in a Complex World, 2020-2040*, 6.

Casualties during Large-Scale Combat Operations

The basis of any assessment of the suitability for the volunteer force during LSCO must be an estimation of the number and rate of personnel losses during a future war. The assumption of volunteer force suitability relies upon two related conditions. First, that combat losses are small enough that there will be no degradation of capability that threatens mission accomplishment. Second, that the use of voluntary recruitment or grey zone volunteerism (stop-loss, retiree recalls, IRR recalls, etc.) is sufficient to mitigate or replace any losses that degrade capability to the point of threatening victory.

Unfortunately, there are significant challenges associated with any attempt to estimate casualties in future conflicts. Any estimate represents a “best guess” based upon historic data and experience, combined with predictions of the impact of a multitude of factors including, but not limited to, technology, force structure, and geography. Because of the vastness of the inputs that determine resultant casualties, it would be misguided to suggest anyone can ever predict with precision or certainty losses in future conflict. The best hope is an estimation that proves to be within as small of a margin of error as possible, and therein lies the challenge.

Any data used to form an estimate of casualties during LSCO is subject to criticism. The vastness of data from past conflicts and the unknowns of future conflict provide countless arguments both for and against AVF suitability. Those seeking to defend AVF suitability need only argue that casualties will be low, that the war will be too short for casualties to matter, or that popular support is sufficient to keep the ranks filled with volunteers. Indeed, all or any of these arguments may prove correct, but each is an assumption that carries incredible risk if wrong. The attempt here is to accept as true the nature of LSCO described in doctrine, and present information based on historic combat experience to describe what the future might resemble. However, what historic information is relevant?

Since the end of the Korean Conflict, there are only a limited number of examples of major ground wars between near-peer adversaries. The Six-Day War (1967) and Yom Kippur

War (1973) were simply too short of duration to serve as an honest comparison to major interstate conflict. The Iran-Iraq War, while both large-scale and lengthy, proves difficult to assess due to a lack of authoritative data on operations and casualties. American conflicts after 1953 simply fail to meet the description of LSCO in present doctrine. Vietnam was large-scale, but the United States held unquestioned dominance of the air and maritime domains. The same holds true for actions against Iraq in 1991 and 2003.

Because of the lack of conflicts after 1953 conforming to the doctrinal description of LSCO, it is necessary to turn to World War II and Korea to glean data on casualties during LSCO. This data takes the form of historic examples, aggregate statistics, and casualty estimates in prior US Army doctrine based on those experiences. This information combines to paint a picture of what casualties in LSCO might look like, but requires additional information in two areas. First, how the increased range, accuracy, and lethality of adversary fires since World War II may actually make casualties far worse. Second, how the medical system that dramatically reduced rates of killed in action (KIA) during Vietnam and the Global War on Terrorism may be an anomaly not applicable in LSCO.

Historic Examples

This study relies upon two examples from World War II, the British Eighth Army's Operation Crusader in North Africa and the US Army's 80th Division in the European theater. These examples are by no means definitive guides for casualty figures in LSCO, nor do they seek to provide detailed analyses of battles. Rather, they seek to inform the preset topic under consideration. Operation Crusader provides a close parallel to the view of LSCO based on the size and capabilities of the forces involved. One British field army consisting of two corps fighting for three weeks against similarly sized and equally capable Axis forces. The 80th Division is an example of casualties for a division engaged in fighting against a peer threat over

the course of many months, showing the accumulation of casualties over time when a rapid end state is not met.

Operation Crusader: A Clash of Field Armies in North Africa

Operation Crusader represented a British attempt to relieve encircled British forces at Tobruk and drive Axis forces from much of Cyrenaica in Northern Africa. Assessed as a British victory, the operation came at a notable cost of men and materiel on both sides.

In July 1941, following the failure of the British offensive in Operation Battleaxe and with British forces besieged at Tobruk, Prime Minister Winston Churchill sought resumption of offensive operations against Rommel in North Africa. To Churchill, swift resumption of the offense was critical for two reasons. First, the longer the delay, the greater the risk to the encircled British forces in Tobruk. Second, the German invasion of Russia carried significant opportunity and risk to the British effort in North Africa. The opportunity arose from the German diversion of massive resources to the Russian front, thereby weakening their forces in the Mediterranean. Risk arose from the potential of German success against Russia, jeopardizing British military basing in Syria. At the time, it was unclear how long Russia would hold out and how long Britain had to take advantage of the situation.⁵³

Despite Churchill's push for quick action, the British commander for North Africa, General Claude Auchinleck, set multiple preconditions for the resumption of offensive action. These included: the arrival of significant reinforcements, British air superiority in the region, a lack of German reinforcements, and no German movement toward British basing in Syria. Based on these conditions, Auchinleck delayed the start of Operation Crusader until mid-November 1941.⁵⁴

⁵³ John Strawson, *The Battle for North Africa* (New York: Charles Scribner's Sons, 1969), 69-72.

⁵⁴ W.G.F. Jackson, *The Battle for North Africa: 1940-1943* (New York: Mason/Charter, 1975), 171.

The British possessed several significant advantages leading up to the start of the operation. In the preceding months, British air and naval forces were able to limit the flow of Axis resupplies. By October 1941, Germany lost some 63 percent of the tonnage of supplies it had dispatched to North Africa. Thus, while Axis units in North Africa suffered supply shortages, the British forces suffered no such issues. Additionally, the British possessed significantly more serviceable aircraft in theater than the Axis (530 British to 342 Axis) and had a near 2-to-1 superiority in medium tanks (610 British to 330 Axis), with another 420 British tanks in reserve or enroute as replacements.⁵⁵

When British forces began their offensive action on November 18, 1941, the order of battle consisted of one field army (Eighth Army) with two subordinate corps (XIII Corps and XXX Corps). Each corps consisted of 2-3 divisions and multiple separate brigades or brigade groups. Opposing Axis forces consisted of three corps (Afrika Corps, Italian Mobile Corps, and the Italian XXI Corps), each with multiple divisions. Total personnel tallied 118,000 for the British and 119,000 for the Axis, with 65,000 of those troops German and 54,000 Italian.⁵⁶

Despite British superiority in supply, armored vehicles, and air superiority, Crusader became a three-week back and forth battle of attrition over the open desert. Ultimately, the Axis logistical shortcomings proved decisive, forcing Rommel to withdraw his forces to Tripoli. The cost of the operation equaled 17,700 British casualties and 38,300 Axis casualties, representing 15% and 32% of total forces involved, respectively.⁵⁷

This experience in the North African desert helps inform perceptions of what casualties in future LSCO may resemble. Even with secure lines of communication, basing, and air superiority, a field army suffered 15% losses in three weeks against a peer. Yet the US Army view of LSCO anticipates a scenario where the US Army may fight at a disadvantage against a

⁵⁵ Strawson, *The Battle for North Africa*, 72; Jackson, *The Battle for North Africa*, 184-189.

⁵⁶ Jackson, *The Battle for North Africa*, 188-191.

⁵⁷ *Ibid.*, 227.

peer at the outset of a conflict with no air superiority, a lack of secure basing, and enemy action threatening lines of communication. In this way, the experience of the Axis, with its loss of one-third of its engaged forces in three weeks, may prove more representative.

80th Infantry Division in the European Theater

The experience of the 80th Infantry Division during World War II provides a view of what casualties could look like during LSCO when combat against a peer unfolds over many months. While the historical example surveyed the British Eighth Army over the span of one operation, this example looks at casualties sustained by the 80th for the duration of its part of the war. In the case of the 80th, the timeframe covered the period from August 1944 through the end of the war in Europe in May 1945.

Activated on July 15, 1942, the 80th Division deployed to Europe in July 1944 under the command of Major General Horace L. McBride, and joined action in France as part of Lieutenant General George S. Patton, Jr.'s Third Army.⁵⁸ Though the specific details of the division's operations are beyond the scope of this study, a brief mention of its path across Europe provides relevant context.

In August 1944, the division reached France and quickly joined the fight out of Normandy. Following initial action near Argentan, the 80th served as part of Patton's rapid advance to the east, reaching the banks of the Moselle by early September. After fighting to establish then defend a bridgehead at the Moselle, the division participated in operations to envelop Metz and advance toward the Siegfried Line. Though taken off the line to recover in early December, the German offensive in the Ardennes forced the 80th back into combat in

⁵⁸ Berry Craig, *80th "Blue Ridge" Infantry Division*, ed. Edgar E. Bredbenner and Robert T. Murell (Paducah, TN: Turner Publishing Company, 1991), 11-16; Paul P. Cheval, "The 80th Division's Crossing of the Moselle River: A Case Study in Combined Arms Maneuver," in *Large-Scale Combat Operations Series*, vol. 2, *Bringing Order to Chaos: Historical Case Studies of Combined Arms Maneuver in Large-Scale Combat Operations*, ed. Peter J. Schifferle (Ft. Leavenworth, KS: Army University Press, 2018), 107.

Luxembourg. In 1945, the division crossed the Siegfried Line and the Rhine. It then continued its advance across Germany, into Austria, and finally into Czechoslovakia by early May 1945.⁵⁹

What is important here are the casualties relative to the division's strength as it conducted operations across Europe. At the beginning of August 1944, the unit consisted of 13,943 men out of a total authorization of just over 14,000. Throughout the course of its nine months fighting across Europe, the division reported 2,924 KIA and 393 died of wounds/injuries. Of those wounded, 2,951 were seriously wounded/injured and 9,557 were lightly wounded/injured (see Table 1). Additionally, between 1,500 and 3,000 were missing or captured. Omitting the lightly wounded, in nine months of combat operations the division sustained nearly 70% losses.⁶⁰

Table 1. Losses in Action, 80th Infantry Division during World War II

	Aug-44	Sep-44	Oct-44	Nov-44	Dec-44	Jan-45	Feb-45	Mar-45	Apr-45	May-45	Totals
Total Strength (Start of Month)	13,943	13,896	15,082	14,531	12,847	13,755	13,947	13,824	14,076	14,312	14,021 (Avg)
Killed in Action	91	412	418	467	301	340	421	236	198	40	2,924
Died of Wounds/Injuries	2	66	75	46	61	67	27	26	21	2	393
Seriously Wounded / Injured	290	842	285	546	263	272	251	101	100	1	2,951
Lightly Wounded / Injured	134	1,321	851	2,410	1,051	1,500	1,293	536	446	15	9,557
Captured	16	0	0	1	0	0	0	0	0	0	17
Missing in Action	33	556	569	373	695	335	396	170	145	16	3,288
Total Losses	566	3,197	2,198	3,843	2,371	2,514	2,388	1,069	910	74	19,130
Total Less Lightly Wounded / Injured	432	1,876	1,347	1,433	1,320	1,014	1,095	533	464	59	9,573
Percentage of Total Strength (Less Lightly Wounded / Injured)	3.1%	13.5%	8.9%	9.9%	10.3%	7.4%	7.9%	3.9%	3.3%	0.4%	68.3%

Source: US Department of War, *Operational History of the 80th Infantry Division*, 80th Division Digital Archives Project, accessed November 10, 2018, <http://www.80thdivision.com/WebArchives/OperHistory.htm>.

⁵⁹ Craig, *80th "Blue Ridge" Infantry Division*, 15-57; US Department of War, *Operational History of the 80th Infantry Division*, 80th Division Digital Archives Project, accessed November 10, 2018, <http://www.80thdivision.com/WebArchives/OperHistory.htm>. Craig's post-war work provides a detailed, single document review of the unit's history while the *Operational History* contains the monthly unit reports compiled during the war.

⁶⁰ US Department of War, *Operational History of the 80th Infantry Division*. Casualty data for each month listed in the monthly supplemental data documents available in the archive. Of note, the division-level data lists very few as captured while regimental reports show larger numbers as captured and fewer as missing. Because not all regimental reports for all months are available, this study relies on the division-level report despite the likely errors.

The importance of this example rests with the relative averageness of the experience of the 80th Division. The unit hardly suffered the most casualties of any US division in Europe, nor did it suffer the least. However, like many divisions, the 80th fought across Western Europe almost continuously from the time it arrived in France in 1944 until the German surrender in May 1945. To that end, the 80th provides an example of what casualties in such a fight may look like.

Statistical Data

For the US Army in the European Theater of Operations (ETO) from June 1944 through May of 1945, the average casualty figures across all forces in theater was 44 KIA and 152 wounded in action (WIA) per 1,000 soldiers per year.⁶¹ This average equated to just 0.05 percent per day. Yet the aggregate figure for the entire theater disguised significantly higher casualty rates in combat units.

For a US corps in combat during World War II, casualties averaged 0.4-0.6 percent per day. For a division, casualties approximated 1.0 percent per day. Below the division level, casualty rates increased dramatically. Regiments averaged 2.6 percent per day and battalions 9.5 percent per day.⁶² This higher proportion of casualties in small combat formations meant that some 72.4 percent of combat losses in the ETO were infantry soldiers with another 13.6 percent from armor, field artillery, cavalry, and tank destroyer units. Very few numbers of the ETO's total casualties were from soldiers in support roles.⁶³

The United States experienced a similar concentration of casualties in combat units during the Korean War. Although the aggregate losses for July 1950 to July 1953 tallied just 30

⁶¹ US Department of the Army, *Battle Casualties and Medical Statistics: U.S. Army Experience in the Korean War* (Washington, DC: Government Printing Office, 1973), 5.

⁶² Christopher A. Lawrence, *War by Numbers: Understanding Conventional Combat* (Lincoln, NE: University of Nebraska Press, 2017), 147. Annual average casualties per 1,000 soldiers not provided in the source materials. These figures are the casualty percentages when engaged in combat operations and do not account for periods of rest.

⁶³ Historical Evaluation and Research Organization, *Analytic Survey of Personnel Replacement Systems in Modern War* (Dunn Loring, VA: T. N. Dupuy Associates, Inc., 1981), 70.

KIA and 121 WIA per 1,000 soldiers per year, regimental losses averaged 85 KIA and 337 WIA per 1,000 soldiers per year in the same period. Also of note, for the period of the heaviest fighting, July to December of 1950, loss rates exceeded those of the ETO. Average losses in 1950 were at a rate of 136 KIA and 426 WIA per 1,000 soldiers per year (0.15 percent per day compared to 0.05 percent per day in the ETO).⁶⁴

The cause and location of wounds in World War II and Korea are also informative for a full understanding of the nature of casualties during LSCO. As shown in Table 2 below, artillery inflicted the greatest percentage of wounds (fatal and non-fatal) in both conflicts. Bullets were the second-leading source of battlefield wounds, although they were more likely to be fatal.⁶⁵

Table 2. Battle Casualties by Causative Agents, US Army, World War II and Korea

Causative Agent	World War II			Korea		
	Killed in Action	Died of Wounds	Nonfatal Wounds	Killed in Action	Died of Wounds	Nonfatal Wounds
Small Arms (Bullets)	31.9%	31.3%	19.7%	33.0%	34.0%	27.0%
Explosive Projectile Shells	49.9%	57.1%	57.5%	49.9%	48.3%	50.7%
Rockets and Bombs	1.4%	2.1%	1.6%	0.1%	0.1%	0.1%
Grenades	0.4%	1.2%	2.5%	1.3%	2.4%	9.0%
Booby Traps	0.2%	0.4%	0.5%	0.1%	0.2%	0.4%
Land Mines	2.3%	4.3%	3.4%	4.2%	5.1%	3.5%
Other Fragmentary Explosions	0.3%	0.3%	0.6%	7.8%	5.8%	1.8%
All Other	13.6%	3.3%	14.2%	3.6%	4.1%	7.5%

Source: US Department of the Army, *Battle Casualties and Medical Statistics: U.S. Army Experience in the Korean War*, 1973, 36.

Regarding the location of wounds, Table 3 shows that for both conflicts most fatal wounds were to the head (including face and neck) or to the torso (thorax and abdomen). Most non-fatal wounds occurred on the upper or lower extremities. Soviet data from World War II matches US Army data. Based on records from over 14 million wounded personnel, the Soviets recorded some 70.8 percent of non-fatal wounds occurring to the upper or lower extremities,

⁶⁴ US Army, *Battle Casualties and Medical Statistics*, 5-6.

⁶⁵ *Ibid.*, 36.

compared to 68.1 percent for the US Army in the same conflict. Soviet reporting of non-fatal wounds to the head and torso also mirror US Army data.⁶⁶

Table 3. Anatomical Location of Wounds, US Army, World War II and Korea

Anatomical Location	World War II			Korea		
	Killed in Action	Died of Wounds	Nonfatal Wounds	Killed in Action	Died of Wounds	Nonfatal Wounds
Head	35.6%	19.7%	7.4%	37.9%	25.4%	6.8%
Face	3.8%	3.2%	7.6%	4.9%	5.4%	9.4%
Neck	4.6%	2.2%	1.6%	5.1%	1.4%	2.0%
Thorax	21.2%	21.0%	8.3%	22.6%	20.2%	8.1%
Abdomen	15.2%	31.1%	6.9%	14.2%	30.0%	7.3%
Upper Extremities	2.9%	4.2%	26.6%	2.9%	2.6%	29.4%
Lower Extremities	6.4%	16.4%	41.5%	8.3%	12.8%	36.9%
Body Generally	10.3%	2.2%	0.1%	4.1%	2.2%	0.1%

Source: US Department of the Army, *Battle Casualties and Medical Statistics: U.S. Army Experience in the Korean War*, 1973, 36.

Casualty Estimates in US Army Doctrine

Reliance on statistical data from previous conflicts to anticipate casualties in a future conflict is by no means without risk. Such use could easily lead to underestimation of losses or, as with the Gulf War, generate casualty estimates tens or hundreds of times higher than actually occur.⁶⁷ However, past statistics represent a starting point for planning. In fact, US Army doctrine throughout the Cold War relied on data from World War II and Korea for casualty planning.⁶⁸ Interestingly, current doctrine does not include any publication with clear casualty planning data. As a result, Cold War era US Army manuals provide the most recent published doctrine on casualty planning.

⁶⁶ G. F. Krivosheev, V. M. Andronikov, P. D. Burikov, V. V. Gurkin, A. I. Kruglov, Ye I. Rodionov, and V. Filimoshin, *Soviet Combat Casualties and Combat Losses in the Twentieth Century*, ed. G. F. Krivoshev, trans. Christine Barnard (Mechanicsburg, PA: Stackpole Books, 1997), 89.

⁶⁷ Lawrence, *War by Numbers*, 302-303.

⁶⁸ US Department of the Army, *Field Manual (FM) 101-10-1/2, Staff Officers Field Manual Organizational, Technical, and Logistical Data Planning Factors*, vol. 2 (Washington, DC: Government Printing Office, 1987), 4-6 to 4-15; US Department of the Army, *Field Manual (FM) 101-10, Staff Officers Field Manual Organization, Technical, and Logistical Data*, Part 1 (Washington, DC: Government Printing Office, 1959), 51-55.

The US Army published casualty estimation tools throughout the Cold War in its FM 101-10 series, the *Staff Officers' Field Manual Organizational, Technical, and Logistical Data Planning Factors*. Key data from this publication series is included below in Tables 4 and 5.

Table 4. Daily Casualties as a Percentage of Strength (Operations up to Five Days)

Type of Operation	Divisions in Contact				Divisions in Corps and Army Reserve			
	Battle Casualties	Nonbattle Casualties	Total Casualties	Irrecoverable Casualties	Battle Casualties	Nonbattle Casualties	Total Casualties	Irrecoverable Casualties
Attack								
Meeting engagement	2.4%	0.3%	2.7%	1.34%	0.3%	0.3%	0.6%	0.19%
Of a position - 1st Day	3.8%	0.3%	4.1%	2.11%	0.4%	0.3%	0.7%	0.24%
Succeeding days	1.9%	0.3%	2.2%	1.07%	0.3%	0.3%	0.6%	0.19%
Of a fortified zone - 1st day	6.3%	0.3%	6.6%	3.49%	0.5%	0.3%	0.8%	0.30%
Succeeding days	3.2%	0.3%	3.5%	1.78%	0.4%	0.3%	0.7%	0.24%
Defense								
Meeting engagement	1.5%	0.3%	1.8%	0.85%	0.3%	0.3%	0.6%	0.19%
Of a position - 1st day	1.9%	0.3%	2.2%	1.07%	0.3%	0.3%	0.6%	0.19%
Succeeding days	1.0%	0.3%	1.3%	0.57%	0.3%	0.3%	0.6%	0.19%
Of a zone - 1st day	3.2%	0.3%	3.5%	1.78%	0.4%	0.3%	0.7%	0.24%
Succeeding days	1.6%	0.3%	1.9%	0.90%	0.3%	0.3%	0.6%	0.19%
Inactive situations	0.7%	0.3%	1.0%	0.41%	0.3%	0.3%	0.6%	0.19%
Ambiguous Assault								
Each day at sea			0.5%				0.5%	
Landing	1.3%	NA	1.3%	0.72%	0.5%	NA	0.5%	0.28%
Beachhead - 1st Day	5.3%	0.3%	5.6%	2.94%	NA	NA	NA	NA
Beachhead - Succeeding days	1.5%	0.3%	1.8%	0.85%	1.5%	0.3%	1.8%	0.85%
Other								
Covering and security force action	0.9%	0.3%	1.2%	0.52%	0.3%	0.3%	0.6%	0.19%
Pursuit	1.3%	0.3%	1.6%	0.74%	0.3%	0.3%	0.6%	0.19%
Retirement and delaying action	0.7%	0.3%	1.0%	0.41%	0.3%	0.3%	0.6%	0.19%

Source: US Department of the Army, Field Manual (FM) 101-10-1, *Staff Officers' Field Manual Organization, Technical, and Logistical Data*, 1959, 51.

Table 5. Monthly Casualties as a Percentage of Strength (Periods Exceeding Five Days)

Unit Type	Battle Casualties	Nonbattle Casualties	Total Monthly Casualties	Irrecoverable Casualties
Infantry Division	10%	8%	18%	6.06%
Armored Division	8%	7%	15%	4.89%
Corps and Non-Divisional Troops	1.25%	3.0%	4.25%	0.90%

Source: US Department of the Army, Field Manual (FM) 101-10-1, *Staff Officers' Field Manual Organization, Technical, and Logistical Data*, 1959, 52.

Regarding the daily and monthly casualty rates, the personnel losses these casualty rates represent were not solely irrecoverable losses. The battle casualty figure encompassed KIA, DOW, WIA, missing, and captured. For a planning factor, the FM recommended using 30 percent of battle casualties as KIA, missing or captured with 70 percent WIA. Of the WIA, aggregated data showed approximately 65 percent returned to duty within 120 days. This meant that approximately 55 percent of the battle casualties were true irrecoverable losses (KIA, missing,

captured, and WIA unable to return to duty). For non-battle casualties, data shows only about 7 percent were unable to return to duty within 120 days, with better than 80 percent returned within 30 days.⁶⁹ Although most of the recoverable casualties were effectively out of the fight for short-duration operations, suitability of the AVF to sustain casualties boils down to the number irrecoverable casualties.

An additional piece of data from the doctrinal estimates applicable to this study relates to the distribution of casualties by branch. The previously surveyed data from World War II and the Korean War shows that casualties were concentrated in small combat formations, making losses impinge disproportionately on soldiers in combat specialties. As the doctrinal estimates originate from that data, it is no surprise that the doctrine also reflects a high proportion of casualties among combat soldiers as shown in Table 6 below. Thus, whether or not the AVF can sustain the casualties likely in LSCO is more than simply a question of aggregation. Total losses and the ability to replace losses matter, but so, too, does the ability to withstand significantly higher casualty rates in combat specialties.

Table 6. Distribution of Battle Casualties by Branch

Branch	Infantry Division	Armored Division	Airborne Division
Infantry	93.0%	62.0%	85.6%
Artillery	2.4%	3.6%	6.9%
Armor	2.0%	23.1%	0.0%
Engineers	1.5%	3.3%	3.9%
All Others	1.1%	8.0%	3.6%

Source: US Department of the Army, Field Manual (FM) 101-10-1, *Staff Officers' Field Manual Organization, Technical, and Logistical Data*, 1959, 52.

As a final note on the Cold War doctrine, there is some data missing from the casualty estimation figures. These figures do not include any estimates for the effect of adversary employment of nuclear, chemical, or biological weapons, as insufficient data existed from which

⁶⁹ US Army, *FM 101-10* (1959), 53 and 59.

to develop loss tables.⁷⁰ Additionally, the battle casualties forming the basis of the estimates originated from the available weapons technology of the 1940s and 1950s. At that time, few indirect fire systems could range beyond a division rear area. The limited range of indirect fire systems in both wars helps account for the low casualty rates at echelons above divisions. Finally, divisions in World War II and Korea did not have aviation brigades and the Cold War doctrine does not include any casualty figures for such formations.

The Experience of Iraq and Afghanistan

There should be little question that combat operations since 2001 in Iraq and Afghanistan by no means match the intensity and lethality anticipated in possible future LSCO against a peer threat. Yet, it would be foolish to assume that the experiences of those wars have not left an impression on the subject of casualties. Indeed, the survival rate for battlefield injuries in Iraq and Afghanistan is the highest in history. The ratio of killed to wounded dropped from the previously mentioned 1:4 in World War II and Korea to just 1:10.⁷¹ Over nearly two decades, total US service member deaths (KIA, DOW, and deaths from non-hostile events) number fewer than 7,000.⁷²

Three primary reasons explain the reduction of casualties. First, the widespread use of individual body armor by US service members greatly reduced the incidence of fatal injuries to

⁷⁰ US Army, *FM 101-10* (1959), 50. There is not attempt here to try to estimate the number of casualties resulting from adversary use of chemical, biological, radiological, or nuclear (CBRN) weapons. For information on CBRN effects and the complexity of estimation, see Carl A. Curling, Julia K. Burr, Lusine Danakain, Deena S. Disraelly, Lucas A. LaViolet, Terri J. Walsh, and Robert A. Zirkle, *Technical Reference Manual: NATO Planning Guide for the Estimation of Chemical, Biological, Radiological, and Nuclear (CBRN) Casualties, Allied Medical Publication-8(C)* (Alexandria, VA: Institute for Defense Analysis, 2010), accessed August 02, 2018, <http://www.dtic.mil/dtic/tr/fulltext/u2/a536889.pdf>.

⁷¹ Tanish M. Fazal, Todd Rasmussen, Paul Nelson, and P.K. Carlton, "How Long can the U.S. Military's Golden Hour Last?" *War on the Rocks*, October 8, 2018, accessed October 9, 2018, <https://warontherocks.com/2018/10/how-long-can-the-u-s-militarys-golden-hour-last/>.

⁷² "Fatalities by Year and Country," accessed December 28, 2018, www.icasualties.org.

the torso.⁷³ Second, the two greatest causes of casualties in previous conflicts – indirect fire and small arms – were significantly less common causes in Iraq and Afghanistan. Improvised explosive devices far exceeded either as the most common cause of fatal injuries.⁷⁴ Finally, an incredible military medical structure, including golden hour medical evacuation (MEDEVAC), advanced forward-staged surgical treatment, and rapid critical care transport out of theater made fatal wounds in these conflicts survivable.⁷⁵

Of these, only the reduction of fatal injuries to the torso by use of body armor is likely valid in a future LSCO scenario. In a fight against a peer threat, indirect fire and small arms will almost certainly return as the primary causes of battlefield casualties due to direct engagements between similarly-equipped forces. Body armor should reduce, but not eliminate, the number of casualties from wounds to the head and torso (the cause of 72% of KIA and DOW for the US Army in WWII). What body armor will not do is reduce casualties from wounds to the extremities, the cause of approximately 70% of non-fatal battlefield casualties.

Regarding casualty reduction in Iraq and Afghanistan, the likelihood of high casualties and the lack of air superiority anticipated during LSCO would quickly exceed the capabilities of that structure. In Iraq and Afghanistan, the number of casualties rarely overwhelmed the capabilities of the system to triage and MEDEVAC.⁷⁶ Additionally, the ability to MEDEVAC from point of injury to a combat hospital within the golden hour, as well as the inter-theater critical care flights, greatly increased survivability of wounds. Neither can be relied upon when the US military does not possess air superiority. Casualties will require movement from point of

⁷³ Darryl Tong and Ross Beirne, “Combat Body Armor and Injuries to the Head, Face, and Neck Region,” *Military Medicine* 178, no. 4 (April 2013): 421-426, accessed December 10, 2018, <https://academic.oup.com/milmed/article-pdf/178/4/421/20494985/milmed-d-12-00522.pdf>.

⁷⁴ Iraq and Afghanistan US Hostile Casualties by Cause, accessed December 28, 2018, www.icasualties.org/chart/Chart.

⁷⁵ Fazal, “How Long can the U.S. Military’s Golden Hour Last.”

⁷⁶ Ibid.

injury through casualty collection points and ambulance exchange points until they can reach the appropriate level of care. Table 7 below depicts that structure during the Korean War. Such increases to the average time from wounding to treatment will almost certainly lead to an increase in battlefield deaths.

Table 7. Time from Wounding to Medical Care, US Army in Korea

Time of Wounding to First Medical Care (Aid Station)			Time of Wounding to Reaching Surgical and Evacuation Hospitals				
Elapsed Time	Percent of Evacuees	Cumulative Percent	Month Wounded	Same Day	First Day After	Second Day After	Third Day After
0 to 30 Minutes	22.0%	22.0%	July 1950 - August 1953	54.9%	30.1%	6.2%	8.8%
30 to 60 Minutes	17.3%	39.3%	July-December 1950	34.3%	32.8%	12.4%	20.5%
1 to 2 Hours	19.1%	58.4%	January-June 1951	51.5%	35.6%	5.8%	7.1%
2 to 3 Hours	11.5%	69.9%	July-December 1951	65.9%	29.5%	2.5%	2.1%
3 to 4 Hours	8.0%	77.9%	January-June 1952	76.4%	18.4%	2.8%	2.4%
4 to 5 Hours	4.1%	82.0%	July-December 1952	71.6%	24.3%	2.8%	1.3%
5 to 6 Hours	3.2%	85.2%	January-June 1953	73.2%	24.2%	2.1%	0.5%
6 to 7 Hours	2.6%	87.8%	July-August 1953	73.2%	22.6%	2.2%	2.0%
7 to 8 Hours	1.9%	89.7%					
8 to 12 Hours	4.1%	93.8%					
12 to 18 Hours	2.7%	96.5%					
18 to 24 Hours	1.0%	97.5%					

Source: US Department of the Army, Battle Casualties and Medical Statistics: U.S. Army Experience in the Korean War, 1973, 79-80.

Estimates of Casualties in the Next War

The starting point of any attempt to apply history in the formation of an assessment about likely casualties in a future LSCO scenario is the composition of the US Army force involved in the future conflict. For the purpose of this assessment, this force will be a field army consisting of two corps. Each corps will consist of three divisions, and each division will encompass three brigade combat teams (BCT), a combat aviation brigade, an artillery brigade, and a sustainment brigade. The assumed total strength of the field army will be 160,000 personnel, with 70,000 per corps and 18,000 per division. Though the US Army employs three different types of BCTs, for the purpose of casualty estimation, the particular type need not be determined. Each BCT will simply be assumed to consist of approximately 4,300 personnel organized into three maneuver battalions of 600 personnel, one cavalry squadron of 400 personnel, and a field artillery battalion of 500 personnel, with the remaining personnel in the engineer battalion, support battalion, and headquarters.

Consider first the case of a short-duration conflict involving some three weeks of combat. Based on the summary from Operation Crusader, US Army casualties may range from 24,000 to 51,000 personnel. Cold War doctrinal models estimate 13,000 to 28,000 of these as irrecoverable losses. Applying the experiences of the 80th Division, average irrecoverable loss rates (lightly wounded and injured already omitted) equate to 5.3 percent for every three-week period while loss rates during the month of the worst casualties amount to 9.45 percent for a three-week period. Based on this, irrecoverable losses of the six divisions in the field army would be from 5,724 to 10,206 personnel. Of note, this figure does not include any casualties for non-divisional units.

Continuing the case of a short-duration conflict, turning to Cold War doctrinal models to form an assessment of casualties requires additional assumptions about the nature of the operations. Here the assumption is that the friendly force will be on the offensive twice and the defensive twice, each for 3-4 days. Between each period, there will be one to two days of relative stability during phase transitions. With four of the six divisions in contact and two in reserve, using the data from Table 4 results in approximately 21,000 irrecoverable casualties in the three-week scenario. As with the previous estimate, this figure does not include casualties for non-divisional units.

Using the long-term loss rates from Table 5 results in notably lower casualty rates for a three-week conflict compared to the other models. At 5.48 percent irrecoverable losses per month in divisions (averaging infantry and armored division loss rates) and 0.90 percent per month for corps and non-divisional troops, total irrecoverable losses over three weeks for the field army would approximate 4,800 personnel.

Although there is significant variance in the outcomes of the models for casualties during a short-duration conflict, the worst case represents only a small portion of the size of the current total force. Even if 100 percent of the 28,000 irrecoverable losses from the worst-case outcome happened within infantry, armor, and cavalry battalions and squadrons, the loss would only be

approximately 47 battalions – the maneuver forces of about 12 BCTs. Such a loss, though unquestionably worse than anything experienced by the US Army since the 1940s and 1950s, would be unlikely to break the AVF if the end of the three-week period marked the end of hostilities.

However, what happens if a future war fails to be a short-duration event? Certainly current US Army doctrine holds as possible that future LSCO will last months or years rather than days or weeks.⁷⁷ Applying the same force of a field army with two subordinate corps, each with three divisions, to long-duration fights of six and twelve months yield notably different results compared to the short-duration estimates.

For the long-duration conflict estimate, the experience of Operation Crusader becomes irrelevant. It was a short-duration event with months of pre- and post-operation actions by both belligerents. On the other hand, the experience of the 80th Division may be more relevant as the unit was in and out of combat in the ETO for nine months. The data in Table 1 shows that the division sustained losses of 68.3 percent (not including lightly wounded or injured) of its average assigned strength over nine months. For a six-month period, this rate equates to 45.5 percent; for a twelve-month period, the rate reaches 91.1 percent of average strength. For the six divisions comprising the field army, those loss rates amount to about 49,000 in six months and 98,000 over twelve months. Once again, these losses are only for the divisions.

Even the Table 5 long-term loss rates that showed the lowest losses of any of the short-duration conflict estimates produce only marginally lower estimated losses than obtained through use of the data from the experience of the 80th Division. For a six-month period, losses from the Cold War doctrine model are 38,000. For twelve months, losses are approximately 77,000.

To put such losses in perspective, 98,000 personnel is the total strength of more than five divisions or 22 BCTs. Yet even these comparisons understate the magnitude of such losses.

⁷⁷ US Army, *ADP 3-0* (2017), 4; US Army, *FM 3-0* (2017), 1-2.

Casualties during combat operations occur at greater rates at smaller echelons, and the majority of casualties within a division are the infantry, armor, cavalry, and artillery soldiers assigned to battalions and below. If just 75 percent of the high-end estimate of 98,000 divisional losses for a one-year conflict occur in infantry, armor, or cavalry battalions or squadrons, they are the equivalent of total loss of the all maneuver battalions of 33 BCTs. Taking the projections a step further, if 75 percent of the combat losses of a battalion are concentrated in its infantry, armor, and cavalry companies and troops, the 98,000 loss estimate represents total loss of all personnel in the maneuver companies of 38 BCTs. The US Army only has 58 BCTs – 31 active and 27 in the National Guard.⁷⁸

The idea of 80-100,000 US Army casualties in twelve months is so far outside recent experience that it seems absurd. Yet it is in line with historic experience and doctrinal estimates for major combat between peer nations – the very type of conflict prevailing doctrine forecasts as likely in the future. It is impossible to know with certainty what losses will amount to in such a conflict, but knowing with certainty is not the requirement for preparedness. Preparedness simply demands honest consideration of possible casualty outcomes and an assessment of whether or not the US military – specifically the Army – is able to sustain such casualties without reaching a culmination point prior to conflict termination.

Ensuring Force Manning for Large-Scale Combat Operations

The Limits of Voluntary Accessions

The ultimate test of the AVF is whether the nation is able to convince a sufficient number of personnel to volunteer for military service. When and if the number of volunteers fall below the threshold required to replace losses of whatever cause, the military's strength and capability plunges. The wars in Iraq and Afghanistan represent the greatest number of casualties incurred by

⁷⁸ US Army Public Affairs, "Army announces conversion of two brigade combat teams," September 20, 2018, accessed January 24, 2019, https://www.army.mil/article/211368/army_announces_conversion_of_two_brigade_combat_teams.

the AVF to date, and voluntary recruiting during those wars often missed the mark.⁷⁹ The interaction of three key factors will ultimately determine the AVF's robustness: national demographics, the ability to serve, and the propensity to serve.

Regarding demographics, there is a finite population pool from which the military can draw its recruits. US Census Bureau data recently showed approximately 34 million male and female residents in the 17-24 age group. Through at least 2040, projections suggest that the number of residents in this group will remain flat, that is, population growth will not increase the available pool of potential volunteers.⁸⁰

Of the available population, estimates suggest that only one in four meet eligibility requirements to serve.⁸¹ It is in this area that the military has some ability to adjust the criteria for eligibility. Waivers of certain criminal conduct, adjustments to intellectual requirements, and changes to standards of physical fitness are among the possible adjustment areas to increase the eligible population. However, doing so potentially comes at a cost. Those with prior criminal conduct may be less suited for the rigor and discipline of military service, those of lower intellectual capability may be less able to perform effectively, and lower levels of physical fitness decrease individual capability.

⁷⁹ Shanthi M. Nataraj, M. Wade Markel, Jamie L. Hastings, Eric V. Larson, Jill Luoto, Christopher E. Maerzluft, Craig A. Myatt, Bruce R. Orvis, Christina Panis, Michael Powell, Jose Rodriguez, and Tiffany Tsai, *Evaluating the Army's Ability to Regenerate: History and Future Options* (Santa Monica, CA: RAND Corporation, 2017), 15-18, accessed August 6, 2018, https://www.rand.org/pubs/research_reports/RR1637.html.

⁸⁰ US Census Bureau, "Projected 5-Year Age Groups and Sex Composition of the Population, Projections for the United States: 2017-2060," 2017, accessed September 27, 2018, <https://www2.census.gov/programs-surveys/popproj/tables/2017/2017-summary-tables/np2017-t3.xlsx>. The number of US residents in the 17-24 age range projected to remain at approximately 34 million through at least 2040.

⁸¹ Commission on the National Defense Strategy for the United States, *Providing for the Common Defense: The Assessment and Recommendations of the National Defense Strategy Commission* (Washington, DC: United States Institute of Peace, 2018), 46-47.

As to propensity to serve, only one in four of the eligible population exhibits any likelihood to choose military service.⁸² It is this last category that is also incredibly susceptible to shifts in both public opinion and national economic conditions. Without delving deeply into the topic of public opinion, some basic considerations apply. First, perceived benefits, costs, prospects of success, and consensus (or lack thereof) of political leadership drives the level of public support.⁸³ Second, when public support drops, the willingness to serve also declines.⁸⁴ Finally, just because public support is high does not mean that there a corresponding level of propensity for service. For the early years of operations in Iraq, more than 70 percent of young adults supported the war yet the same percentage of those young adults would refuse to serve in the conflict.⁸⁵ Economic conditions also matter. Simply put, when the economy is good and unemployment is low, the willingness to serve declines. When the economy is bad and unemployment rises, the propensity to serve increases.⁸⁶

A recent study of these factors influencing recruiting concluded that the best-case scenario for volunteers for the active component of the Army is 105,000 per year. This best case requires a combination of poor domestic economic conditions, notable reductions of eligibility standards, and significant resources applied to recruiting. Under normal conditions, the maximum

⁸² Commission on the National Defense Strategy, *Providing for the Common Defense*, 47.

⁸³ Timothy F. Bishop, *A Nation at War: Combat Casualties and Public Support* (Carlisle, PA: US Army War College, 2008), 5, accessed August 2, 2018, <http://www.dtic.mil/dtic/tr/fulltext/u2/a478483.pdf>; Adam J. Berinsky, “Assuming the Costs of War: Events, Elites, and American Public Opinion,” *Journal of Politics* 69, no. 4 (November 2007): 975-997, accessed August 4, 2018, <https://www.jstor.org/stable/j.ctt6wp6pg.22>; Christopher Gelphi, “Success Matters: Casualty Sensitivity and the War in Iraq,” *International Security* 30, no. 4 (Winter 2005/2006): 7-46, accessed August 4, 2018, https://www.belfercenter.org/sites/default/files/files/publication/is3003_pp007-046.pdf; Eric V. Larson, *Casualties and Consensus: The Historic Role of Casualties in Domestic Support for U.S. Military Operations* (Santa Monica, CA: RAND Corporation, 1996), xv-xxiii.

⁸⁴ Nataraj, *Evaluating the Army’s Ability to Regenerate*, 15-17. As public support of operations in Iraq and Afghanistan grew, recruiting troubles mounted.

⁸⁵ William A. Galston, “Thinking about the Draft,” *Public Interest* 154 (Winter 2004): 61-73.

⁸⁶ Dorn, “Sustaining the All-Volunteer Force,” 7.

number of active Army volunteers per year is most likely closer to 80,000.⁸⁷ Though at first glance this may appear sufficient to cover losses incurred in LSCO, voluntary recruitment alone would most likely be insufficient.

In a given year with no combat losses, approximately 68,000 new accessions are required to replace soldiers who separate from the active duty Army of 483,000.⁸⁸ For the DOD as a whole, required annual accessions rise to approximately 400,000 for active, reserve, and guard components.⁸⁹ This higher number represents 20 percent of the eligible and interested resident population actually choosing to serve. Even with termination of voluntary separations as discussed later, minimum required accessions would be equal to combat losses plus involuntary separations for medical, legal, or other considerations – a total potentially well over 100,000 per year for the active duty Army. This number grows even larger should the Army have a concurrent requirement to grow the force due to the unreliability of contractors filling sustainment roles during LSCO.⁹⁰

Further increasing the challenge of reliance on volunteers, the active component of the Army is not the only organization likely to seek increased recruitment in the event of war with a peer threat. Losses in the Army Reserve, Army National Guard, Air Force, Marine Corps, and Navy may also demand manpower replacement from an already limited pool of eligible personnel. Instead of needing 20 percent of the eligible and interested residents to commit to service, during LSCO the number could easily eclipse 25-30 percent or even more. Given the well-known recruiting challenges in the mid-2000s with relatively low casualties in Iraq and Afghanistan, to assume willingness of volunteers during a future period where casualties may be

⁸⁷ Nataraj, *Evaluating the Army's Ability to Regenerate*, 55-57.

⁸⁸ *Ibid.*, 34-41.

⁸⁹ Ben Werner, "Short on Personnel, Army Recruiters Try Poaching Navy Officer Candidates on Reddit," *USNI News*, November 20, 2018, accessed December 15, 2018, <https://news.usni.org/2018/11/20/38458>.

⁹⁰ Nataraj, *Evaluating the Army's Ability to Regenerate*, 24.

exponentially higher is, at best, highly optimistic. At a minimum, such an assumption demonstrates a risky disregard of the probability of a very negative outcome. The question then becomes what steps the military and Congress can take to attempt to reduce the requirement for volunteers to manageable levels.

Stop-Loss, Individual Ready Reserve Call-Ups, and Retiree Recalls

By law, various categories of service members are subject to recall to or retention on active military service in order to meet manpower requirements in a time of war or national emergency.⁹¹ Given the extensive use of stop-loss as well as some IRR call-ups and retiree recalls during the early-to-mid 2000s, there should be little doubt that the military will turn to such options in the event of LSCO.⁹² The recent experience with stop-loss only prevented a few soldiers in certain deployed or deploying units from voluntarily leaving military service. There is theoretically nothing preventing a blanket stop-loss order on the military as a whole. Such an order would significantly ease, but by no means eliminate, the requirements for new accessions. The major disadvantage, as shown in the 2000s, is that stop-loss carried significant negative perceptions as a back-door draft, violating the spirit and intent of a volunteer military. Though it may aid manning in the short term, the negative public perceptions associated with stop-loss policies may erode voluntary accessions.

Call-ups of IRR personnel is a second available option. The IRR effectively exists as an insurance policy, bridging the gap between current force manning and the time required to train and place new accessions. The pool of pre-trained military manpower, once recalled, may return to the type of jobs they previously held. The challenge here is what personnel to recall. Since history shows that the bulk of casualties impact combat specialties, the greatest need would be for recalls from combat arms branches. However, it would be possible to recall a broader number and

⁹¹ US Code 10 (2012) §§ 12301-12303 and 12311. See §§ 12301-12303 for IRR and Retiree Recalls; See § 12311 for Stop-Loss authority.

⁹² Nataraj, *Evaluating the Army's Ability to Regenerate*, 8.

mandate reclassification to combat specialties, although such action may delay employing the IRR. As with stop-loss, IRR call-ups are likely to generate notable public opposition as a back-door draft. In addition, there should also be serious concerns over the number of IRR personnel who will actually report for duty if recalled. Based on data from call-ups in the 1960s, the DOD estimated in the 1970s that only 70 percent of IRR personnel recalled would show.⁹³ These rates bore out in 2004 when 30 percent of those recalled applied for exemptions or delays with an additional 10 percent of recall notifications returned.⁹⁴ Should a future LSCO scenario involve significant casualties and a drop in public support, even higher rates are possible due to deliberate non-compliance.

The final option is retiree recalls. As with stop-loss and IRR, retirees are a pool of pre-trained manpower. However, unlike those impacted by stop-loss or IRR recalls, the retiree pool is generally older and of higher rank. Both factors make retirees generally less suited for replacement of losses incurred in combat units. However, the bulk of their value rests in the ability to fill non-combat positions to free younger personnel for combat roles. An additional challenge with retirees is the currency of their experience and training. Additional time may be required before retirees can fill certain positions due to retraining requirements to operate new systems or fill new roles.⁹⁵

The combination of stop-loss, IRR call-ups, and retiree recalls certainly has the potential to reduce the requirement of new accessions in the event of LSCO. However, the pools of each

⁹³ Stanley A. Horowitz and Jean W. Fletcher, "Problems of the Pretrained Individual Manpower Program," in *The Anthro Factor in Warfare: Conscripts, Volunteers, and Reserves*, ed. Mobilization Concepts Development Center (Washington, DC: National Defense University, 1975), 137.

⁹⁴ Andrew Tilghman, "Bringing the IRR into the Total Force," *Military Times*, October 26, 2015, accessed December 28, 2018, <https://www.militarytimes.com/2015/10/26/bringing-the-individual-ready-reserve-into-the-total-force/>.

⁹⁵ Robert Rumph and Barbara Hensler, "Military Retirees: Enhanced Management for Mobilization," in *The Anthro Factor in Warfare: Conscripts, Volunteers, and Reserves*, ed. Mobilization Concepts Development Center (Washington, DC: National Defense University, 1975), 94-95; US Code 10 (2006) § 688.

are finite. Once used, there is no other source for personnel except additional volunteers or conscripts.

Returning to Conscription

Should combat last longer than anticipated, casualties prove worse than prior experiences suggest, the number of volunteers drop notably, or IRR personnel and retirees fail to report in sufficient numbers, the Army may very well find itself facing a significant manpower shortage. Even if the conflict concludes favorably, wartime losses, combined with an exodus of stop-loss personnel, recalled personnel, and those choosing not to reenlist, could trigger a major post-conflict manpower shortage. In either case where alternatives short of a draft fail, national security may necessitate a return to the draft. To be clear, authority to reinstate conscription in the United States resides with Congress and the President. What follows here is simply a review of the advantages and disadvantages associated with conscription and actions needed to make a return to conscription viable, if instituted.

Conclusion

The essential point about volunteers in major wars is that there has rarely been enough of them...Even a spur of great principle is of limited duration. Wars last longer than anyone expects...The flood of volunteers dries up. The demand for men does not.

— Correlli Barnett, “On Raising Armies”

At its inception, the intent was never for the AVF to provide all manpower needs of the military in times of major conflict. However, more than 40 years of reliance solely on volunteers to defend the nation continuously eroded the notion of any possible requirement for conscript forces. Even as changes in Army doctrine and training emphasize peer-competition and LSCO, the fundamental assumption underpinning the US Army is that volunteers alone will meet all personnel requirements for future conflict. Unfortunately, the magnitude of casualties likely associated with LSCO call into question the wisdom of that assumption.

In the event of major peer conflict, data from World War II and Korea suggests that the US military could easily suffer a staggering number of casualties. Irrecoverable losses for the Army alone could reach 100,000 within a year. It is easy to argue that such losses are unrealistic based on a wide range of factors, most of which likely originate from experiences after the Korean War. Yet, the data from past conflicts is clear. Massive casualties are, in fact, incredibly likely during LSCO against peer threats. Not only are losses likely to be high, the duration of armed conflict is likely to last longer than expected. Failing to prepare for such losses over an extended duration is simply planning to fail.

There is no question that there are a wide number of policy levers and legislative options short of a draft to boost manpower availability. Medical, character, and aptitude considerations are all subject to adjustment and may expand the number of Americans available to serve. Pay and benefits, as well as recruiting bonuses, affect the willingness of individuals to serve or to continue to serve. Stop-loss, IRR call-ups, and retiree recalls allow the introduction of pre-trained military manpower to limit the impact of personnel shortages. Yet these options and levers have limitations.

The active, guard, and reserve components are only so large and there is a finite pool of pre-trained military manpower. If a war with a peer is short, the AVF may well prove more than sufficient to fight and win, even with notable losses over a short duration. However, if war fails to be short, the accumulation of casualties may quickly outpace the induction of voluntary replacements. This is why the Gates Commission, when it recommended ending the draft, also proposed the establishment of effective stand-by draft machinery.

Given the current emphasis on LSCO against a peer-threat, the Army should no longer blindly accept the assumption that volunteers alone are sufficient to meet all future manpower requirements. It is certainly true that the debate about reinstating the draft is not at the discretion of the US military, but neither is the decision to go to war. Just as the military plans the conduct

of operations if directed to fight, it should reassess its personnel requirements, timeline, and preparedness for draft inductees – an assessment it reportedly has not conducted since 1994.⁹⁶

⁹⁶ Brenda Ferrell, *Ongoing Review of the Military Selective Service Process Could Benefit from Additional Information* (Washington, DC: Government Accountability Office, 2018), 11.

Bibliography

- Asch, Beth J., Paul Heaton, James Hosek, Francisco Martorell, Curtis Simon, and John T. Warner. *Cash Incentives and Military Enlistment, Attrition, and Reenlistment*. Santa Monica, CA: RAND, 2010.
- Bailey, Beth. "The Army in the Marketplace: Recruiting an All-Volunteer Force." *Journal of American History* 94, no. 1 (June 2007): 47-74.
- _____. "Soldiering as Work: the All-Volunteer Force in the United States." In *Fighting for a Living: A Comparative Study of Military Labour, 1500-2000*, edited by Erik-Jan Zürcher, 581-612. Amsterdam: Amsterdam University Press, 2013.
- Berinsky, Adam J. "Assuming the Costs of War: Events, Elites, and American Public Support for Military Conflict." *Journal of Politics* 69, no. 4 (November 2007): 975-997.
- Beurskens, Keith R., ed. *Large-Scale Combat Operations Series*. Vol. 4, *The Long Haul: Historical Case Studies of Sustainment in Large-Scale Combat Operations*. Ft. Leavenworth, KS: Army University Press, 2018.
- Bicksler, Barbara A., Curtis L. Gilroy, and John T. Warner, eds. *The All-Volunteer Force, Thirty Years of Service*. Washington, DC: Brassey's Inc., 2004.
- Bishop, Timothy F. *A Nation at War: Combat Casualties and Public Support*. Carlisle, PA: US Army War College, 2008. Accessed August 02, 2018. <http://www.dtic.mil/dtic/tr/fulltext/u2/a478483.pdf>.
- Bowman, William, Roger Little, and G. Thomas Sicilia, eds. *The All-Volunteer Force after a Decade: Retrospect and Prospect*. Washington, DC: Pergamon-Brassey's, 1986.
- Bradbeer, Thomas G., ed. *Large-Scale Combat Operations Series*. Vol. 3, *Lethal and Non-Lethal Fires: Historical Case Studies of Converging Cross-Domain Fires in Large-Scale Combat Operations*. Ft. Leavenworth, KS: Army University Press, 2018.
- Brady, Stephen D. *Assessing Stop-Loss Policy Options through Personnel Flow Modeling*. Santa Monica, CA: RAND, 2014.
- Brown, John Sloan. *Kevlar Legions: The Transformation of the U.S. Army, 1989-2005*. Washington, DC: Government Printing Office, 2011.
- Carter, James E. State of the Union Address. January 23, 1980. The Jimmy Carter Presidential Library and Museum. Accessed November 10, 2018. <https://www.jimmycarterlibrary.gov/assets/documents/speeches/su80jec.phtml>.
- Casey, Steven. *When Soldiers Fall*. Oxford: Oxford University Press, 2014.
- Center for Naval Analyses. "The All-Volunteer Force: A Symposium in Honor of Walter Oi." Accessed October 30, 2018. <https://www.cna.org/news/events/all-volunteer-force>.
- Cheval, Paul P. "The 80th Division's Crossing of the Moselle River: A Case Study in Combined Arms Maneuver." In *Large-Scale Combat Operations Series*, vol. 2, *Bringing Order to*

- Chaos: Historical Case Studies of Combined Arms Maneuver in Large-Scale Combat Operations*, edited by Peter J. Schifferle, 107-125. Ft. Leavenworth, KS: Army University Press, 2018.
- Coffey, Kenneth J. *Strategic Implications of the All-Volunteer Force: The Conventional Defense of Central Europe*. Chapel Hill, NC: University of North Carolina Press, 1979
- Commission on the National Defense Strategy for the United States. *Providing for the Common Defense: The Assessment and Recommendations of the National Defense Strategy Commission*. Washington, DC: United States Institute of Peace, 2018.
- Cooper, Richard V. L. *Military Manpower and the All-Volunteer Force*. Santa Monica, CA: RAND Corporation, 1977.
- Craig, Berry. *80th "Blue Ridge" Infantry Division*. Edited by Edgar R. Bredbenner and Robert T. Murell. Paducah, TN: Turner Publishing Company, 1991.
- Curling, Carl A., Julia K. Burr, Lusine Danakain, Deena S. Disraelly, Lucas A. LaViolet, Terri J. Walsh, and Robert A. Zirkle. *Technical Reference Manual: NATO Planning Guide for the Estimation of Chemical, Biological, Radiological, and Nuclear (CBRN) Casualties, Allied Medical Publication-8(C)*. Alexandria, VA: Institute for Defense Analysis, 2010.
- Curling, Carl A., and Sean M. Oxford. *NATO Allied Medical Publication 7.5 Study Draft 3 (AMedP-7.5 SD.3), NATO Planning Guide for the Estimation of CBRN Casualties*. Alexandria, VA: Institute for Defense Analysis, 2015.
- Dempsey, Martin E. *The National Military Strategy of the United States of America*. Washington, DC: Government Printing Office, 2015.
- Dupuy, T. N. *Numbers, Predictions, and War*. Fairfax, VA: Hero Books, 1985.
- _____. *Understanding War: History and Theory of Combat*. New York: Paragon House Publishers, 1987.
- Eikenberry, Karl W. "Reassessing the All-Volunteer Force." *Washington Quarterly* 36, no. 1 (Winter 2013): 7-24.
- Esper, Mark T., and Mark A. Milley. "The Army Vision." June 07, 2018. Accessed November 28, 2018. https://www.army.mil/e2/downloads/rv7/vision/the_army_vision.pdf?_st.
- Farrell, Brenda. *DoD Should Reevaluate Requirements for the Selective Service System*. Washington, DC: Government Accountability Office, 2012.
- _____. *Ongoing Review of the Military Selective Service Process Could Benefit from Additional Information*. Washington, DC: Government Accountability Office, 2018.
- Fazal, Tanisha M., Todd Rasmussen, Paul Nelson, and P. K. Carlton. "How Long can the U.S. Military's Golden Hour Last?" *War on the Rocks*, October 8, 2018. Accessed October 9, 2018, <https://warontherocks.com/2018/10/how-long-can-the-u-s-militarys-golden-hour-last/>.

- Fredland, J. Eric, Curtis Gilroy, Roger D. Little, and W. S. Sellman, eds. *Professionals on the Front Line: Two Decades of the All-Volunteer Force*. Washington, DC: Brassey's Inc., 1996.
- Galston, William A. "Thinking about the draft." *Public Interest*, no. 154 (Winter 2004): 61-73.
- Gelpi, Christopher. "Success Matters: Casualty Sensitivity and the War in Iraq." *International Security* 30, no. 4 (Winter 2005/2006): 7-46.
- Gelpi, Christopher and John Mueller. "The Cost of War: How Many Casualties will Americans Tolerate?" *Foreign Affairs* 85, no. 1 (Jan-Feb 2006): 139-144.
- Gelpi, Christopher, Peter D. Feaver, and Jason Reifler. *Paying the Human Costs of War: American Public Opinion and Casualties in Military Conflicts*. Princeton, NJ: Princeton University Press, 2009.
- Handy, Bridget and Thomas Spoehr. *The Looming National Security Crisis: Young Americans Unable to Serve in the Military*. Washington, DC: The Heritage Foundation, 2018.
- Historical Evaluation and Research Organization. *Analytic Survey of Personnel Replacement Systems in Modern War*. Dunn Loring, VA: T. N. Dupuy Associates, Inc., 1981.
- Jackson, W.G.F. *The Battle for North Africa: 1940-1943*. New York: Mason/Charter Publishers, Inc., 1975.
- Keeley, John B., ed. *The All-Volunteer Force and American Society*. Charlottesville, VA: University Press of Virginia, 1978.
- Kem, Jack D., ed. *Large-Scale Combat Operations Series*. Vol. 5, *Deep Maneuver: Historical Case Studies of Maneuver in Large-Scale Combat Operations*. Ft. Leavenworth, KS: Army University Press, 2018.
- Krivosheev, G. F., V. M. Andronikov, P. D. Burikov, V. V. Gurkin, A. I. Kruglov, Ye I. Rodionov, and V. Filimoshin. *Soviet Combat Casualties and Combat Losses in the Twentieth Century*. Edited by G. F. Krivosheev. Translated by Christine Barnard. Mechanicsburg, PA: Stackpole Books, 1997.
- Lacquement, Richard A. "Casualty Aversion Myth." *Naval War College Review* 57, no 1 (Winter 2004): 39-57.
- Larson, Eric V. *Casualties and Consensus: The Historical Role of Casualties in Domestic Support for U.S. Military Operations*. Santa Monica, CA: RAND Corporation, 1996.
- Larter, David B. "You're on Your Own: US sealift can't count on Navy escorts in the next big war." *Defense News*. October 10, 2018. Accessed October 15, 2018. <https://www.defensenews.com/naval/2018/10/10/youre-on-your-own-us-sealift-cant-count-on-us-navy-escorts-in-the-next-big-war-forcing-changes/>.
- Lawrence, Christopher A. *War by Numbers: Understanding Conventional Combat*. Lincoln, NE: University of Nebraska Press, 2017.

- Lee, Uih Ran. *US Military Casualties in Iraq and Public Opinion*. Department of Economics, Royal Holloway, University of London. Accessed August 04, 2018.
https://editorialexpress.com/cgi-bin/conference/download.cgi?db_name=res_phd_2012&paper_id=170.
- Lorell, Mark A., Charles T. Kelley, Jr., and Deborah R. Hensler. *Casualties, Public Opinion, and Presidential Policy During the Vietnam War*. Santa Monica, CA: RAND Corporation, 1985.
- Lundy, Michael D. "Meeting the Challenge of Large-Scale Combat Operations Today and Tomorrow," *Military Review* Special Edition (September-October 2018): 111-118.
- MacEachern, Errol G. "Friendly Combat Casualties and Operational Narratives." Monograph, School of Advanced Military Studies, US Army Command and General Staff College, 2015. Accessed August 02, 2018.
<http://cgsc.contentdm.oclc.org/cdm/singleitem/collection/p4013coll3/id/3402/rec/13>.
- Mattis, James N. *Summary of the 2018 National Defense Strategy of the United States of America*. Washington, DC: Government Printing Office, 2018.
- Mobilization Concepts Development Center, ed. *The Anthro Factor in Warfare: Conscripts, Volunteers, and Reserves*. Washington, DC: National Defense University, 1975.
- Mueller, John E. *War, Presidents and Public Opinion*. Lanham, MD: University Press of America, 1985.
- Myers, Steven Lee. "With Ships and Missiles, China is Ready to Challenge U.S. Navy in Pacific." *The New York Times*, August 29, 2018. Accessed November 15, 2018.
<https://www.nytimes.com/2018/08/29/world/asia/china-navy-aircraft-carrier-pacific.html>.
- Nataraj, Shanthy, M. Wade Markel, Jamie L. Hastings, Eric V. Larson, Jill Luoto, Christopher E. Maerzluft, Craig A. Myatt, Bruce R. Orvis, Christina Panis, Michael Powell, Jose Rodriquez, and Tiffany Tsai. *Evaluating the Army's Ability to Regenerate: History and Future Options*. Santa Monica, CA: RAND Corporation, 2017.
- Noack, Rick. "The military draft is making a comeback in Europe." *The Washington Post*, October 19, 2018. Accessed November 10, 2018.
<https://www.washingtonpost.com/world/2018/10/19/military-draft-is-making-comeback-europe/>.
- Pavlov, Andrea M., and Stefan G. Novikov, eds. *Casualties of U.S. Wars*. New York: Nova Science Publishers, Inc., 2011.
- Rein, Christopher M., ed. *Large-Scale Combat Operations Series*. Vol. 1, *Weaving the Tangled Web: Military Deception in Large-Scale Combat Operations*. Ft. Leavenworth, KS: Army University Press, 2018.
- Report of the President's Commission on an All-Volunteer Force*. Washington, DC: Government Printing Office, 1970.

- Rostker, Bernard. *America Goes to War, Managing the Force During Times of Stress and Uncertainty*. Santa Monica, CA: RAND Corporation, 2007.
- _____. *I Want You! The Evolution of the All-Volunteer Force*. Santa Monica, CA: RAND Corporation, 2006.
- _____. *What to Do with the Selective Service System, Historical Lessons and Future Posture*. Santa Monica, CA: RAND Corporation, 2018.
- Schifferle, Peter J., ed. *Large-Scale Combat Operations Series*. Vol. 2, *Bringing Order to Chaos: Historical Case Studies of Combined Arms Maneuver in Large-Scale Combat Operations*. Ft. Leavenworth, KS: Army University Press, 2018.
- Schwarz, Benjamin C. *Casualties, Public Opinion, and US Military Intervention: Implications for U.S. Regional Deterrence Strategies*. Santa Monica, CA: RAND, 1994.
- Spector, Ronald H. *After Tet: The Bloodiest Year in Vietnam*. New York: Vintage Books, 1994.
- Stewart, Derek B. "Military Personnel: Strategic Plan Needed to Address Army's Emerging Officer Accession and Retention Challenges: GAO-07-224." GAO Reports 1. 2007. Accessed August 8, 2018. Military & Government Collection, EBSCOhost.
- Stewart Jr., Walter L. "The All-Volunteer Army Can We Still Claim Success?" *Military Review* 86, no. 4 (2006): 101-107.
- Strawson, John. *The Battle for North Africa*. New York: Charles Scribner's Sons, 1969.
- Tilghman, Andrew. "Bringing the IRR into the Total Force." *Military Times*, October 26, 2015. Accessed December 28, 2018. <https://www.militarytimes.com/2015/10/26/bringing-the-individual-ready-reserve-into-the-total-force/>.
- Tong, Darryl, and Ross Beirne. "Combat Body Armor and Injuries to the Head, Face, and Neck Region." *Military Medicine* 178, issue 4 (April 2013): 421-426.
- Trump, Donald J. *National Security Strategy of the United States of America*. Washington, DC: The White House, 2017.
- US Army Public Affairs. "Army announces conversion of two brigade combat teams." September 20, 2018 Accessed January 24, 2019. https://www.army.mil/article/211368/army_announces_conversion_of_two_brigade_combat_teams.
- US Census Bureau. "Projected 5-Year Age Groups and Sex Composition of the Population, Projections for the United States: 2017-2060." 2017. Accessed September 27, 2018. <https://www2.census.gov/programs-surveys/popproj/tables/2017/2017-summary-tables/np2017-t3.xlsx>.
- US Department of the Air Force. *Air Superiority 2030 Flight Plan*. Washington, DC: Government Printing Office, 2016.

- US Department of the Army. *Army Battle Casualties and Nonbattle Deaths in World War II*. Washington, DC: Government Printing Office, 1953.
- _____. *Army Doctrine Publication (ADP) 1, The Army*. Washington, DC: Government Printing Office, 2012.
- _____. *Army Doctrine Publication (ADP) 3-0, Operations*. Washington, DC: Government Printing Office, 2017.
- _____. *Army Doctrine Reference Publication (ADRP) 1, The Army Profession*. Washington, DC: Government Printing Office, 2015.
- _____. *Army Doctrine Reference Publication (ARDP) 3-0, Operations*. Washington, DC: Government Printing Office, 2017.
- _____. *Battle Casualties and Medical Statistics, U.S. Army Experience in the Korean War*. Washington, DC: Government Printing Office, 1973.
- _____. *Battle Casualties of the Army*. Washington, DC: Government Printing Office, 1954.
- _____. *Field Manual (FM) 1-0, Human Resources Support*. Washington, DC: Government Printing Office, 2014.
- _____. *Field Manual (FM) 3-0, Operations*. Washington, DC: Government Printing Office, 2017.
- _____. *Field Manual (FM) 100-1, The Army*. Washington, DC: Government Printing Office, 1978.
- _____. *Field Manual (FM) 100-5, Operations*. Washington, DC: Government Printing Office, 1986.
- _____. *Field Manual (FM) 100-5, Operations*. Washington, DC: Government Printing Office, 1993.
- _____. *Field Manual (FM) 100-17, Mobilization, Deployment, Redeployment, Demobilization*. Washington, DC: Government Printing Office, 1992.
- _____. *Field Manual (FM) 101-10, Staff Officers Field Manual Organization, Technical and Logistical Data*. Part 1. Washington, DC: Government Printing Office, 1959.
- _____. *Field Manual (FM) 101-10-1/2, Staff Officers Field Manual Organizational, Technical, and Logistical Data Planning Factors*. Vol. 2. Washington, DC: Government Printing Office, 1987.
- _____. *Field Manual (FM) 101-31-1, Nuclear Weapons Employment Doctrine and Procedures*. Government Printing Office, 1986.
- _____. *TRADOC Pamphlet (TP) 525-3-1, The U.S. Army Operating Concept: Win in a Complex World, 2020-2040*. Washington, DC: Government Printing Office, 2014.

-
- . *TRADOC Pamphlet (TP) 525-3-1, The U.S. Army in Multi-Domain Operations, 2028.* Washington, DC: Government Printing Office, 2018.
- US Department of War. *Operational History of the 80th Infantry Division.* 80th Division Digital Archives Project. Accessed November 10, 2018.
<http://www.80thdivision.com/WebArchives/OperHistory.htm>.
- Vertuli, Mark D., and Bradley S. Loudon, eds. *Large-Scale Combat Operations Series.* Vol. 7, *Perceptions are Reality: Historical Case Studies of Information Operations in Large-Scale Combat Operations.* Ft. Leavenworth, KS: Army University Press, 2018.
- Wainstein, Leonard. *The Relationship of Battle Damage to Unit Combat Performance.* Arlington, VA: Institute for Defense Analysis, 1986.
- Waitl, Florian L., ed. *Large-Scale Combat Operations Series.* Vol. 6, *Historical Case Studies of Mobility Operations in Large-Scale Combat Operations.* Ft. Leavenworth, KS: Army University Press, 2018.
- Warrior Maven. "New Army 'Vision' Seeks to Counter Long-Range Russian Missiles." The Warrior Maven, July 27, 2018. Accessed November 28, 2018.
<https://defensemaven.io/warriormaven/land/new-army-vision-seeks-to-counter-long-range-russian-missiles-R0VC68Pba0-7gLYc5IsxWg/>.
- Werner, Ben. "Short on Personnel, Army Recruiters Try Poaching Navy Officer Candidates on Reddit." *USNI News*, November 20, 2018. Accessed December 15, 2018.
<https://news.usni.org/2018/11/20/38458>.
- Zuegel, Keith. "Losing US Air Superiority Risks Ground Forces." *Defense News*, April 18, 2018. Accessed November 15, 2018.
<https://www.defensenews.com/opinion/commentary/2018/04/18/losing-us-air-superiority-risks-ground-forces/>.