

**Organizing Military Effectiveness: Organizational Culture, Military Effectiveness, and
Military Power**

by

Cesar Gabriel Cedeno

Submitted to the Graduate Faculty of the
Graduate School of Public and International Affairs in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy

University of Pittsburgh

2022

UNIVERSITY OF PITTSBURGH

GRADUATE SCHOOL OF PUBLIC AND INTERNATIONAL AFFAIRS

This dissertation was presented

by

Cesar Gabriel Cedeno

It was defended on

October 24, 2022

and approved by

Michael Kenney, Professor, GSPIA

Luke Condra, Associate Professor, GSPIA

Ryan Grauer, Associate Professor, GSPIA

Kenneth Pollack, Resident Scholar, American Enterprise Institute
Thesis Advisor/Dissertation Director: Ryan Grauer, Associate Professor, GSPIA

Copyright © by Cesar Gabriel Cedeno

2022

Acknowledgments

This dissertation would not have been possible without G-d, Blessed be He. He redeemed me and made me fruitful in a strange land where I encountered loneliness, hardship, and isolation. Most importantly, as Tehillim 121 says: "אִשָּׁא עֵינַי אֶל־הַהָרִים מֵאֵין יָבֹא עֲזָרָי: עֲזָרֵי מֵעַם ה' עֲשֵׂה שְׂמִימִם וְיִאָרְץ". G-d, Blessed be He, helped me in the midst of despair at the beginning of my doctorate when I looked up to wonder where my help would come from. And G-d, Blessed be He, not only helped me but, as the scripture promises, brought a goy who knew the Torah is The Truth to the Jewish people and our homeland. There are no words that I can surmise to thank G-d, Blessed be He, for the blessings He has given me. The best I can do to is to follow our Rabbis directions to all jews who have the blessing of life bestowed upon us when we arise from our sleep and say: Modeh Ani Lefaneja, Melej Jai Vkaiam Shehejezarta Bi Nishmati Bejemla Rabah Emunateja.

My wife, Tzivia Tehila Cedeno, is as much of an owner of this piece of scholarship as I am. My wife met a poor Jewish convert, a ger, and gave him a blessing greater than a crown: Her love. In the midst of the covid-19 pandemic we met and, ever since then, she strengthened me with her courage, love, and vision. When I was going to further delay this project, she pushed me to focus on finishing it even if that meant she would support our nascent family. She is what we Jewish people call an Aishet Chayil, a woman of valor. And to my daughter, Tovah Gittel Cedeno, I have to thank for her revitalizing smiles and giggles. When I have forgotten why I sacrificed a significant amount of my time, my daughter's smiles and giggles have soothed me and pushed me to keeping moving on in order to be in a position where I can not only provide for her but also be the role model she deserves. Thank you for giving me the privilege of being your tatty Toby.

I also must thank my father-in-law, Dr. Aryeh Gassel for his loving support. A man of Torah and Torah scholarship, my father-in-law welcomed me with arms wide open to his family and his home. With his keen eye and experience, he helped me with the substantial editing of my manuscripts required to achieve the quality that my committee expected. And my mother-in-law, Diane Gassel, was also a great source of support and motivation. She was always there for me and my family in any way we needed. This was essential when we became new parents, and we could rely on her expert parenting advice to sort out the challenges of parenthood. My in-laws are the best family a ger could have asked for.

I have the blessing of, even being a ger, having my own Jewish family. HaRav Daniel E. Wasserman and his wife, Rebbetzin Judy Wasserman gave me the honor of being part of their family. I met the Rabbi in the aftermath of the horrendous massacre of the Tree of Life Synagogue in Pittsburgh in 2018. When an evil goy attacked the righteous Jewish community of Pittsburgh, Rabbi Wasserman was kind and loving to a goy who wanted to enter the Covenant of Abraham, Yitzhak, and Yaakov. He and Rebbetzin welcomed me to their family with arms wide open and gave me an open invitation to their house on Shabbos. And in the same vein, the Pittsburgh Jewish community also welcomed a stranger to their fold. Friends like Avraham Azagury, Brian Miller, Bryan Shurman, Jeff Margolis, Louis Zelkowitz, Ha Levi Eddie Shaw, HaKohen Jason Small and his wife Stephanie, HaRav Shmuel Rothstein, Elon Noorparvar, Itamar Levvari, Mannis Friedman, HaKohen Yehuda Kohanbash, Diane Cohen, Sandra Prigg-Monteverde; they all welcomed me to their houses and lives. I will always be thankful to Rabbi Wasserman for having given me his teaching of Torah, welcomed me to his family, and helped me become a member of the Pittsburgh Jewish family.

But my non-Jewish family also deserves my gratitude. My mom, Consuelo de Haz, set me on the path of knowledge and intellectual curiosity and her entrepreneurship was an example to me. She always pushed me to reach higher academic goals and to dare to dream and follow those dreams. And she did not hesitate to match her motivation with her financial resources and her love. My uncle, Fabian Mosquera, and my sister, Lorena Icaza, also pushed me to dream and provided the substantial financial backing I required. All of them helped me get here and their love, even in the face of the diverging paths that the Almighty, Blessed be He, had for us, is source of happiness to me.

Another three people deserve my profound and everlasting gratitude. Dr. Efrain Rivera helped me throughout my life to run after a higher goal instead of running after fads. Efrain listened to me and guided me with his unique advice and life experience. In a place where people more often than not grew accustomed to never envisioning something bigger than what they knew, Efrain pushed me to envision a goal and a life bigger than what I knew and have the faith to pursue it. Dr. Robert Witchel and Debbie Witchel are the other two people that have helped me stay on the path of chasing a higher goal. Dr. Witchel helped me when I encountered hardship at the beginning of my doctoral program by identifying the essence of my difficulty: Living in a world where bad things happen to good people. To accept this reality, Dr. Witchel who introduced me to the first book about Judaism that I ever read. Dr. Witchel supported me until G-d, Blessed be He, called upon him. May his memory be a blessing. His wife, Debbie took over his support and helped navigate my fears and hardships to the point that she helped me overcome them having trust that my life still had the best to come. To all of them, I owe a universe of gratitude.

This work would not have been possible without the cooperation of distinguished researchers in the United Kingdom and Argentina, the archivist and librarians in those countries, and the veterans I interviewed. First and foremost, my gratitude goes to the late Col. David Benest, may his memory be a blessing. Col. Benest gladly accepted to sit down with me for a long afternoon of discussion about British military operations in the Falklands and was kind enough to put me in touch with key players in the British side of the battle. Second, I have to thank Professors Brian Holder Reid from the Kings College London's Department of War Studies, Dr. Helen Parr the Keele University's School of Social, Political, and Global Studies; Professor David French of the University of the City of London's Department of History, John Beales of Keele University, Jade White of Swansea University's Department of Political and Cultural Studies, and the Argentine academics who shared their experience and works with me. These academics provided important introductions, guidance, and advice to conduct my interviews in the United Kingdom and Argentina as well as gave insight of archives and secondary sources to consider. Third, I owe a debt of gratitude to the archivist and librarians in the National Archives of the United Kingdom, the Liddell Hart Centre of Military Archives in Kings College London, the Imperial War Museum archival records in London and Duxford, the Army War Museum, the University of the City of London Library, the Army Historical Service in Buenos Aires, the Circulo Militar of Buenos Aires' Library, and the Argentine Army War School's library in Palermo. Fourth, I have to thank the officers who provided their time and attention for the interviews. Retired British soldiers like Major Generals Michael Scott and Julian Thompson, Brigadier David Chaundler, Lt. Colonel Phillip Neame, and Sargent Tom Hardy were important contributors to this research and the time I spent with them was a real professional and academic privilege. The same goes for the Argentine officers and soldiers I interviewed which, as I explain in this dissertation, are not personally

identified to protect their privacy. These officers gave me the most privileged and detailed insight to the most momentous battle in South American military history. They provided me with privileged access to the tactical and operational rationale of Task Force Mercedes during the Battle of Goose Green, and thanks to this I was able to understand the Argentine account of the battle like very few South American soldiers and academics do. Furthermore, I need to thank them for the courageous part to serve their country in less than ideal political and social circumstances. The time I spent with them was another privilege that this research brought to me.

Finally, my committee deserves my profound gratitude. Starting with my chair, Professor Ryan Grauer dedicated countless hours to my endeavors. Professor Grauer believed in what I could do and, in the novel organizational culture approach I wanted to explore. Professor Grauer also gave me numerous hours of guidance and direction to land my initially abstract and vague ideas. He provided me with his experience and vast knowledge to turn them into actual hypotheses and research ideas. He also guided me to master the immense literature of the international relations field and in security studies. With this, I was able to find where and how my research could contribute to the field. Finally, Professor Grauer dedicated hundreds of hours to help me edit my manuscripts and spot conceptual and theoretical problems I had to address. I could not have asked for a better advisor than him and owe him a world of gratitude.

Professor Kenneth Pollack deserves a special mention as he supported my intellectual endeavors since I was a student in Georgetown University. Professor Pollack introduced me to military analysis in an exciting and stimulating way teaching me about military strategy, operations, and tactics. Thanks to Professor Pollack, I was able to grasp the detailed aspects of military analysis and he stimulated me to pursue topics of interest to me which eventually became the main motivation I had to pursue a doctoral degree. Professor Michael Kenney also motivated

me to master the international relations literature and patiently guided me through interesting and complex intellectual puzzles of the international relations field. And Professor Luke Condra introduced to me to the exciting world of experimental methods in social science when I assisted his research. A special mention is necessary for the late Professor William Dunn. Professor Dunn believed in my initial research intuition and sat down with me many times to give me excellent methodological advice, may his memory be a blessing. To all of my Professors, I hope that this work reflects in the best possible way the scholarship, mentorship, and knowledge you have shared with me.

Abstract

Why is military effectiveness elusive, even for countries with considerable material, institutional, or technological resources? The answer to this question is important for scholars and practitioners of military effectiveness, defense and national security policy, and international relations. Scholars have long used systemic and national-level variables to explain why some armies are more effective than others. As a consequence, practitioners have developed policies that rarely look outside budgetary, technological, and foreign policy measures to bolster the effectiveness of their armies. Nevertheless, despite these explanations and their use in policymaking, the answer is still not entirely clear.

This dissertation aims to bring more clarity to this question by venturing outside the systemic and national levels to explain military effectiveness. Relying on organizational culture theory, I argue that armies that develop the right organizational culture will achieve the highest levels of military effectiveness and, *ceteris paribus*, military power. To determine an army's organizational culture, I analyze how armies develop their own beliefs regarding combat operations and how these beliefs form specific types of organizational cultures. Then, by focusing on command and control, I analyze how different organizational cultures influence military effectiveness and military power in landmark conventional land battles fought during the twentieth century.

In order to test my argument, I rely on a qualitative research design that uses multiple research techniques. First, I used archival research to explore the beliefs of different armies through their official documents. Second, I conducted semi-structured interviews to former

combatants of the Falklands War, which were designed based on my theoretical framework. Third, I performed secondary sources research in order to uncover the beliefs of armies in the cases where archival research was not feasible. Using this research design, I show that my organizational culture argument provides a more congruent and consistent explanation of evinced military effectiveness and military power in the battles I examine than do alternative, existing theories.

Table of Contents

1. Chapter 1: Introduction	1
1.1. Why is it so difficult to have a skilled army?	1
1.2 What do the existing theories say about military effectiveness and military power?	6
Defining Military Effectiveness and Military Power	6
Explanations of Military Effectiveness and Military Power	11
Material Theories	11
Non-Material Theories	15
Assessing the Theories	18
Conclusions	25
2. Chapter 2: Organizing Military Effectiveness and Military Power	27
2.1. Military Organizations and Culture	27
2.2. How Organizational Culture Creates Different Levels of Military Effectiveness and Military Power	50
2.3. The Limits of Organizational Culture	67
2.4. Methodology	70
3. Chapter 3: First Battle of Sidi Rezegh 1941	85
3.1. The Cultures	86
3.1.1. The British Army	86
The Obedience Imperative	86
The Control Imperative	93

The Certainty Imperative.....	96
3.1.2. The German Army (<i>Heer</i>)	99
The Obedience Imperative.....	99
The Control Imperative.....	108
The Certainty Imperative.....	114
3.2. The Armies’ Cultures and Their Expected Performance.....	120
3.3. The Battle	124
Eighth Army’s Auspicious Beginning: 18 November – 20 November	134
PGA’s recovery	138
PGA’s Victory at Sidi Rezegh.....	140
3.4. Organizational Culture and the First Battle of Sidi Rezegh	143
3.5. Alternative Explanations	157
3.6. Conclusions	164
4. Chapter 4: Operation Stouthearted Men, Yom Kippur War.....	166
4.1. The Cultures	167
4.1.1.The Israeli Defense Forces (IDF).....	167
The Obedience Imperative.....	167
The Control Imperative.....	172
The Certainty Imperative.....	176
4.1.2.The Egyptian Army	180
The Obedience Imperative:.....	180
The Control Imperative.....	187
The Certainty Imperative.....	191

4.2. The Armies’ Cultures and Their Expected Performance.....	196
4.3. The Battle	198
The Egyptians Victorious’ Advance.....	202
Operation Stouthearted Men: The IDF’s crossing of the Suez Canal	205
The Paralysis of the Egyptian Army	208
4.4. Organizational Culture and Operation Stouthearted Men	213
4.5. Alternative Explanations	222
4.6. Conclusions	232
5. Chapter 5: The Battle of Goose Green.....	234
5.1. The Cultures	236
5.1.1.The Argentine Army.....	236
The Obedience Imperative	236
The Control Imperative.....	242
The Certainty Imperative.....	244
5.1.2.The British Army	247
The Obedience Imperative.....	247
The Control Imperative.....	250
The Certainty Imperative.....	254
5.2. The Armies’ Cultures and Their Expected Performance.....	256
5.3. The Battle	258
Defending Goose Green: The Passivity of Task Force “Mercedes”	261
Attacking Goose Green: The Control that Almost Lost the Battle	266
“Don’t tell me how to run my battle”- Lt. Colonel Jones	271

5.4. Organizational Culture and the Battle of Goose Green	276
5.5. Alternative Explanations	284
5.6. Conclusions	295
6. Chapter 6: Conclusions	297
6.1. The Theory	297
6.2. The Russian Offensive and the Organizational Culture Theory of Military Effectiveness	
311	
6.3. Theoretical and Policy Implications	315
7. Bibliography	322
8. Annex 1	361
9. Annex 2	368

List of Figures

Figure 1	9
Figure 2	43
Figure 3	61
Figure 4	63
Figure 5	83
Figure 6	86
Figure 7	127
Figure 8	129
Figure 9	131
Figure 10	135
Figure 11	136
Figure 12	138
Figure 13	142
Figure 14	167
Figure 15	201
Figure 16	202
Figure 17	235
Figure 18	260
Figure 19	262
Figure 20	265

Figure 21	268
Figure 22	273
Figure 23	282
Figure 24	299

List of Tables

Table 1	32
Table 2	78
Table 3	300

1. Chapter 1: Introduction

1.1. Why is it so difficult to have a skilled army?

Why is military effectiveness elusive, even for countries with considerable material, institutional, or technological resources? Time and time again, defense and military analysts have been surprised by the inept performance of what, on paper, seemed to be impressive armies. From the Arab armies' consistent ineptitude during their wars against Israel to the clumsy Russian invasion of Ukraine, we have seen that availability of resources, political will, and even domestic support do not necessarily lead to effective armies. A case in point is the French Army in World War II (WWII). Regarded as one of the most powerful armies in the world at the onset of the German invasion of France in May 1940, the French showed themselves unable to display flexible tactics and could not adapt to increasing levels of firepower and mobility in the battlefield. Instead, the army remained stuck in World War I (WWI) tactics that were no longer effective in May 1940. Yet, the French seemingly had everything: money, institutions, a powerful ally, and a liberal and democratic society.

The problem is not only that we have repeatedly seen these advantages fail to translate into effective armies; it is also that these advantages have not translated into victory. From the European powers that repeatedly tried to defeat Napoleon's Grande Armee to the German Army's victorious invasion of France, we have seen armies that did not have clear advantages over their enemies consistently able to win their campaigns. In the case of the German Army, it achieved clear

effectiveness in tactical and operational art compared to its adversaries, defeating several superior forces in less than three weeks during the invasion of France in 1940. In short, not only has effectiveness been elusive to those armies with apparent advantages, but armies with high levels of military effectiveness have been able to win battles that they should have otherwise lost.

In this dissertation, I argue that the reason why some armies were able to fight better and win despite their apparent disadvantages is their organizational culture, the beliefs they have about combat that enable them to be more skilled in battle and to win their campaigns. My argument is that armies that are able to generate beliefs that balance the need for internal order and external adaptability will be better able to exploit the information they have, make faster combat decisions, and show more tactical flexibility in their operations. I also argue that all things equal, because of these traits, these armies will be able to win against their adversaries.

A good case that illustrates the logic and utility of my organizational culture explanation of military effectiveness and power is the Chadian Army. In 1986, Chad counterattacked the Libyan Army using a simple but lethal combination of pickup trucks and MILAN Anti-Tank Guided Missiles (ATGMs), which overwhelmed Libyan tanks and inflicted significant losses (Pollack, 1996, p. 710-711). The main driver of this tactical success was the role that Chadian ground commanders played in using their initiative to enable fast and lethal tactics. These commanders would meet with their subordinates before operations to share their plans that ensured that their units would be used in the best possible way but, once the battle began, the operations were left entirely to the discretion of the company and lower commanders (Pollack, 1996, p. 711). Chad was not favored by any of the traditional explanations of military effectiveness, but it was still able to come up with a sound tactical performance against a superior adversary.

The Chadian case shows the need for new explanations about how armies generate military effectiveness and military power. My argument is useful here because it proposes a causal relationship in which an army's beliefs regarding tactics creates an organizational culture that shapes the force's command and control, which in turn allows it to generate higher levels of military effectiveness and military power. It can provide military analysts with the conceptual tools to understand how armies, like that of Chad, can compensate their material and technological limitations with superior tactical and operational performance.

This does not mean that my argument tries to portray organizational culture as an independent variable that is uninfluenced by purely organizational inputs. One important element that plays into organizational culture is the margin for misperception of past combat experiences. Pollack has argued that military history is full of cases in which societies have produced men with the right types of skills for modes of warfare that may be inconsistent with the then-dominant modes of warfare (2018, pp. 262-263). When a misalignment between these two elements takes place, the potential for misperception of the lessons from the battlefield is significant. Furthermore, Byman and Pollack have argued that "the goals, abilities, and foibles of individuals are crucial to the intentions, capabilities, and strategies of the state" (2001, p. 109). If individuals can shape the actions of the state, then the same can hold true for organizations, thus making them another important element that plays into organizational culture. But more than an indictment against organizational culture, these are arguments that highlight the importance of designing an organizational culture theory of military effectiveness that is transparent about the role of inputs like these in its influence in the army. I discuss this in Chapter 2.

International relations scholarship already has a significant number of theories explaining military outcomes; is an organizational culture theory necessary? The first reason why it is necessary is that existing theories attribute significant causal importance to material and non-material variables that are not always indicative of a belligerents' level of military skill or ability to achieve battle objectives. Whether it is a theory that argues that certain political regimes are more likely to have better armies or a theory that argues that certain levels of national income are more predictive of military victory, the fact of the matter is that many of these theories highlight national level inputs that have to be processed into military outcomes by an army. Theories that do not account for how these inputs interact with militaries' internal processes are not going to be able to explain why similar national inputs do not lead to the same results. Theories that focus too much on structural elements will not be able to explain, for example, why an Iraqi unit trained in the employment of Abrams tanks will not get the same results as an Israeli or American unit trained to use the same tanks. Although the process of weapons systems indoctrination can be favorably influenced by structural elements, its ultimate outcome hinges on how capable the army is in extracting as much advantage as possible out of national inputs. Forces' organizational dynamics, organizational culture amongst them, shape their capacities to extract such advantage and, as such, merit further theoretical and empirical investigation.

Second, if we do not understand militaries' internal behavior and decision-making, our understandings of the relationship between inputs and outcomes are necessarily limited. Defense analysts have warned of this danger since the 1960s. According to Andrew Marshall, former Director of Net Assessment of the U.S. Department of Defense, "the key problem, if one is to do a better job of predicting the behavior of governments, military bureaucracies, etc., is to develop

useful models of decision-making process in such organizations” (Marshall, 1996, p. 17). Existing theories of military effectiveness and military power assess the causal significance of different variables, ranging from material resources to militaries’ societal contexts, but do not look at how their decision-making conditions translate those factors into capabilities. For instance, theories that argue that material resources, technology, or societal cohesiveness will lead to optimal battlefield results do not address the decision-making process in the manner Marshall calls for. If anything, they take decision-making processes as a given. We can either spend significant time trying to make these theories work with their limitations, or we can improve their predictive quality by further investigating military organizations’ decision-making processes.

My organizational culture theory of military effectiveness and military power can help close the gap in our understanding of the relationship between national and societal inputs and battlefield outcomes. It can explain how the beliefs that armies develop about what works in combat can shape different decision-making processes that can consequently lead to different battlefield results. More specifically, it can explain how an army’s experiences in successful conventional combat operations create beliefs about optimal command and control (C2) practices, which consequently shape its military effectiveness and military power.

My theory yields new and important military analysis techniques for policymakers, defense planners, and operational commanders. First, it provides an analytical framework to see beyond the simple quantitative variables such as manpower, force structure, and weapon systems. It allows a force to measure how likely both it and its adversary are to extract the full combat potential of their material and human resources. Second, my theory can help reveal potential operational shortfalls of combatants. By providing a framework that explains how armies produce their

battlefield results based on what they believe works in battle, my dissertation gives practitioners and academics an instrument that allows them to take an army's doctrine, plans, and material resources, and compare them with the organizational beliefs that will determine their employment. This measurement can further be used to compare how similar armies with comparable beliefs have actually performed in combat operations. The result of this comparison can then be used to estimate how a force will actually perform in operations.

1.2 What do the existing theories say about military effectiveness and military power?

In order to understand the current state of the arguments regarding military effectiveness and military power, it is necessary to have clarity about the definitions of these concepts. Military effectiveness and military power are often used interchangeably in the security studies field, although they are quite different. In this section, I present the deeper differences that distinguish military effectiveness from military power and justify my selection of the former as my dependent variable. I also explain how, under certain conditions, organizational culture can also influence military power.

Defining Military Effectiveness and Military Power

Military effectiveness refers to the degree to which an army can pursue military operations. Scholars like Millett and Murray argue that military effectiveness is a process through which armed forces convert resources into fighting power (1988, p. 2). Some others argue that it is the

ability of an armed service to prosecute military operations and employ weaponry in them (Pollack, 2002, p. 4). Regardless of the nuanced differences between general and specific processes highlighted, all authors agree that military effectiveness is an organizational process through which a military is able to generate a certain basic level of proficiency and skill in order to prosecute combat operations.

A crucial point to note is that military effectiveness focuses only on what a military organization does, whether in peace or wartime, to prosecute operations. It is thus monadic in nature. As Pollack argues, “effectiveness is a measure of the quality of a military’s personnel [...] it refers to the ability of soldiers and officers to perform on the battlefield” (1996, p. 40). Military effectiveness ascertains how well a force processes the endowments it receives from the nation into soldiers and officers that prosecute operations.

However, just because a military is able to prosecute military operations does not mean that it will be better at doing so than its adversary. A military may show skill in annual maneuvers or international exercises. Yet, its real test only takes place when battling another adversary in combat operations. Therefore, while military effectiveness helps us understand how military organizations generate fighting capabilities, it does not help us understand why some armies are able to achieve better combat outcomes than others (Talmadge, 2013, p. 185). To account for the latter dynamic, we need an alternative concept that can account for the different results that take place when armies fight each other; in other words, we need a dyadic variable. This is the focus of “military power.” According to Biddle, military power is the ability to destroy hostile forces while preserving one's own, the ability to take and hold ground, and the ability to do so in the least

time possible (2004, p. 6). Therefore, unlike military effectiveness, military power asks how well an army performed compared to its adversary in combat.

While Millett and Murray's definition of military effectiveness emphasizes organizational processes, their explication of the concept expands its focus to other processes, such as policy. For these authors, effectiveness is political, strategic, operational, and tactical; each one of these dimensions encompasses different sub-processes that bring about the required military capabilities (Millett et al, 1988, p. 38). Their definition of effectiveness is also designed in such a way that it encompasses different military services: armies, navies, and air forces (Ibid, p. 50). These two characteristics, while helpful in making their conceptualization generalizable, render it less than ideal for my purpose in this dissertation, which is to explain how and why organizational factors within armies affect their capacity to generate military effectiveness in forces fighting conventional land engagements. Many of the lessons of military history suggest that performance in such settings is distinct from performance in other settings (Doughty, p. 185; Murray et al., 2000, p. 23). Accordingly, I need a narrower conception of military effectiveness.

My understanding of military effectiveness thus departs from that of Millett and Murray and is instead rooted in Pollack's argument that it is the "ability of an armed service to prosecute military operations and employ weaponry in military operations [...] essentially, it addresses how well a military force fought under a given set of circumstances" (1996, p. 40). This definition is particularly useful for my purpose for two reasons. First, it concentrates on the operational and tactical organizational dimensions through which armies generate their military capabilities (Ibid, p. 76). This gives me the dedicated conceptual umbrella I require to understand how organizational cultural influences military effectiveness. Second, the focus of Pollack's research is army

operations. This means that his conceptualization is well-suited to assessing military effectiveness in the land domain.

Though the two concepts are distinct, through its ability to generate capacity to prosecute military operations with high levels of skill and competence, military effectiveness is related to military power, as Figure 1 shows.

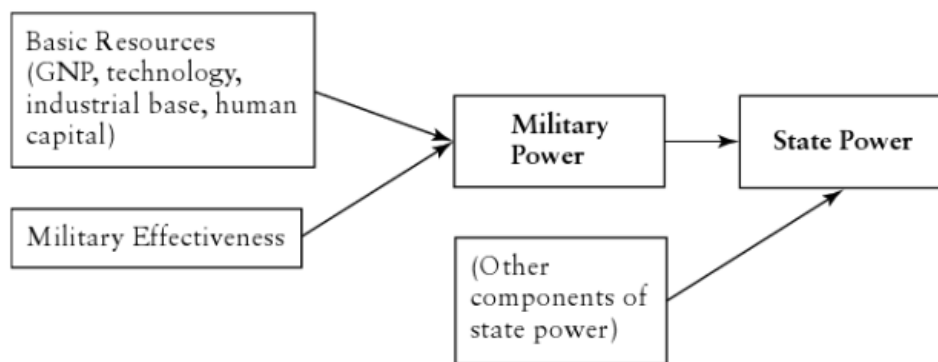


Figure 1¹

As depicted, military effectiveness is an important prerequisite of military power. While material and non-material resources are lumped together in a single causal pathway, military effectiveness has a direct causal link to military power. In short, understanding military effectiveness can also lead to important revelations about the sources of victory and defeat for armies.

The relationship between military effectiveness and military power can be seen if we turn back to the Chadian example considered above. As Pollack observes, although the Libyans had access to larger holdings of modern armaments, the Chadians were much better at using the

¹ Brooks, R. (2007). *The Impact of Culture, Society, Institutions, and International Forces on Military Effectiveness. Creating Military Power*, Edited by Risa Brooks and Elisabeth Stanley. Stanford: Stanford University Press, p. 4.

weapons at their disposal with higher levels of skill (2004, p. 391-392). Put differently, while the Chadians did not have access to the latest military weapons systems, they were better able than their adversaries to convert their available tactical advantages, such as troops with higher levels of initiative, into higher levels of military effectiveness. For instance, although the Chadians lacked large amounts of field radios to maintain communications; they nonetheless were able to transform this weakness into a strength and developed a decentralized command structure and that helped facilitate their effective Toyota pick-up trucks swarming attacks against Libyan armored units (Pollack, 1996, pp. 710-711).

This example also highlights another virtue of studying organizational culture. While I treat organizational culture as an independent variable, it may, under some circumstances, function as an intervening variable in the process of explaining the war efforts and achievements of nation states. The connection between organizational culture, military effectiveness, and military power could be used by other researchers to explore how the existing theories of military effectiveness perform when factoring in the role of the army as an organization. For instance, in the case of Libya's operations against the Chadians, my theory could help scholars using existing theories of military power like those emphasizing manpower and weaponry to understand how Libya's organizational culture may have reduced the actual military power of that state, despite its material advantages.

Explanations of Military Effectiveness and Military Power

Having set the record regarding my definitions of military effectiveness and military power, it is now necessary to review the existing arguments regarding these two outcomes. This section reviews the most prominent theories that have been produced to explain military effectiveness and military power. I first present summaries for material and non-material explanations of both military effectiveness and military power. Then, I provide an assessment of the strengths and limitations of these theories, as well as the explanatory opportunities they could afford if used in tandem with organizational level variables like organizational culture. I close this section with a discussion as to why my organizational culture theory of military effectiveness and power can improve our understanding of these two issues.

Material Theories

Material theories of military effectiveness and military power argue that economic and technological advantages are the primary drivers of martial capabilities. These theories hold that the same factors that, from a realist perspective, underpin state power in the international system are also those that define the levels of effectiveness and power an army can generate on the battlefield. Starting with economic theories, such arguments hold that the wealth of a nation defines its military power. According to Organski and Kuegler, when a state with higher per capita gross domestic product (GDP) faces one with lower GDP, the former will generally be able to generate more military power than the latter (1980, p. 85). Others argue more specifically that

increases in defense expenditures lead to increases in military power, as they provide more resources for weapons systems (Waltz, 1979, p. 111; Posen, 1984, p. 228; Overy, 1995, p. 19). A good example of these explanations at work can be found in the approach that this school of thought takes regarding the Allied successes in WWII, highlighting the superiority of the Allies' GDP compared to that of the Axis powers (Overy, 1995, p. 19). According to Harrison, the prewar resource balance between the Allied and Axis powers favored the former by factors of 2.7:1 in population, 7.5:1 in territory, and 1.4:1 in GDP (1998, pp. 4-5). These advantages, which were less pronounced if calculated without the Allies' extensive colonial empires, is thought to have provided the eventual victors with what they needed to defeat the Axis.

In terms of military effectiveness, some argue that it is not so much the size of a state's economy that drives its martial capabilities, but the level of its internal economic development. The argument here is that economic development allows some countries to acquire the production and human resource capabilities required to generate military effectiveness (Beckley, 2010, p. 53). Under this school of thought, more than economic size, economic development allows higher levels of social development in the form of more educated, better fed, and healthier populations that produce qualitatively better soldiers capable of generating high levels of military power (Pollack, 1996, p. 142-145). A good example of this dynamic at work is in how properly educated recruits can effectively service weapons systems so as to maintain them in optimal condition and numbers. The less technically educated the population is, the more likely it is that its recruits will destroy expensive weapons systems (Ibid, p. 146). Note that economic development comes closer than economic size theories to providing insight into how inputs condition the internal dynamics

of militaries insofar as they claim that the quality of manpower will influence how effective the armies will be, though they still do not fully explain why such variation occurs.

Other scholars draw a link between technology and military power, claiming that the overall offense-defense balance determines military outcomes. These theories claim that technological imbalances that facilitate offensive or defensive action are key to military power, making it either easier or harder to launch early and successful campaigns against adversaries (Jervis, 1978, 187; Van Evera, 1999, p. 160). Related arguments connect technological superiority to militaries' capacities to increase their effectiveness by granting them access to more lethal weapons technology (Brown, 1979, p. 226). In a way, these theories are similar to economic development theories. While the latter provide insight into how the quality of manpower ultimately affects military operations, the former cast light on how the technological edge of weapons systems determines how much military power an army will generate. For instance, offense-defense theory argues that weapons systems with high levels of firepower, mobility, and protection contribute to offense superiority, as is the case of the tank (Biddle, 2001, p. 745). This kind of explanation was popular during the Cold War, when the number of Soviet armored divisions was considered to be a significant indicator of the Soviet capacity to overwhelm NATO forces with Blitzkrieg type operations (Mearsheimer, 1982, p. 30). Given the firepower, mobility, and protection that tanks have as weapons systems, many saw them as giving Soviet offensive efforts an inherent advantage over NATO armies' defensive efforts in central Germany.

Other strains of materialist theories focus on force-to-force ratios, arguing that achieving a given number of friendly soldiers per enemy combatant increases military power by making it easier to crush defensive efforts (Mearsheimer, 1989, p. 57; O'Hanlon, 2009, p. 65). In general,

the main premise of these theories is that larger forces can be directly translated into military effectiveness and military power. Of all the materialist theories reviewed so far, those emphasizing force-to-force ratios are perhaps the most influential in military practice, with axioms such as the 3:1 rule, which claims that three attacking soldiers per one defending soldier is the optimal ratio to secure a successful offensive, attaining the status of conventional wisdom. Perhaps the earliest manifestation of this theory is none other than Sun Tzu's *Art of War*, in which a set of force-to-force ratios is presented with each corresponding recommended action (2014, p. 21). With the beginning of operations research at the end of WWI, mathematical axioms were systematized in formal mathematical equations by Frederick Lanchester, who emphasized fire concentration in order to derive the rate of loss that each combatant would sustain and used that rate of loss to predict outcomes based on the number of weapons per combatant (Lepingwell, 1987, p. 95). The usefulness of such approaches in accounting for dynamics in land warfare has been called into question, but that has not stopped them being used to forecast military capabilities (Ibid, p. 94; Epstein, 1989, p. 126).

The main takeaway of these material theories is that military effectiveness and military power hinge upon resources. None of these theories pay much attention to or goes into much detail about how the resources are transformed into military capabilities. Whether it is economic development theories or the force-to-force ratio theory, the assumption is that material advantage manifests almost automatically in military effectiveness and military power. For instance, under the force-to-force ratio theory, it is assumed that, as long as an infantry Division of 12,000 soldiers attacks a 4,000-soldier infantry Brigade, all things equal, the attacker will have a high likelihood

of overpowering the defender. Under the same logic, it would be unwise for the Brigade to attack the Division.

Non-Material Theories

Non-material theories emphasize variables such as regime type, political interaction, and other sub-national dynamics to explain differences in military effectiveness and military power. Here, some argue that democracies, because of their better macroeconomic performance, have more resources that give them access to higher levels of military power (Lake, 1992, p. 30). Others argue that democracies are more likely to have higher levels of military effectiveness and power because they foster more individual initiative in their population while simultaneously choosing to fight wars that they are likely to win (Reiter and Stam, 2002, pp. 23,69). The common line of argument across all these variants is that democratic regimes are likely to be more effective at pursuing military operations and also more likely to generate higher levels of military power.

Others see the influence of certain types of institutions in military results. For instance, some argue that parliamentary, rather than presidential, control over the British Army led to the promotion of officers who were more aligned and skilled in imperial policing, which in turn led to the Britain's effectiveness in counterinsurgency (Avant 1994, pp. 39-40). Within this subset of arguments are claims that stress the impact of civil-military relations on military effectiveness. For example, some argue that an army that has been given autonomy in operational and tactical matters will most likely have a higher military effectiveness because it can better develop its military expertise (Huntington, 1957, p. 83). Some scholars argue that coup-proofing, or the tailoring the

inner workings of their armies to assure political compliance at the expense of their fighting capacity, is the main culprit for low levels of military effectiveness (Talmadge, 2015, p. 15; Pollack, 1996, p. 85). In short, these streams of arguments claim that exogenous political structures that regulate or shape the way the army operates in the service of its country are the main causes for the effectiveness of that service.

Another important set of these theories deal with sub-national dynamics that can influence outcomes in military effectiveness and military power. Shils and Janowitz argue that military effectiveness results from the capacity of primary groups (typically units) to meet soldiers' basic needs, offer them affection, provide them with a sense of power, and regulate their relations with authorities (1948, p. 281). Armies that perform these functions well are more likely to be cohesive and, therefore, more militarily effective. This approach is then taken to a broader level by arguments that see military effectiveness as dependent on the cohesiveness that a society can maintain regarding its military's primary missions (Kier, 1997, pp. 25-26; Henderson, 1985, p. 4). For these theories, the more cohesive an army and a society are, the more supported soldiers will feel and the more likely they will be to act in military operations in more effective ways.

Other scholars see social conflict and the isolation a military may achieve vis-a-vis its parent society as drivers of military effectiveness and power. The argument is that, with high societal conflict, social divisions will infiltrate the military and, as a result, reduce its military capabilities in combat with adversaries (Rosen, 1996, pp. 29-30; Hoyt, 2007, p. 55). A derivation of this theory argues that democratic societies with low internal and high external threats have more cohesiveness, and therefore greater military effectiveness, because they are incentivized to develop military expertise while not fearing the negative consequences that may result from civil-

military mistrust (Desch, 1999, p. 14). A more recent variation in this line of thought is Jason Lyall's theory regarding political inequality and battlefield performance. Drawing on scholars such as Castillo and Rosen, Lyall argues that ethnic discrimination in political communities affects their militaries' battlefield performance, discipline, cohesion, and maneuver capacity (2020, p. 40).

The next set of non-material theories examine societal beliefs and how they shape military effectiveness. Here, Pollack argues that Arab culture forms patterns of behavior that lead to conformity, deference to authority, centralization of authority, manipulation of information, atomization of knowledge, in-group loyalty, avoidance of technical work, and courage; all of these characteristics have consistently reduced Arab military effectiveness (1996, p. 76-81). Some, like Reiter, analyze the link between nationalistic ideals and military effectiveness, arguing that some extreme forms of nationalism can make soldiers more willing to fight and die for their countries (2007, p. 28). Others, like Brooks, have incorporated cultural beliefs in multi-layered analyses of military effectiveness, exploring how worldviews or beliefs within a society shape how army prepares for war (2007, p. 16).

While the above theories have explored the effects of incorporating culture as an independent variable of military effectiveness, Biddle focuses on the relationship between an army's operational and tactical style and its military power. He argues that armies that are better able to use modern tactics and operations, which reduce exposure of soldiers and facilitate operating in depth, are more capable of defeating adversaries that are less able (2004, pp. 35-48). Compared to the above, Biddle's theory examines the tactical and operational beliefs that are commonly associated with victory in war rather than societal-level beliefs. In this sense, it begins to look at the relationship between organizational dynamics and military effectiveness and power.

In recent years, other scholars have continued this promising trend. Grauer's command structure theory holds that military power is the result of the degree to which an army's command structure fits the battlefield environment in which the force is fighting (2016, p. 41). Specifically, Grauer argues that armies that better adapt the decision-making architecture and communications of their command structure to the battlefield on which they are fighting will generate higher levels of military power than adversaries that do not achieve such fit (2011, p. 42-43). In this, it offers perhaps the most organization-centric theory of military capabilities.

As this review has shown, there is a clear trend in existing theories of military effectiveness and military power. For a long time, scholars have been climbing down levels of analysis to examine factors closer to the organization that is ultimately in charge of producing military effectiveness and military power: the army. This is an important trend, and central to understanding the strengths, limitations, and opportunities of existing theories of military effectiveness and power.

Assessing the Theories

Starting with material theories, the main strength of these claims is their simplicity. Using clear and parsimonious explanations, they do not require complicated causal mechanisms to explain military effectiveness or power. To a civilian or military analyst looking for analytical or policy tools to understand military dynamics, these theories offer relatively simple and attractive alternatives: quantitative measures such as GDP, manpower, economic development, national objectives, and military technologies. Hence, a quick glance at yearly edition of the Institute of

International Strategic Studies *Military Balance* can give the analyst a simple measure of the relative strength of an army. The Achilles heel of these theories, however, is not only that they omit intervening variables, but also that they confuse convenient with sufficient conditions. Wealth may be a convenient condition to generate military effectiveness, but it is not sufficient.

Another weakness of material theories is that they fail to account for the role of battlefield-level variables that can negate numerical advantages. These theories assume that smooth movements are always possible and consistent with the concentration needs of the armies. However, factors like rear area or frontline traffic issues as well as interdiction efforts by the enemy can obviously erode or negate any numerical advantage (Epstein, 1988, p.162). Another issue is that there is little clarity about the level at which one should make the force comparisons (Biddle, 2004, p. 15). This in effect means that users of these approaches have no methodological guidance regarding whether they should compare forces at the theater level, at the formation level, or at the unit level. Without such guidance, use of such frameworks becomes muddled with questions regarding the validity of the comparisons.

A final weakness of material theories is that there is an implicit assumption that technological progress directly translates into weapons employment effectiveness. Although an army can procure extraordinarily advanced weaponry, those weapons must be used by soldiers in the chaos of combat. Furthermore, any weapons employment by a small unit must be coordinated and aggregated with the efforts of similar and larger units across time and space in conditions of uncertainty, risk, and confusion. As a result, there is a significant lag between technological imbalances and actual battlefield results. Biddle has observed that, despite ten-fold growth in weapons platforms' speed between 1900 and 1990, an army's average rate of advance has

remained constant in the same period (2004, p. 23). This means that, even if the technology has grown exponentially, untrained, or unskilled forces can still lag far behind in their use of these weapons. For instance, an army may have access to the most modern tanks but may still be unable to maneuver as a force to outflank its adversary, and thus have its rate of advance curtailed well below the potential of its technology. Pollack has also observed that many Arab armies, despite holding major technological advantages in weapon systems, were unable to exploit this capacity due to a general aversion to technical work and information handling (2002, pp. 563-564). These two examples speak directly to this weakness of material theories: technological advantages mean nothing if they are not exploited effectively.

Material theories have the potential to shed significant light on variations in military effectiveness and military power. To do so, however, they must be paired with analyses of the conditions under which resources are turned into capabilities. To that end, using them in tandem with organizational theories could lead to significant gains in our understanding of military effectiveness and military power.

Turning to an assessment of non-material theories of military effectiveness and military power, recall Marshall's comment regarding the estimation of military power: "The key problem, if one is to do a better job of predicting the behavior of governments, military bureaucracies, etc., is to develop useful models of decision-making process in such organizations." (Marshall, 1996, p. 17). The main strength of these theories is precisely their emphasis on how decisions and preferences that are external to the army shape its circumstances. Unlike the material theories, the non-material theories attempt to understand how the behavior of entities external to the army set the conditions under which it fights. However, with some exceptions, such as Grauer's and

Pollack's theories, most of the non-material theories do not look inside the army to assess how external pressures interact with armies' intra-organizational dynamics.

The starting point to understand the importance of Marshall's call and the limitations of non-material theories lays with Grauer's command structure theory. While this theory is the only one of the existing theories that has tried to explain military power from inside the decision-making processes of armies, command structure is insufficient without knowing more about organizational variables that give rise to how decisions are made. Going back to Marshall's call, it is not enough to know how the structures that facilitate decisions influence army behavior. It is important to know how beliefs about war and combat shape those decision-making structures and processes. To put it in computer science terms, although command structure theory, perhaps the most detailed of non-material theories that has come closest to opening the military organizational black-box, accounts for how certain programs influence the performance of an operating system, without knowing how the source code of these programs, we still cannot explain why they perform as they do.

This is where an organizational culture theory can bolster our understanding of both military effectiveness and military power. With such a theory, we can identify the prior belief structure — the source code — that shapes how well armies fit their decision-making structures to the battlefield. By identifying these prior beliefs, and how they shape military decision-making on the battlefield, we can better predict military performance in operations and war. These prior beliefs and their relationship with how operational and tactical decision-making is done before and during war are the key to answering Marshall's call for more accurate analytical models that can truly predict military behavior.

Regarding other non-material theories, their focus on the inner behavior of the army is less than Grauer's command structure claim, and they are accordingly further removed from Marshall's ideal. In general, these theories argue that political institutions, societal dynamics, and other sub-unit level variables enable armies to create military effectiveness and military power. The idea that organizations are influenced by the societies to which they belong is valid in the sense that most organizations reflect their societies' values and beliefs, at least in part. Governments are elected, public sectors (including militaries) are directly staffed by societies, and educational institutions belong to and serve their communities. Even private businesses must somehow reflect societal tendencies and preferences in order to be profitable.

Nevertheless, the military is a unique organization in society because it has the capacity to modulate the level of influence it gets from its societal and political environment. As Rosen points out, armies can choose to isolate themselves from their societies (Rosen, 1996, pp. 29-30). Not only can armies choose how they recruit their members, but, even when drafting from the population, armies recompose soldiers' individuality so that they reflect the army's values and preferences. As Burke observes in his research of the British Army's performance in Northern Ireland, the army is a total institution that forces its members to adapt their behavior in radical ways, just like in monasteries (2018, p. 42). Therefore, unlike other organizations in society, militaries can form completely different realities for themselves.

Herein lies the main weakness of most of these theories: they do not account for the interaction between domestic-societal influences and military organizational isolation. In the case of theories that argue that democratic regimes and institutions can lead to military effectiveness and military power, armies can block the influence of their political regimes through their ability

to calculate what is politically more convenient for their interests (Avant, 1994, p. 30). This means that armies can use politics to stymie or stop their political masters from imposing directives and orders that they find inconvenient. Indeed, not only is the military capable of having different preferences from its masters, but at times the military may carry out its own preferences, calculating whether it will be caught and whether, if caught, it will be punished (Feaver, 2003, p. 102).

This failure to account for the interaction of domestic and social contexts with military organizations creates inexplicable anomalies. Talmadge has observed that the Iraqi military was able to recover from its disastrous performance during the early years of the Iran-Iraq War thanks to changes in organizational routines such as promotion policies, training regimes, command arrangements, and information management (2015, p. 235). This observation is notable when considering Pollack's argument regarding the pervasive, constant, and negative influence of Arab culture on military effectiveness. If the Iraqi military was able to improve its effectiveness and power in spite of this deficiency, then there is necessarily a question to be asked about the level of influence societal culture has on military effectiveness and power. Could a military that has a strong organizational culture that is conducive to the pursuit of military operations be more powerful than one might expect given its parent society's culture? This question can be answered by looking precisely at the role that an army's organizational culture can have on its military effectiveness and power. Knowing more about organizational culture can help us understand how effective an army's self-isolation from society can be, its potential, and the limits on its generation of military capabilities.

In terms of Biddle's force employment theory, the core problems stem from its novelty and explanatory power. Cohen has observed that elements of the modern system of force employment were both already present on the battlefield before World War I and often absent in World War II operations, thus leading to some definitional ambiguity in explaining the components of the approach to warfighting (2005, pp. 415-417). Regarding its explanatory power, statistically, force employment theory does not appear to better explain victory than other theories like those emphasizing material capabilities or political institutions (Grauer and Horowitz, 2012, p. 102). Furthermore, this theory begs a key question: if "modern" force employment is strongly correlated with high levels of military power in battle and if the employment is widely known by armies, then why is it that so few forces adopt it? Biddle explains the lack of generalized adoption as a function of other independent variables, including cultural and organizational constraints (2004, p. 50). Explaining variation in force employment ultimately requires opening militaries' organizational black boxes, as my organizational culture theory proposes to do.

Non-material theories of military effectiveness and military power have important limitations. As with material theories, however, an organizational culture theory of military effectiveness and military power could improve these claims' accuracy. In the case of theories emphasizing political institutions, organizational culture could tell us how a democracy's army can reduce or augment its inherent military effectiveness and military power based on its cultural beliefs. In terms of civil-military relations theories, organizational culture could prove important in helping us understand how the best, or worst, civil-military interactions could have different, or more explosive, outcomes than expected. Here, there is a specific example on point. It is common knowledge that Hitler, the High Command of the Armed Forces (*Oberkommando der*

Wehrmacht-OKW), and the High Command of the Army (*Oberkommando der Heeres*-OKH) were often at odds on matters of strategy, operations, and tactics throughout WWII. Despite the bad relations between German political leadership and soldiers, however, OKH was able to deliver outstanding feats such as the invasions of France and the Soviet Union. This was because the Army's military effectiveness and military power was so high that, at least momentarily, it overcame the anticipated effects of dysfunctional civil-military relations. Having an organizational theory that can account for these results can help us understand when, and how, organization-level characteristics can offset or magnify civil-military relations dynamics.

Conclusions

This brief review of theories highlights that, despite considerable scholarly effort to explain the causes of military effectiveness and power, there is still significant work that needs to be done. In particular, material, and non-material theories fail to explain how material, institutional, and cultural resources are turned into military capabilities, effectiveness, and power. As Marshall points out, these theories do not help us understand how an army's decision-making processes generate or fail to generate military effectiveness. Without accounting for what organization-level dynamics turn resources into the capability to pursue military operations, these theories do not explain what causal processes connect material and non-material resources with military power. If this void can be filled, we can improve our understanding of the drivers of military effectiveness and power.

To fill this void, I proceed in the following way. First, I present my theory in detail in Chapter 2 starting from my conceptual definitions, then unpacking my causal mechanism, and finishing with my research design. Then, I conduct three case studies in order to assess the strength of my causal mechanism and examine its generalizability. The first case is the First Battle of Sidi Rezegh in 1941, presented in Chapter 3. In this case, I assess how my organizational culture theory performs explaining the unlikely victory of the German Afrika Korps against the British Eighth Army. The second case is Operation Stouthearted Men in 1973, which is analyzed in Chapter 4. In this case, I explore how the interaction between the IDF's and the Egyptian Army's organizational cultures allowed the former to defeat the later. The final case is the Battle of Goose Green in 1982, which is assessed in Chapter 5. In this case, I assess how my theory performs at the tactical level, analyzing how the Argentine Regiment defending the Darwin isthmus was defeated the British 2 Para Battalion. In each of these cases, I conduct an exhaustive analysis of how my theoretical claim explains events observed in the historical record and how the alternative theories fail to account for the results. Finally, in Chapter 6, I summarize in the conclusions what these findings mean for theory, policy, and current military events.

2. Chapter 2: Organizing Military Effectiveness and Military Power

Having justified the need for an organizational culture theory of military effectiveness and military power, it is time to present my theoretical claim. In this chapter, I explain how a set of beliefs shared within an army drives military effectiveness and, ultimately, military power. These set of beliefs are what I define as an organizational culture. To unpack this theoretical claim, this chapter proceeds in the following way. First, I explain my definition of organizational culture and how it can be understood as a form of organizational technology that interacts with other organizational technologies. Second, I explain how organizational culture works through command and control (C2) to influence military effectiveness and military power; the different types of organizational cultures that may exist in armies, and the different effects that these types of cultures can have in military effectiveness and military power. Then, I discuss the theoretical and practical limitations my theory may entail. Finally, I present the methodology that I follow to test my theoretical claims and the controls I use to increase the reliability of my findings.

2.1. Military Organizations and Culture

Warfare is one of the most essential human activities that has required organizations to conduct it. From the Battle of Megiddo in 1500 BCE to the recent Russo-Ukrainian War, for almost 3,500 years of recorded military history, it has been armies and not individual warriors that

have been the center point of military activity.² This highlights an important point: military organizations are, perhaps, the longest running form of organization in human history.³ Though the technology that helped the Greek hoplite and the German Panzer Armies differ in outstanding ways, one factor across time remained constant: the hoplite and Panzer Armies were organizational solutions developed to perform a specific tactical and operational task. Therefore, as Clausewitz reminds us, even across time and space, war has a grammar of its own (1984, p. 607). The need for a military organization seems to be a common element of that unchanging grammar of war.

Military organizations, armies among them, are more than just charts and procedures: they encompass the beliefs of the individuals and the arrangement of their efforts. For instance, Cyert and March's *Behavioral Theory of the Firm* explains how bargaining processes between individuals leads to the creation of organizational-level goals and even adjusts these agreements based on environmental changes (1963, p. 33). In another example of the importance of individual bargaining, Simon's *Administrative Behavior* explains that organizations establish attitudes and habits to instill in employees a behavior that is consistent with the organization's goals (1976, p. 11). The salient issue here seems to that, at the core of an organization lies a constant process through which individuals bargain with each other regarding the best habits and attitudes for the

² Of course, we have all read wonderful stories of warriors such as King David, Achilles, Saladin, and the Cid Campeador, but military history has been made by armies. With the exception of very localized accounts of individuals deciding entire battles in one-on-one duels with another warrior, for example David against Goliath, armies have been the focus of all national efforts to develop a specialized group of individuals that pursues by lethal force the political objectives of societies.

³ Here, there has been an important line of sociological and historical inquiry exploring the link between the formation of the modern state and that of modern armies, led by noted scholars such as Otto Hintze and Charles Tilly (Ertman, 2017, p. 52). But, in reality, armies predated the formation of even modern states, as is the case of the Greek hoplites, the Roman Legions, the Mongol Hordes, and the Spanish Tercios.

organization's achievement of its goals. This also means that organizations, inasmuch as they have attitudes and habits, think about how they can achieve their goals.

The idea of organizational thinking has been a strong theme of modern organizational theory research. Schein's research here has led to a newer understanding of the bargaining processes theorized by Cyert and March. Schein argues that the bargaining processes help organizational leaders impose their values, which, if successful for the organization, can form the organization's culture and define its later generations (1992, p. 1). This means that leaders contest each other in terms of their beliefs regarding how the organization can best attain its goals without always knowing if these beliefs will be successful in reality. This reframing of what was seemingly a rational contest of goal definition is very important because it brings to light the importance of the beliefs that the organizational leadership has derived based on their experience of what works.

The bargaining process that ultimately shapes the inner structure and behavior of an organization lies in a field of ideas of the best ways of performing the job assigned to the collective. Nowhere is this more evident than in the extensive bargaining that happens inside armed forces while they define how to innovate to fulfill their military missions in the next war. Here, Rosen has shown how this process often pits different groups of military leaders fighting to promote their beliefs of how their military service should fight in the next war. For instance, in the case of the US Navy, there was high distrust between Admiral Moffett's group of naval aviators and the Navy's battleship admirals because the former "was challenging the entire political structure of the navy" in order to provide an institutional path for naval aviation to innovate the navy's operations and tactics (1991, pp. 77-78). In the case of the U.S. Marine Corps, the U.S. Navy had disdain for the amphibious operations advocated by innovative officers like John Ellis, which only

became a reality 14 years after they were first proposed when Marine General John Russell lobbied successfully for the establishment of the Fleet Marine Force (Ibid, pp. 81-83). Finally, in the case of the U.S. Army, the process to introduce helicopters in its force structure was extensively modelled along the experience of Admiral Moffet's introduction of naval aviation in the navy (Ibid, p. 87). The end result of Rosen's observations is that military organizations, even in highly technical discussions such as new weapons systems, are highly influenced by how leaders used the beliefs they derived from their combat experiences to bargain the way in which their forces should fight in the next war. Thus, even military organizations do not escape the essential feature that Cyert and March identified for organizations: bargaining between individuals of the organization drives its goals.

Other recent works on government organizations have confirmed that this process of organizations taking up beliefs that have proven successful is a common trend. One of the most salient contributions showing this common pattern is that of James Wilson's *Bureaucracy*. Wilson looks at the performance of different types of organizations, such as armies, to conclude that their effectiveness was a result of how each one decided to perform its critical task (1989, p. 25). But organizations are also capable of having phenomenon akin to what we would call personalities. According to Builder, nothing is more self-revealing about problems, interests, and aspirations of the American military institutions than their approaches to military strategy, planning, and analysis (1989, p.3). In his argument, Builder explains that these unique approaches constitute "personalities" that military institutions adopt based in their experiences (Ibid, p. 7-8). A recent RAND report found Builder's observations all the more relevant as it discovered that "wide disparity between each service's cultural distinctions, competitive goals, preferred employment,

and vision of how wars, if they occur, should be conducted” (Zimmerman, 2019, p. 183). What this institutional approach to understanding armies brings to the fore is that they imbue their processes with their own institutional beliefs.

A good example highlighting how organizational processes reflect specific beliefs, are the different results that three armies obtained from adopting a C2 practice known as *Aufstragstaktik*. This practice consists of a Commanding Officer (CO) issuing his particular intentions to a subordinate and leaving entirely up to the latter the specifics of the attainment of those intentions (Shamir, 2011, p. 42). It was a significant standard operating procedure (SOP) – a recurrent and common practice in an organization – in the German Army (*Heer*) until the end of WWII and, as a result, it gained the attention of the United States Army, the British Army, and the Israeli Defense Forces (IDF). Of these armies, both the United States Army and British Army actually observed the power of *Aufstragstaktik* on the battlefield when fighting against the *Heer* in both WWI and WWII. As a result, one would expect the adoption process to have been straightforward: collecting enough information of *Aufstragstaktik*, defining an agenda for its implementation, and adjusting efforts until it was completely incorporated as part of their own SOP. If a military’s performance was simply along the lines that traditional organizational theory focused on coalition bargaining and goal definition supposes, then at least the United States Army and the British Army, as armies that fought against the *Aufstragstaktik*-commanded *Heer*, should have been able to adopt this practice.

But, in reality, none of these armies was able to fully adopt *Aufstragstaktik*; instead, they were only able to incorporate variations of it. Significantly, each variation was different from the others, partly reflecting deeper beliefs that the armies held regarding the traits that a successful

implementation of *Aufstragstaktik* required. Table 2 displays some of the cultural variations that armies had regarding key traits of *Aufstragstaktik* they tried to adopt.

Table 1⁴

Traits of <i>Aufstragstaktik</i>	Required Beliefs	United States Army	British Army	IDF
Attitudes towards risk	Necessary at all levels	Should be avoided when possible	Should be well calculated when taken	Unavoidable
Attitudes towards war	A social phenomenon, a clash of wills produces friction	Similar to business	A sport or game for the aristocracy	Necessary evil, no choice
Command doctrine	Friction, Chance, and Uncertainty	Managerial principles	Umpiring	Optional control

As Table 2 shows, *Aufstragstaktik* was built around a series of traits: full acceptance of risk at all levels, understanding war as a clash of wills producing friction, and a command doctrine that accepted friction, chance, and uncertainty. But the United States Army emphasized avoiding risk when possible, understanding war like a business, and understanding command as a managerial procedure. Consequently, command in the United States Army was a very managerial process nowhere close to *Aufstragstaktik*. This is also the case in the British Army, where risk was a matter of calculation, war a sport of the gentry, and command was understood as the umpiring between distinct views. Hence, in the British Army, command was a very vertical and centralized process that was foreign to the flexibility of *Aufstragstaktik*. In what could be a complex irony, it was the IDF that came closest to reflect the traits that *Aufstragstaktik* required. The IDF saw risk as

⁴ Source: Shamir, E. (2011). *Transforming Command*. Stanford, Stanford University Press, p. 98.

unavoidable, war as a necessary evil, and understood command as a process where there was an option of control. As a result, the IDF was able to develop command practices that are the closest to *Auftragstaktik* in terms of the flexibility and independence it requires between CO and subordinates.

The table also shows that the drivers of military organizational performance go deeper than just coalition bargaining and goal definition. Without the required beliefs, any effort to adopt *Auftragstaktik* could easily end up with a completely different outcome. To use a computer science analogy, each of these armies tried to incorporate a specialized and high-performance computer program into machines with incompatible operating systems. As many readers probably have experienced when installing new programs that are incompatible with their operating systems, the program's performance is, at best, severely compromised in these situations. In the same way, adopting weapons systems or command practices without amenable beliefs can severely compromise the effectiveness of the former. This is the reason why organizational culture may be a good variable to explain why what seems to be a relatively straightforward process of doctrinal diffusion becomes more complex once we look deeper into organizations

Armies, as organizations, have deeper dimensions than merely their decision-making framework or their control arrangements. Armies can develop their own distinct values and beliefs based on their operational experience, domestic environment, societal context, and time in history, and these values and beliefs can give them a unique set of traits. Whether we call these values using Schein's terminology or personalities using Builder's theory, the point is that, like organizations, armies have deeper internal variables that can shape not only how they actually think they can engage in combat in war, but how they actually fight in war.

This is why, ultimately, for the purposes of this research, it is necessary to understand organizational culture in a more concrete way, one that narrows its definition to more observable evidence. This is necessary for two reasons. First, values or personalities carry a significant level of subjectivity that may be difficult to determine; formal and informal beliefs that exist regarding how to accomplish an organizational mission can be more objectively determined. Values and personalities not only convey intellectual beliefs in the strict sense but also elements of morality, identity, and philosophy that are too difficult to accurately generalize. Second, values and personalities bring additional elements that are not necessarily related with military effectiveness and military power while a definition centered around the beliefs of members of the military can be more focused on topics related to their military effectiveness and military power. This is not to say that values or personality traits are useless to analyze the role that organizational culture can have in the performance of an army. This only serves to show that it raises additional issues in proving this relationship.

This is where Allison and Zelikow's concept of organizational culture becomes especially useful for the purposes of this research. According to Allison and Zelikow, organizational culture is defined as the members' beliefs about their organization, and which have been inherited and pass on to their successors (1999, p. 153). This definition is particularly useful for three reasons. First, by deemphasizing the identity or worldview components of the values or personalities concepts, the concept of beliefs puts more emphasis on the "enacted environment" of an army, specifically the enacted environment where the organization may have to perform. Enacted environment is a concept advanced by Karl Weick, which explains that individuals develop an organized view of the world to reduce equivocality and uncertainty (Cooke and Rosseau, 1988, p.

3). A military organization creates this enacted environment through its field manuals, in which armies explain how they intend to fight. Indeed, military practitioners have argued that culture influences the way an army thinks about the optimal way to fight a war (Marcus, 2019, p. 349). Therefore, with Allison and Zelikow's concept of organizational culture, we gain actual knowledge of how an army has created its set of beliefs of how to pursue military operations to defeat an adversary.

Second, beliefs also are most likely to be recorded in the documents of any military organization than are values and personalities. Militaries are known to produce large volumes of strategic, programmatic, and budgetary publications. For instance, the National Defense Strategy of 2018 is a good example of how the Department of Defense publishes the collective beliefs of its military services regarding the operating environments in which they will have to conduct their missions and achieve their objectives (Department of Defense, 2018, p. 2). Another good example are the hundreds of field manuals of the US Army that explain how it plans to employ anything from human resources to infantry battalions.

Furthermore, the records and archives of armies offer literally thousands of documents that contain the beliefs that were held by the armies' leadership across different timespans. These beliefs are important for the organizational learning of armies whenever they need to adapt to changing conditions in warfare. Indeed, this is part of the larger reality regarding organizations: they do not only think, but are able to learn, too. Organizational learning, like other organizational choices, is the result of individuals encoding their inferences into organizational routines (Levy, 1992, p. 287; Cooke and Rosseau, 1988, p. 3). Very much like the National Defense Strategy, armies elaborate and publish analytical and doctrinal texts to formalize the lessons they gain from

their own operations. For instance, operational after-action reports can sometimes condense a wealth of beliefs that the army has derived from its engagement in operations. This is evident in the British Army's General Staff Conferences performed at the end of WWI and the beginning of WWII, during which the force debated different beliefs regarding tanks, armored warfare, and even command and control.⁵ The concept of beliefs thus helps us understand much better an army's organizational culture around military operations because it records learning from its past operational experiences.

From this point of view, to use a computer science analogy, organizational culture is very much like an operating system that pre-programs an army's members to behave in certain ways. The members' beliefs constitute a set of verbal and behavioral social codes that predispose soldiers and officers towards certain broad forms of concerted action while preparing for combat operations and in the battlefield. This analogy should in no means be taken as an underestimation or banalization of the issue of organizational culture. Indeed, Simon argues that administrative behavior in organizations is the result of a process through which its members are indoctrinated into the behavior that best serves the organization. Hence, it is clear that behavior programming is a natural and essential aspect of organizations.

Finally, perhaps the most important reason why organizational beliefs are important is the manageable framework it offers for contemplating the possible types of organizational culture that can arise. As Allison and Zelikow note, organizational beliefs push organizations toward behaving

⁵ For example, see 279/74, WO. "Report on the Staff Conference." edited by Chief of the Imperial General Staff, Imperial General Staff, 1933; 279/75, WO. "Report on the Staff Conference." edited by Chief of the Imperial General Staff, Imperial General Staff, 1934. These documents record the tactical discussions of the BA regarding how WWI shaped future British military operations in a conventional war.

in line with what is referred to as the “logic of appropriateness.” This logic has been defined as mode of action that makes humans follow rules that associate identities to situations (March and Olsen, 1998, p. 951). This means that organizations can design identities and distinct actions in order to perform under the situations they will have to face based on the behavior they have deemed appropriate for a given situation. Indeed, Allison and Zelikow use Adam Smith’s pin factory example where the organization forms beliefs that highlight standardization of procedures as a way to achieve effective performance (1999, p. 145). Since a pin factory defines its organizational goal as producing pins in a cost-effective and timely manner, Smith explains that members are trained to perform in routine fashion. This is the logic of appropriateness in an organization: the members develop a set of beliefs on how they should act in order to accomplish the goal, make members compliant with procedures that their beliefs have deemed appropriate to accomplish the goal, and train members to follow the established procedure. In the military realm, Wilson explains that a bomber-dominated culture predisposed the U.S. Air Force against developing Combat Air Support capabilities the US Army needed, even if the Korean War revealed the failures of this focus (Wilson, 1989, p. 187). Therefore, with Allison and Zelikow’s understanding of organizational culture, we are given an important common denominator that is present in all potential types of military organizational cultures: logic. As Weick explained in his enacted environment concept, organizations are trying to imagine the environment to reduce uncertainty, and this requires an organization to develop a logic of why some beliefs serve and why others do not serve this purpose.

This tendency toward following a logic of appropriateness is problematic, however, because armies live in especially uncertain, chaotic, and dangerous environments in which

decisions regarding beliefs to achieve effectiveness are not entirely clear. Armies fight in environments in which every soldier needs to employ his or her elemental training to see beyond the apparent and through the uncertainty making the fog of war. And yet, the very nature of this intellect makes it less likely that it will be massively available. For all the doctrine they produce, armies cannot afford to hope that a set of procedures will produce a hundred thousand Bonapartes. Indeed, even if some parts of the military, like nuclear forces, actually adhere more to the logic of appropriateness in order to effectively accomplish their objective, the fact of the matter is that armies that expect to be deployed in conventional warfare cannot strictly adhere to this logic. Bearing in mind what Clausewitz explained regarding the reality of warfare, it would be a fools' errand to try. Conventional warfare, unlike nuclear exchange, takes place over a longer time span, where the destructive capacity of an army unfolds in a less absolute and ominous way in order to attain a political objective in a setting that is highly uncertain.⁶ Therefore, even if we are given the clue that some organizational cultures may strive to structure themselves along the lines of superimposing organizational beliefs to personal beliefs, in conventional war it seems that there has to be a room for some level of personal input that can adjust larger organizational efforts to changing circumstances.

This is where another possible organizational culture logic surfaces: the logic of consequences. According to March and Olsen, this is a logic in which members base their actions on the expected consequences for individual and collective goals (Ibid, p. 949). Under this logic,

⁶ Schelling has noted that the time span is one of the key differences in the change that nuclear warfare introduced to what he called the diplomacy of violence. Whereas in the past the power to hurt and use pain to shape political behavior came after military victories happening over a campaign, in the era of nuclear weapons, belligerents could hurt and use pain quickly, with significant speed, centralization, and divorced from military victories. See Schelling, T. 2008. *Arms and Influence*. New Haven: Yale University Press, pp. 19-20

an organization can also structure its culture around beliefs that, although providing common language and procedures, may allow their members to calculate their actions based on what is at that moment the best way to attain the objective. This logic is necessary for armies if they are to be capable of adapting to their environment. Given the drastically explosive nature of war and combat, there is no positive doctrine that can anticipate all the uncertainty of war (Clausewitz, 1984, pp. 137-140). Therefore, effective military decisions must be underpinned by incorporating the consequences of a military alternative in the goals that armies pursue. Thus, armies must train members to factor in their decisions the consequences that their actions will bring to their forces. These two logics are the reason for which Allison and Zelikow's definition of organizational culture will be useful for this dissertation: because it gives me two poles of organizational logics from which I can derive possible sets of beliefs from that make up types of cultures.

The importance of both these logics raises a question for one trying to analyze the organizational culture of an army. If, as traditional organizational theory suggests, organizational culture conditions organizations to adopt the logic of appropriateness in an effort to maximize effectiveness and, at the same time, war requires armies to make their personnel think along the lines of the logic of consequences to attain military objectives, which one of these logics should be pursued by military organizations? The answer is that armies, particularly due to the nature of war, incorporate traits of both logics in their cultures if they are to generate military effectiveness and military power. Although this may be a self-evident answer, the challenge lies in the fact that armies require discipline, stability, and predictability in member behavior, but they also require members to be able to examine a particular military situation and find the right solution for it in order to attain the military objectives they have been given, usually in circumstances in which no

prescribed manner on how to do it exists. In short, armies must achieve a balance between these two logics of action.

In the military, there are characteristics which tend to turn this balance of logics from culture into behavior and procedure. The armed forces are considered total institutions. The term refers to institutions that isolate themselves from outside social influences, where all aspects of life are conducted in the same place and under the same authority, a place where a member's daily life is carried out amongst a large batch of other members, and all phases of life are tightly scheduled (Goffman, 1961, p. 6). Even allowing for certain nuances that may lead some to question the totality of the army as an institution, it is important to keep in mind the essence of the similitude in Goffman's description from which important characteristics conspire to turn culture into behavior and procedure. First, most armies are delimited to a specific geographic national boundary, with overseas deployments being a rare mission. As Feaver, points out, there is at least some level of separation between the civilian and military sectors in society (2003, p. 29). From this, it is possible to see that the norm, at least in democratic societies, is for an army to be confined to their bases in their countries and to be tightly governed regarding their roles in society. Second, most members of the army carry out their daily lives and activities in the company of their peers, and this can be emphasized or abated depending on issues such as base housing arrangements, complementary educational preferences, or interagency assignments. Finally, every army soldier knows that their activities are predetermined by a tight schedule, which includes training, administrative matters, operational issues, and reporting tasks amongst others. Therefore, unlike other organizations, the army has a unique totality to its structure and capacity to shape their members' behaviors.

Another important characteristic of the army as an organization is that it deals with a unique operating environment marked by friction. Clausewitz identifies two clear activities that need to be dealt with: the maintenance of fighting forces and the utilization of fighting forces (1984, p. 128). The first activity involves tasks that can be more or less dealt with in a linear way, such as recruiting or training, where one could theoretically define goals and benchmarks to measure their attainment without significant difficulties other than natural internal challenges such as budgets or personnel management. But the second activity deals with friction, that is extremely non-linear events, as Clausewitz clearly explained: in war “countless minor incidents-the kind you can never really foresee-combine to lower the general level of performance, so that one always falls short of the intended goal” (Ibid, p. 119). Friction in the utilization of fighting forces in a combat setting arises from the interplay of three elements: the countless minor incidents that can lower performance, an enemy invested in making use of any diminution in this level to kill our forces and upset our plans, and the overall complexity that each decision that a CO needs tackle. On the last issue, Clausewitz did not understate its complexity, calling for “an intellect that, even in the darkest hour, retains some glimmerings of the inner light which leads to truth” and determination which is “the courage to follow this faint light wherever it leads” (Ibid, p. 102). Therefore, the environment where an army performs its mission poses unique challenges that other organizations do not usually face.

First, unlike most organizations, armies deal with a fast-changing external environment while performing tasks that demand a high level of internal organization. Hospitals, government agencies, educational institutions, and private corporations often face environments that put one of these elements in a more salient position than others. For instance, a Silicon Valley tech start-

up may deal in a fast-changing technological environment for which it can decide to maintain minimally necessary internal organization levels so as to lever the creativity of its engineers, scientists, and coders. However, armies deal with war: it is equally necessary to have a high level of internal organization while being able to make it so flexible it can adapt to the friction of war. An army needs trained artillery, infantry, armor, and aviation soldiers and this requires extensive routine, drilling, and tightly controlled education and training processes. Ultimately, even the training and education needs to be designed in such a way that these soldiers are able to deal with maximum uncertainty and combat activities where tight control will not be possible and, if it is, it will reduce their overall ability to adapt. Thus, unlike other organizations, armies do not have the luxury of making any of these dimensions a priority.

Second, armies do require an impressive level of individual skill, or *coup d'oeil*, to overcome the friction of war, but there is little to be gained from it if it is not aggregated into a collective level-effort. This is an important characteristic of the climate that military organizations face: in combat they have to kill enemy soldiers while these are actively pushing their own creativity to achieve their goals and killing friendly forces in the process. This means that the intellect about which Clausewitz wrote is of the utmost importance, and yet this intellect may not be a consistent feature throughout the force. The above-noted tightly controlled drilling processes that afford army soldiers their basic artillery, infantry, armor, or aviation skills are but the very elements of Professional Military Education (PME); the intellect that Clausewitz identified as the solution to friction is not. On the contrary, this intellect usually results from actual combat operational experience, which only happens in the midst of the dangers of war. Other organizations that face less stringent and dangerous environments can supplement the lack of a

unique genius by creating SOPs that codify best practices to maximize reliable performance of critical tasks (Allison and Zelikow, 1999, p. 169). As I explain below, for armies this can be either very dangerous or nearly impossible.

In conclusion, armies have unique characteristics that allow them to use their own particular balances of their organizational logics and shape their members behaviors to maximize their goals. This is where beliefs become very important to define organizational culture and its relationship with organizational performance. The system of beliefs that an army organizes into its culture creates a shared understanding of how the army will pursue military operations and achieve victory over its adversaries. And this system of beliefs will be located somewhere between the continuum formed by the logics of appropriateness and consequences. Along the lines of the computer science analogy, organizational culture is an operating system on which the organization runs and defines the employment of its means. Allison and Zelikow validate this analogy by approaching organizations as bundles of technologies, where hard technologies' ability to render the desired goals depend on softer technologies such as the culture of the organizations (Allison and Zelikow, 1999, p. 145-146). Therefore armies, like any other organization, are made of technologies as shown in Figure 2:

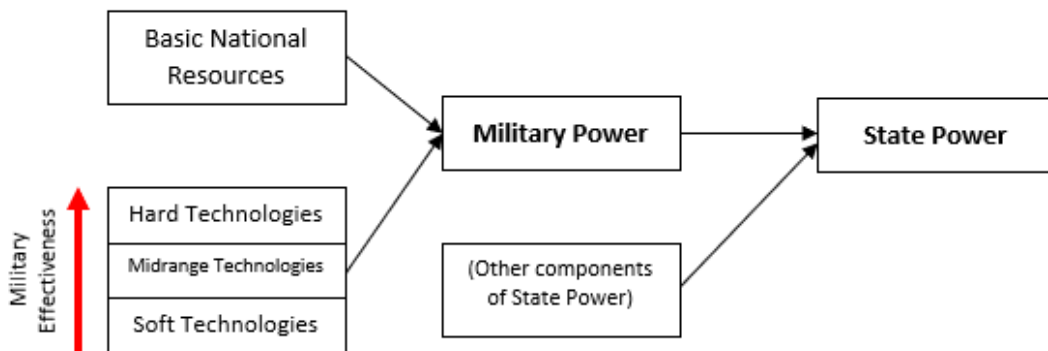


Figure 2

In the specific case of armies, they certainly depend on hard technologies such as weapons systems to fight and meet their strategic, operational, and tactical objectives. But armies also need a sort of “mid-range” set of technologies such as SOPs, doctrines, or field regulations, creating a theory and common language regarding the use of these hard technologies. After all, it is not only about having the latest M1A1 Abrams tanks, but also about having a shared vocabulary and understanding of how to use them. But the deepest and perhaps most important form of organizational technology of armies is their organizational culture. According to Hasselbladh and Yden “organizations pre-structure collective notions of what counts as reasonable and valid solutions and strongly discourage rash changes that are untried and may be incompatible with existing framework” (2020, p. 479). Again, in the case of the M1A1 Abrams tanks, the language and understanding of their use is predicated upon deeper assumptions and beliefs on how tanks are used. For instance, while German armored warfare was built on the assumption that the tank was part of a larger combined arms combat approach in which horizontal communication was of the utmost importance, British armored warfare was built on the assumption that the tank could be the silver bullet that could break the stalemate that the increase of firepower created after WWI, thus leading to two very different styles of armored operations (House, 2004, p. 73-77). Therefore, soft technologies such as the organizational culture of the army can very well define what and how the army learns from its reality, the lessons it distills for the purposes of doctrine, and the employment of its weapons and troops. More succinctly, organizational culture is one of the main determining aspects of how effectively hard technologies are used in an army.

Recall the attempt by the British Army, the IDF, and U.S. Army to adopt *Aufstragstaktik*. Based on the bundles of technologies framework, it is possible to provide a deeper explanation as

to why these three armies had three different results from adopting a very well-known C2 practice, which in consequence showcases the potential of organizational culture. *Aufstragstaktik* requires a certain organizational culture that makes it reasonable to command based on a commander's intent and not on precise tasks given to subordinate. This cultural "operating system" creates a series of mid-range technologies, like SOPs, that have to support the notion of commanding by assigning missions. The ultimate result of this is the communications, weapons, and information systems to maximize the capacity that the subordinate has to achieve the intent of the CO, even if this is ultimately done through distinct missions and tasks.

In the case of the three armies, their operating systems were not consistent with these requirements in one way or the other. Their cultures, if anything, made it irrational in some way to truly adhere to this C2 practice while encouraging variations with greater levels of control or different understandings of war. As a consequence, even if the *Aufstragstaktik* philosophy may have been incorporated in essence or concepts, it never penetrated to the cultural level, the soft technology level from which the organization is driven. The beliefs of these armies carried notions that were inconsistent with the requirements of *Aufstragstaktik*.

The example of the three armies can also help us understand the dual use of organizational culture that I introduced in Chapter 1. Organizational culture can also be used as an intervening variable to improve the accuracy of materialist and non-materialist theories by accounting by army-level dynamics. For instance, in the case of the adoption of *Aufstragstaktik*, using organizational culture as an intervening variable can explain how the material assets of the countries in Table 2 played a role in their successes and failures to adopt the command concept. This is how scholars using state-level theories that explain military effectiveness and military

power could use organizational culture as an intervening variable in order to improve the explanatory power of their theories.

But how do the beliefs making up an organizational culture influence the army's operations? To answer this question, it is important to understand C2. Van Creveld defines C2 as a continuous function that copes with the dual responsibility of arranging everything an army needs, such as logistics and sanitary services, and enabling the army to inflict the maximum amount of death and destruction on its enemy (1984, p. 5-6). C2 is an iterative decision-making process, as feedback from the battlespace is incorporated into plans and corrective actions (Alberts et al, 2000, p. 69). The command process is one that simultaneously must be able to execute planned efforts and be capable of adapting its plans based on the results of the efforts. Although this may sound simple, as Clausewitz says, in war everything is simple yet the simplest can be difficult. There is no guarantee that militaries can manage this command process. Plans can ultimately become so important that military cultures can even enshrine them to the point of making it difficult to change them, even in the face of their poor ground results. Indeed, a command style known as *Befehlstaktik* may best represent this reality. It consists of a form of command built on restrictive control, which requires extensive and detailed instructions to subordinates (Fitz-Gibbon, 1995, p. 16). Therefore, while *Auftragstaktik* balances the need to attend to the internal and external environments of the army, *Befehlstaktik* is a command practice emphasizing the logic of appropriateness and is inherently anchored in the notion that everything must be done according to a grand plan and any deviations from it, even if warranted by local circumstances, are to be avoided to preserve the internal environment of the army.

Thus, these two command styles give us the idea of C2 may carry the influence of organizational culture to an army's operations. In the context of Pollack's definition of military effectiveness, C2 carries the influence of organizational culture by highlighting the beliefs that commanders will consider in order to turn weapons, soldiers, and other resources into a fighting force. Indeed, "a military's level of effectiveness varies with the degree to which is organized to make good use of these material and human resources" (Brooks, 2007, p. 9). C2's role here is to provide the authority and the beliefs so that different levels of army leadership can make decisions regarding how employ the force against an adversary. In organizational terms, C2 organizes the internal environment of the army through its control aspect so that it can translate resources into ability to pursue operations; this pursuit is then orchestrated through the command aspect of C2 and is part of the army's external environment.

Furthermore, the two logics of action dominate the two different organizational environments on which an army operates. On the internal environment side, it comprises practices that design specific rules to promote cohesion of the group while also creating opportunities to exploit the overall skill offered by its members (Schein, 1992, p. 70). Given that the internal environment deals mainly with the control aspects of the force, it is possible to use these tasks as a definition of the control side of command that, according to Van Creveld, coordinates all that the army needs to operate. On the external environment side, armies deal with the need to adapt and survive in an uncertain world where their adversaries can deal significant blows against the best designed strategies and operational plans. Indeed, this is the environment that Clausewitz considers is marked by friction in which only the role of individual *coup d'oeil* can find a successful way forward to adapt to unexpected challenges. Each logic has a unique role in each organizational

environment of the army: while the logic of appropriateness is more beneficial in dealing with the internal environment, the logic of consequences is necessary to adapt to the external environment.

This highlights the importance of C2 practices as processes that can help us see the influence of organizational culture in effectiveness and power. Through these practices, armies must manage their information flows in such a way that they maximize relevant information, timeliness, and accuracy to achieve what is known as information superiority (Alberts et Al, 2000, p. 56). It is not enough just to have C2 practices that integrate tanks, close air support aircraft, infantry, and artillery in military engagements, however. From the British Army in Operation Goodwood to the Egyptian Army in the opening assaults against the Bar-Lev line in the 1973 Yom Kippur War, armies have commonly launched these operations only to see botched results. Both C2 and operations must coalesce into processes that start with providing the relevant and accurate information to the right soldiers at the right time for the available combat arms to get integrated and end in flexible military operations against adversaries. Therefore, the aspects of military effectiveness I will be looking at are information management, combat assessments and flexible operations.

These aspects of military effectiveness provide detailed windows into how my conceptual framework of military effectiveness works. Information management refers to the overall flow of information in the C2 process, which needs to be fast and get to the right combat leaders in time. Combat assessments are precisely what this information management circulates amongst the army and are required to know where and when to maneuver the available forces; they produce tactical and operational decisions that lead to operations. These operations themselves must be fluid and

adaptable if they intent to achieve the intended purpose of the commanders and this constitutes operational flexibility.

C2 is central because it is the bridge that joins the two organizational environments that contain the armies' capabilities to achieve military effectiveness and military power. As Van Creveld argues, C2 pulls together the *enabling* internal military components that an army requires to *produce* military effectiveness by organizing the components that have been through what Clausewitz called the *maintenance of fighting forces* to be employed in proper combat. Specifically, speaking about information management, the command structures, data flow guidance, military intelligence doctrine and assets, and staffs had to first be created for a commander to employ them. Then, once these capabilities are used in the external environment, it is also a commander who gains feedback on their actual effect in combat operations in order to use that to readjust the employment and performance of these capabilities on the internal environment.

Flexibility is also an important outcome that requires a C2 process that can adequately bridge the internal and external environments of the army. Indeed, the irony of these two environments in this particular outcome is that there is element of rigid and methodical drilling to all basic aspects of military training that can build the skills required to combat. A machine gun crew requires an almost programming level of drilling so that it can perform practically automatically in the face of enemy fire, death, and confusion. Nevertheless, combat, as Clausewitz observed, requires an officer to be able to reckon with the uncertain and dark nature of the battlefield which is an ability he defined as military genius (1984, p. 102). Genius is certainly not a matter of drill, but of individual judgment. C2's capacity to bridge these two environments and

balance them in a way that each one complement's the other is the elemental prerequisite for the flexibility that makes up military effectiveness.

2.2.How Organizational Culture Creates Different Levels of Military Effectiveness and Military Power

With the conceptual definitions of my research in place, it is time to present how my theory works. To do this, I first explain how military organizational cultures arise. In doing so, I describe a specific set of beliefs that are key to understanding army cultures and, consequently, their influence in the army. Second, I outline three different types of organizational cultures. Third, I associate the different types of organizational culture with varying levels of military effectiveness and military power. Finally, I conclude this section by articulating the research hypotheses stemming from my theory that I test and address two possible concerns about the impact organizational culture may have on military effectiveness and power.

The foundation of army organizational cultures are the beliefs that army members develop in regard to how the force should fight the next war. Armies do this by processing the lessons of the last major conflict in which they fought and distilling them into beliefs about what military power entails, how they should approach combat, and the way in which they should fight in the next war. Rarely, however, are there single sets of beliefs about any of these lessons. Rather, there are usually many groups inside military organizations that hold contrasting views on how to move forward, and they interact during the processes of armies' formations about their collective beliefs.

Indeed, after most modern wars, groups of officers in armies have emerged espousing their own distinct beliefs regarding what future combat entails. They contest for dominance, and the group that is most powerful often changes over time. For instance, until the early 1900s, the US Army was dominated by officers aligned with the Corps of Engineers, who stressed the importance of mathematics in the belief that fortifications were key to the army's victory in the War of Independence; afterwards, other groups were more dominant (Muth, 2011, p. 44). The groups that compete to define the overarching beliefs of their armies do so on a rugged, and often biased, playing field.

First, as I mentioned in the introduction, armies can easily misperceive their past combat experiences and draw the wrong, and sometimes the worst, lessons from them. Here, the best example may be the French Army after 1918. Doughty explains that, given the army's perception that firepower gave defense a superior power over offense, the French misperceived the effect that firepower had in offensive operations, concluding that "fire is the preponderant factor of combat" (Doughty, 1985, p. 77). As a result, the French Army progressively adopted the use of set-piece battle to apply a mass of French troops around the enemy flank or rear (Ibid, 1985, p. 79). Second, military organizations are highly influenced by elite commanders and by the oversimplification of their tactics and operations. For instance, Doughty has shown Marshal Petain's experience with the massive power of artillery fires in the First World War left such a powerful mark on him that he coined a phrase, fire kills, which became a "truism piously repeated by French military writers" (1985, p.77). In the case of the British Army, Shamir has shown that the entire British Army depended on one single leader to set the bar and methods for entire generations of officers, as was the case with Wellington (2011, p. 68). Finally, during the American Civil War, both the Union

and Confederate Armies were deeply influenced by Napoleon's beliefs, even if they merely copied his actions without much attention to the need to adapt them to their era (McPherson, 1988, pp. 300-301). Thus, belief formation in armies' organizational cultures is a complex contest.

These are not the only elements that make the belief making process a complex contest. A third dynamic influencing this contest is that the competition is marked by all of the typical indicators of political contestation in other social settings. For instance, Rosen explains that the adoption of the aircraft carrier and the emergence of naval aviation in the United States followed an intense and heated battle between innovators such as Admiral William Moffet and battleship captains; the fight was eventually won by the former's camp after it secured navy captains' support through their training in naval aviation (Ibid, p. 77). Fourth, the groups contest each other on a playing field that has been made uneven by the historical biases that armies develop over time. For instance, even though Charles de Gaulle actively championed innovative armored and combined arms concepts in his book *The Army of the Future*, the French Army discouraged mobile and decentralized operations due to their historical bias towards fire superiority after WWI (1940, p. 140, 144; Doughty, 1985, p. 77). Fifth, armies have bureaucracies that protect existing patterns of behavior that create strong incentives or constraints for groups of officers seeking to change beliefs in the army. For instance, Chile, Argentina, and Brazil each tried to "import" German military doctrine after the Franco-Prussian War of 1870, only to struggle in doing so in large part because the changes required threatened the preeminence of the old guard (Grauer, 2015, p. 303). Sixth, the groups have to engage each other in the context of their armies pursuing failed tactics and, often, an institutional adherence to sunk-costs biases. From the massacres of the American

Civil War battles to the bloodbath of the fields of the Somme, armies have clung to failed tactics despite the agendas of reform-minded groups.

In this complex contest, success is determined when one group captures the army's leadership. This is done through its ability to convince the army to see the group's beliefs as the most likely to lead to future success. Once the army accepts the beliefs of the victorious group, then, the culture of the organization begins to change. Like Schein says, organizational culture arises out of preserving successful assumptions and discarding unsuccessful ones (1992, p. 12-13).

The impact of the successful group's beliefs shapes the army's organizational culture and is closely related to the logics of appropriateness and consequences I discussed in section 2.1. If the groups that seize control of the army think that the key to battlefield success is a particular technique or method, they are likely to institute rules, trainings, and educational curricula that foster a culture that is more in line with the logic of appropriateness. If they think that success stems from the ability of the officer corps to make sound decisions in response to changing battlefield circumstances, they are likely to use the same techniques to foster a culture that is more in line with the logic of consequences. As I explained in section 2.1, the reality of an army's mission precludes it from wholly discarding any one logic for the sake of the other one. An army that discards the logic of appropriateness will not be able to fight in any organized manner, while an army that discards the logic of consequence will not be able to adapt to the changing battlefield. Rather, the question is how close the resultant culture lies to the pole on either end of the continuum. Successful groups, and the resultant organizational cultures they foster, will differ, as groups that interpret success along the lines of adherence to proven methods will not reach the same balance with respect to appropriateness and consequence as groups who view success as the

result of the ability of officers to make sound judgment calls in the face of varied operational conditions. However, the victorious groups and their armies balance the logics, the resulting culture will have a profound impact on a wide range of the army's activities and efforts.

Here it is important to recognize the important effect that force generation will have in the impact that organizational culture will have in an army. In general, it is plausible that this impact will differ based on whether an army relies on conscription or volunteers. Pollack has noted the lack of acculturation potential of a conscript army using the case of the Arab Legion as an example. In his words "if Jordan had opted for a large conscript military, it probably would have proven extremely difficult to inculcate the British traditions into so many soldiers and officers serving for brief periods of time" (Pollack, 2018, p. 365). Thus, according to Pollack, the brevity of the time of service of the conscript force precludes them from spending the required time in the army to achieve their full acculturation. On the other hand, it seems that an army based on volunteers is precisely the other side of the coin in terms of acculturation potential, given its long-term service commitment. Bacevich has noted regarding the U.S. military that they see themselves as "members of a warrior caste adhering to their own distinctive code" and have little interest in nurturing a relationship with civilian society (2005, p. 219). Thus, in Bacevich words, volunteer soldiers acculturate so well to their armies' organizational cultures that they have no desire to go back to their society's cultural beliefs.

This difference is important because the cultural impact that will ensue in the army after one of its groups has achieved its control can vary depending on these two styles of force structures. In the case, of the conscription-based armies, it is plausible that here organizational culture's impact will not be the same as in a volunteer-based army. In the former, given the number of times

that reservists and conscripts are called up in a given year, the duration of their conscription, and the overall quality of their officer corps, organizational culture could have a merely transitory or partial impact. This means that these soldiers influenced by the army's culture will maintain elements of their societal culture. This is not implausible, as Pollack has shown in the case of Arab armies that even if army organizational cultures were not able to fully erase the influence of Arab culture, there were some armies that managed to achieve some cultural change in their soldiers, making them more professional (2018, p. 27). In the case of a volunteer-based army, since the potential for acculturation is higher, once a group takes control of the force and instills its beliefs, forces absorb the ensuing culture in deeper way. Thus, it is important to note that the army's organizational culture will impact both conscription and volunteer-based armies, though the degree of acculturation is likely to be deeper in the latter than in the former.

Precisely because the beliefs I have been talking about permeate the entirety of armies during a substantial amount of time, it is necessary to clarify the area in which they—and the resultant organizational culture—are likely to have the most impact on military effectiveness and power. Based on the centrality it has for the total performance of the army, and as discussed in section 2.1, I argue that the specific beliefs about which these groups compete are those pertaining command-and-control (C2). As Van Creveld and Alberts explain, there are three essential beliefs that allow armies to perform C2 in operations: obedience, control, and certainty (Alberts et Al, 2000, p. 69; Van Creveld, 1986, p. 7-8). These three beliefs are superficially straightforward but, in the case of armies, they present profound dilemmas. Obedience governs relationships between subordinates and commanders in the army. In its simplest form, obedience is the maintenance of discipline through the execution of superior orders. While obedience may work well to harness the

military capabilities of an army, it must be employed in an environment that puts a premium on adaptability. There is thus the necessity of injecting some degree of initiative into patterns of obedience. Control is the span of direct influence and prerogative through which an officer puts his or her imprint on operations. It can allow for the deliberate execution of plans, but the nature of military operations brings a pace of events and changing circumstances that create practical limitations as to how much control a commander can realistically expect to exercise. Certainty is knowing what lies behind the chaos of combat. Such knowledge is profoundly important in combat. In striving for certainty, however, opportunities and successes can be lost. In an essence, C2 is all about identifying and enacting the proper levels of obedience, control, and certainty.

The most consequential intellectual competition between groups in armies is thus the debate over how closely the army should lean towards the logic of appropriateness and of consequences in their beliefs regarding obedience, control, and certainty. Since an army cannot, in practice, adopt an extreme position prioritizing the logic of consequence, the real issue is the degree to which the force can develop beliefs that avoid the excesses of the logic of appropriateness while incorporating its benefits. Failure to avoid the excesses of the logic of appropriateness will result in the generation of cultural imperatives mandating extreme adherence to obedience, control, and certainty behaviors.

The imperatives of obedience, control and certainty deserve attention, as each tends to have negative effects on military effectiveness and military power. The obedience imperative forces a soldier or officer to forego using his or her initiative to solve local problems and instead simply follow orders. In a way, the obedience imperative creates soldiers and officers who are afraid or unable to use their personal military judgment and instead focus on the execution of orders that, at

times, may well be counterproductive in the context of the current battlefield situation. The control imperative allows commanders, to the degree possible on the battlefield, to prevent unwanted, unexpected, or unreliable initiative from soldiers and officers. Control is necessary to maintain coherence in the assignment of combat assets to operational efforts and mustering the effort of subordinate units towards the goal. However, it also gets in the way of the adaption that emerges when subordinates can work out their own tactical solutions to their local problems. The certainty imperative seeks to neutralize uncertainty as much as possible so as to support the performance of each soldier in a climate of fear and unknowns. Through the use of planning, decision-making methods, and other seemingly linear decision-making techniques, this imperative can foster the illusion that the fog of war can be banished from the battlefield. However, the predilection for these decision-making techniques can render soldiers incapable of grappling with the uncertainty inherent to combat.

Not all armies will adhere to all, or even some, of these imperatives. In the process of defining and contesting their beliefs about the proper structuring of C2, groups that ultimately succeed in imposing their views on the broader army will define how closely the force will adhere to the logics of appropriateness and consequence—how much it will value preservation of its internal environment over its capacity for external adaptation.

While practically there are as many organizational cultures as there are armies at different points in time, I contend that it is possible to categorize cultures into three basic types: Conformist, Hierarchical, and Balanced.

Conformist cultures arise in armies with all three of the imperatives. These organizational cultures strike a balance closer to the logic of appropriateness than to that of consequences. The

obedience imperative means that, in these armies, obedience trumps personal military judgment; the control imperative means that officers will stop their subordinates from making decisions on their own; and the certainty imperative means that officers will work hard to neutralize uncertainty, even at the expense of military opportunities. In essence, armies with this kind of culture have deliberately skewed closer to the logic of appropriateness in order to secure the standardization and predictability of their officer corps.

Hierarchical cultures are those in which one or two of the imperatives are present. Armies with these cultures will have typically engaged in efforts to infuse the logic of consequences into their beliefs and practices but, due to the intraorganizational pressures noted above as well as other non-organizational factors, only achieved partial and limited results. Given the way in which much organizational change occurs in armies, I expect that most of the success in infusing the logic of consequences into beliefs and practices will be concentrated in the higher command echelons of the army, where the social circles are smaller and thus more capable of assimilating innovations or proposed changes. Hence, I call this type of organizational culture ‘hierarchical’.

The failure of armies with hierarchical cultures to thoroughly infuse the logic of consequences into their beliefs about C2 may arise with respect to any of the imperatives. This is true even when armies understand that continued adherence to one or more of the imperatives is counterproductive. For instance, in these armies, there may be an awareness that blind obedience circumscribes the positive role that professional skill and judgement can play in combat. Indeed, if these armies have recently been exposed to combat, their practical experiences may make them realize that blind obedience is more of a danger than an assurance. As a result, these armies may give their members some room, within the framework of the existing operational orders

(OPORDs), to use their personal judgement to bring about the desired intention. Similarly, since these armies may be aware that professional skill and judgement are more productive than dogmatic prescriptions in maximizing the impact of soldiers' efforts in war, they may seek to dispense with the certainty imperative. Likewise, armies frequently exposed to combat may realize that whatever procedures, processes, and techniques put in place to dispense with uncertainty, they are unable to do so on the battlefield and thus seek to dispense with the certainty imperative.

Even in these cases, the influence of the imperatives may persist if there is a lack of skill and trust throughout the force, and changes to beliefs and practices are concentrated in the high command levels. For instance, even if armies are able to instill in their leaders the notions that obedience needs to be based on reflection, control should be loosened, and commanders must be accepting of uncertainty—in short, the essential ingredients of *Auftragstaktik*—the force may not be able to make such beliefs manifest. In *Auftragstaktik*, the ultimate element that ensures subordinates' independence and adherence to the larger operational effort in the absence of overbearing control is his or her awareness of and commitment to the superior's intent. This is a difficult state of affairs to foster. Superior officers may not be used to or capable of issuing their intentions with the proper clarity and articulation that they can be easily operationalized by subordinates. Additionally, they may not trust the skills and judgment of their subordinates. Finally, especially in the chaotic environment of combat, regular detailed control may appear to commanders as a more straightforward and simple way of managing subordinates. If any of these tendencies hold, then the army's culture will remain hierarchical.

Finally, **balanced cultures** are those that have avoided all three imperatives, thus reflecting beliefs that are closer to the logic of consequences. In these armies, there is promotion of the

personal responsibility to act differently than instructed if necessary to achieve the intended goal and to justify this decision to a superior who will be prepared to accept such an answer (Friedrich, 1960, pp. 190-191). While there remains an awareness of the need for obedience, control, and certainty in these armies, the recognition is moderated by the understanding that there are limits to the degree to which these beliefs can rule military operations. Balanced cultures are thus those that prize the logic of consequences without losing sight of the need of an internal environment that is cohesive enough to sustain its operations in the external environment.

Because the presence or absence of the imperatives can have significant impact on C2, variation across militaries in terms of which of these three types of culture they adopt will almost certainly impact their military effectiveness and power. C2 conditions military performance through its impact on three essential capabilities of armies in combat: their abilities to manage information management, produce relevant combat assessments, and execute flexible operations. Information management refers to the overall flow of information in the C2 process, which needs to be fast and get to the right combat leaders in time. Combat assessments circulated effectively within the army facilitate knowing where and when to maneuver the available forces; they shape tactical and operational decisions. The tactical and operational actions undertaken must be fluid and adaptable if they are to achieve the purpose of the commanders—they must be flexible. An organizational culture that gives rise to patterns of C2 that facilitate effective information management, combat assessments, and flexible operations is likely to be more effective than those that do not.

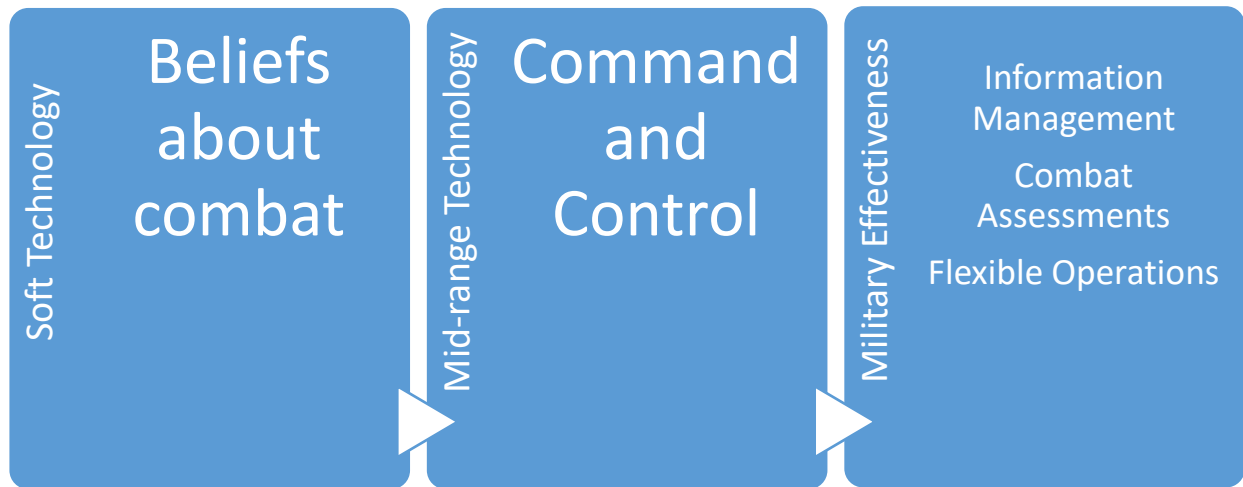


Figure 3

In **Conformist Cultures**, C2 process are likely to both be unwieldy and struggle to adapt to battlefield changes. In these armies, members are expected to operate “by the book” and, as such, they are always taught to follow orders to the letter. Based on the effects that the imperatives can have on their operations, I expect to see C2 processes that are not able to promote smooth information management capable of capitalizing on tactical and operational data coming from the field. It is likely that, in these armies, information management will suffer significant lags in processing time due to the need to circulate information for decisions up and down the chain of command. Furthermore, I expect that combat assessments coming from these processes will be, at best, disjointed and lead to inept operations. This is because the presence of the imperatives will cause officers to try to achieve unrealistic levels of certainty with their assessments and subordinates who challenge them will be checked by the obedience and control imperatives. Ultimately, with these problems, it is likely that the operations of these armies will be rigid and unable to adapt to sudden challenges presented by their enemies. These effects will make these armies generate the lowest levels of military effectiveness and power, especially when confronting armies that can balance the ambiguities of the command requirements more effectively.

The situation is less negative, although still quite not entirely positive, with **Hierarchical Cultures**. In these armies, information management may very well erode as data flows up and down the command chain due to the different negative pressures exerted by at least one of the imperatives. The obedience imperative may create a clash between what tactical commanders and their leaders see on the battlefield, forcing the former to act upon the latter's unrealistic operational pictures. In the case of the certainty imperative, the use of formulaic decision-making aids may generate distorted assessments because their (typical) linearity cannot cope with the non-linearity of all tactical situations. Finally, in the case of control, centralizing decision-making power in a commander may clash with the chaotic nature of combat, thus leading to operations that are unable to cope with the friction and chance of the battlefield. In short, the pressure exerted by just one of these imperatives, at the very least, is likely to undo other efforts to promote C2 processes that can lead to military effectiveness and military power. I therefore expect to see hierarchical cultures producing relatively agile and accurate C2 processes that attempt to execute sophisticated operations but, nonetheless, breakdown as adherence to some form of hierarchy undermines the army's efforts.

Balanced Cultures should display the highest levels of military effectiveness and military power. In these armies, information management will be the best because subordinates and commanders can capitalize on the data they acquire from the ground without having to constantly send it up and down the chain of command. This means that, with the exception of sending necessary battle updates and intelligence for their commanders, subordinates can focus on assessing the information they obtain and correlate it with other inputs they have from their partner and parent units or formations to decide their actions. In terms of combat assessments, these armies

should evince the most accurate processes, as subordinates and commanders can objectively engage and discuss the state of the battlefield. For instance, in the absence of the obedience imperative, a subordinate officer can, respectfully, disagree with assessments of his superiors based on his knowledge of events on the ground. Finally, due to the absence of the imperatives, officers will be able to customize their employment of combat assets to the threat and challenge faced on the battlefield. Officers will not have to follow doctrinal guidance that may be unsuited to the situation they face or to keep executing a plan that has been rendered useless due to a change on the battlefield, which would happen in cultures influenced by the certainty imperative.

These considerations combine into the hypothesized relationship between different types of military organizational cultures and military effectiveness depicted in Figure 4.

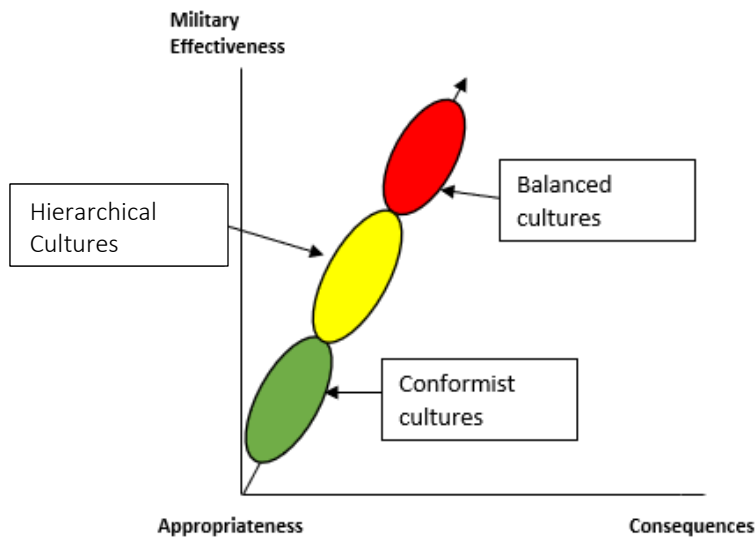


Figure 4

For the purposes of my research, I test whether each of these cultures generates the expected levels of military effectiveness. Thus, I test the following hypotheses:

H1me: Balanced cultures facilitate the highest levels of military effectiveness of all cultures.

H2me: Hierarchical cultures facilitate relatively higher levels of effectiveness than conformist cultures.

The effects of these different organizational cultures are not confined to the generation of military effectiveness, however. Organizational cultures can also, when holding strategic factors such as economic output and population constant, facilitate increased levels of military power, even in the face of low resources. As shown in Figure 2, organizational culture affects military power by conditioning how much effectiveness armies can extract from their mid-range and hard technologies. The conditioning allows some cultures to have much faster command and control decision-making dynamics that consequently permit organization of more synchronized and sophisticated combined arms operations, improved abilities to hurt enemy forces and defend friendly troops, and the achievement of objectives in the least amount of time possible, as compared to adversaries.

Therefore, I also expect the following:

H1mp: Armies with balanced cultures, *ceteris paribus*, generate higher levels of military power than armies with other forms of cultures in the battlefield.

H2mp: Armies with hierarchical independence cultures, *ceteris paribus*, generate relatively higher levels of military power than those with conformist cultures.

There remain two issues to consider regarding the interactions between these types of organizational cultures in the battlefield. First, what is the outcome of the confrontation between two balanced cultures in the battlefield? As it is evident from my hypotheses, the outcome of this

confrontation is not predicted; most of my discussion regarding cultural typologies has not addressed the question of what happens when two armies of the same cultural type face each other. Is organizational culture still important in such circumstances?

This question can be answered by referring again to Figure 2. Here, I show that organizational cultures are the soft technology that preconditions the effectiveness process through which other organizational technologies are employed. In the case of armies of the same cultures facing each other, their military power outcomes will be largely predicted by harder organizational technologies and basic national resources. This is because organizational culture shapes how harder organizational technologies such as organizational structures and military weapons systems are used. In the absence of differential pressures exerted by the “base” technology of organizational culture, I expect that other material or structural features of the armies in combat will predict the power they will generate in the battlefield.

This does not invalidate the influence of organizational culture, however. On the contrary, it is consistent with its relational nature in shaping the outcomes of interactions. Using a computer science example, if two computers operate the same version of an operating system but have different hardware components, it is reasonable to expect that any differences in their performance will be determined by their different hardware. This does not invalidate the importance of having them run the best and most updated operating system available. This same example can be used to explain the importance of organizational culture even if, in the absence of different cultures, military power outcomes are to be settled by harder organizational technologies.

The second question concerns the overall position of most military organizational cultures in Figure 4. Are all military organizational cultures contained in the three types laid out in Figure

4? Are there cases of cultures that may reflect almost pure logic of appropriateness or logic of consequences tendencies rather than the relative balances I have described in laying out the conformist, hierarchical, and balanced cultures? I do not expect a modern army would overemphasize the logic of consequences because this would render organized modern warfare impossible. If an army consciously makes the effort to bestow its soldiers with the independence to decide what missions to perform and how to execute them, this will destroy the minimum cohesion that the force would need to coordinate its weapons systems and formations across time and space. Of course, social, or political variables could contribute to this scenario, though this would mean something akin to the balkanization of the army or its decomposition due to civil or ethnic strife. This would almost certainly no longer be an army, but a group of militias.

Regarding the logic of appropriateness, as noted above, only a handful of armies have overemphasized this logic. A case in point is the Red Army before WWII. The army adopted a level of blind obedience to superior instructions due to the series of purges unleashed by Stalin against the army, which ultimately resulted in the elimination of around half of its 70,000 officers (Murray and Millet, 2000, p. 26). However, the Red Army's case is certainly not typical, as it took Stalin's uncharacteristically totalitarian regime to achieve it. Thus, I do not expect overemphasizing the logic of appropriateness to be a realistic possibility in the case of an army's organizational culture.

2.3. The Limits of Organizational Culture

My theory, while offering much promise with respect to improved understanding of military effectiveness and power, is subject to some analytical limitations. These limitations start with the level of analysis on which it is placed. This theory is focused to explain operational and tactical effectiveness with the ultimate potential of, holding other variables constant, accounting for military power. Nevertheless, due to this very focus, my theory has limitations in terms of what organizational culture can do and cannot do. In this section, I will acknowledge some important limitations that put a caveat on the reaches of my theory. Based on my analysis, there are four main issues that can impinge on the effect of organizational culture on the development of military power.

First, organizational culture cannot trump strategic leadership flaws. Although my focus is to explain the operational and tactical prowess of armies based on their organizational cultures, armies are nothing more than a very specialized means to achieve a political end in war. Due to this, armies need to be commanded by their political leadership and their ability to generate power in operations will also depend on the strategic wisdom of their leadership. If a national government demands a strategically unwise objective from its armies, it is very unlikely that the army's organizational culture will compensate this lack of strategic foresight.

However, organizational culture may be able to partially offset some of the negative impacts of bad strategic acumen. This will depend on civil-military relations dynamics such as the degree of autonomy that armies are given to pursue their operations, the level of trust between flag officers and political leaders, and the latter's acceptance of the need of professional military

judgment. Nevertheless, this offsetting will not be able to completely compensate lack of strategic foresight.

Second, organizational culture cannot deny the effect of adverse strategic trends. As Figure 1 showed, a military's operational and tactical ability are only components within a wider set of strategic elements that create trends between adversaries. National endowments, manpower, technology, economics, demographic trends, operational and tactical prowess, and diplomatic power are interdependent at the strategic level, and the trends they create cannot be denied by an abundance of one or a few elements. At the end of the day, organizational culture may create a window of opportunity through which the army may be able to deliver a significant blow to an adversary to shock it into submission, even if that adversary holds more favorable strategic elements that give it an advantageous position in the long run. Nevertheless, this is more of a calculated risk than a certainty and, as the experiences of World War I and II indicate, adversaries can find it in themselves to bet on time and resist the attackers until strategic trends turn against the latter. Organizational culture cannot trump this reality.

Third, organizational culture does not invalidate the need for modern technology on the battlefield. Massive technological disparities may very well exert independent effects at the strategic level that could reduce operational alternatives for armies in the battlefield. The Allied Enigma code-breaking effort in Bletchley Park that was the source of what was known as Ultra intelligence is a good example. Once Alan Turing and his associates were able to crack the German Enigma signals code, Allied Headquarters were able to gain privileged intelligence that helped them anticipate German operations, which consequently reduced the level of operational and tactical surprise on which the German Army could rely.

This does not mean that technology necessarily invalidates the effect of organizational culture, though. The German Army displayed important technological disadvantages in most of its operations, like the Battle of France in 1940. Most of the French tanks were superior in gun and armor; Germany only had one tank, the PzKpfw 4, which had more armor and a superior gun (Frieser and Greenwood, 2005, p. 40). Despite this disparity, Germany cut through French armor formations without any problems during its invasion in 1940 and behind this performance was a German Army that had an organizational culture that emphasized individual initiative, creativity, and independence while also being able to standardize these beliefs in the form of organizational guidance such as doctrines and field regulations. Thus, organizational culture does not trump the important effects of technology, but this does not mean that technology necessarily trumps organizational culture. Rather, organizational culture can be a factor in allowing armies to make the best possible use of their technological resources in combat operations.

Fourth, different military organizational cultures interacting on the battlefield will often conflict. This is something that should be obvious based on my own theory, which stresses that organizational culture has a bearing on the army's ability to develop its military power through the ideas of its members about how the army should fight. Nevertheless, armies rarely fight alone on a battlefield, which has different domains such as land, sea, air, space, and, today, cyberspace.

In the specific case of conventional land military operations, the interaction between air forces and armies means that there will be two organizational cultures that will have to collaborate to produce an output. Given the fact that interorganizational dynamics can also display aspects of bureaucratic turf and competition, it is obvious that, in these settings, there may be other aspects such as bureaucratic politics which may reduce the effect of organizational culture. For instance,

Builder has explained that the identities of the military services of the United States have developed different understandings of what strategy means and how it is conducted (1989, p. 59). According to Builder, these identities have also had an impact on how each of the services uses different kinds of analysis to compete against each other in a constant search for funding (Ibid, pp. 104-108). In operations, this reality was clearly seen during World War II, when the U.S. Army Air Forces neglected tactical air support out of their desire to use strategic bombing to show that they should become an independent military service (Ibid, pp. 70-71; House, 2004, p. 169). Thus, when two or more military organizations must interact for combat operations, I expect to see conflict between their organizational cultures. In this case, it is likely the victorious side will be that which contains services that have organizational cultures that have more in common.

2.4.Methodology

To test this theory, I employ a qualitative research design built around three cases. Qualitative methods have been the approach used by most scholars of organizational culture. In the case of cultural studies, interviews, ethnographies, and participant observations have been the most recurrent qualitative methods employed. In my research, however, I use case study methods. I do so because methods like ethnography and participant observation are not viable in military operations research, where legal barriers often limit what one can access in terms of information. Case studies, or the intensive analysis of a group of cases to shed light on the larger population, offer a way around these obstacles (Gerring, 2007, p. 20). They do this by relying on historical

analysis that is anchored around mechanisms structuring it for the purposes of the study, thus controlling its breadth and span. Additionally, they offer the possibility of not just correlating an independent and dependent variable, but also combining this with systematic process-tracing analysis of the cases (Ibid, p. 397). Hence, case study methods offer a tool that can help me characterize my independent variable, analyze the causal mechanisms connecting it with my dependent variables, and assess the generalizability and validity of this connection.

To conduct my case studies, I rely on the method of structured focused comparison developed by Alexander George and Andrew Bennett. This method consists of developing basic research questions that guide the inquiry and standardize the data collection process in each case study (George and Bennett, 2005, p. 67). The method works in the following way. First, I identify the cases that contain the phenomena I am studying. I then define a research objective. Finally, I use my independent variable to explain the selected cases (Ibid, p. 69). The method of structured focused comparison provides a framework to systematize the analysis of different cases in which I can test the hypotheses presented above.

My cases are centered around the army as a unit of analysis. In each case, I focus on how each army developed its organizational culture and how that culture influenced its performance against another army in battle. In that sense, the battle is the testing ground where, from a historical perspective, I can see how two different cultures performed against each other. Depending on the case, I analyze the performance of army formations of different sizes or units, such as divisions or

battalions. These are different types of groupings of army assets, determined by mission, time, and space. They retain the essential characteristics of their parent army organizations.

I analyze the performance of the armies along the lines of military effectiveness and military power. Regarding the former, as described in section 2.2, I look at three specific aspects when talking about military effectiveness: information management, combat assessments, and flexible operations. These components provide the operational underpinning to measure my dependent variable. When I look at information management, I look at how the armies and their units have used and circulated the information they had at hand regarding their enemy. Specifically, I assess whether units or formations were able to capitalize on their information instead of being held hostage to the problems that each of the imperatives create. In terms of combat assessments, I look at how officers were able to form estimates of enemy activity and optimal force employment. The quality of those assessments will be understood in terms of the problems caused by the imperatives, such as an officer pulling rank to impose a flawed estimate on a subordinate closer to the frontline action. Finally, regarding flexible operations, I look at how well armies were able to customize their operations to overcome the challenges posed by their adversaries. In particular, I assess how armies were able to combine arms in a way that could surmount the challenges they confronted. Regarding military power, I look at two manifestations. First, I look at the overall lethality of armies during the battles I analyze. In particular, this means looking at the casualty and fatality ratios of the battles. Second, I also assess the speed with which armies were able to advance against adversaries during operations. Thus, I look not just to confirm my hypothesis by finding armies that are able to more inflict punishment on others, but also at

whether the fatality rates are associated with fast advances into enemy territory and against enemy forces. Therefore, I assess military power in terms of lethality and the speed of army operations.

There are three main overarching questions that guide me in each case analysis. One is what the army believed about its role in combat. The second is how the army's organizational culture balanced the logic of appropriateness and the logic of consequences in its beliefs. The final main question I ask in each case is how the organizational culture of the army impacted its ability to generate military effectiveness and power in battle. These three questions form the basis of the inquiry and coding approach I have developed for three research techniques that I use: archival research, semi-structured interviews,⁷ and secondary source research.

I used these three overarching questions to develop a coding instrument that allowed me to conduct my cases (Annex 1). The instrument contains ten specific questions to assess documents or other pieces of evidence regarding armies' organizational cultures. Although not all documents and other sources contain all of the data the instrument requires, the coding instrument allows preliminary organization of the archival data and determination of which documents are promising and which are not. The same approach is applied to the secondary source research.

In gathering the archive-based documentary evidence used to test my hypothesis, I relied in diversification and secondary sources to control for any potential issues of bias. This approach was most feasible in my work on the British Army at different stages in its history, as there are several archival centers in and around London to find multiple streams of primary data. I worked with Kings College London's Liddell Hart Military Archive Centre, the National Archives of the

⁷ I use this technique in only one case.

United Kingdom, the Army War Museum Archival Center, and the Imperial War Museum archives in London and Duxford. In combination with the wealth of secondary sources, this diversification of archival sources allowed me to contrast different documents created by multiple actors in order to avoid bias. In my research on the Argentine Army, diversification was not as possible as in the United Kingdom, but I still managed to compare different archival sources like the Army Historical Service with smaller institutional collections such as the archives of Circulo Militar of Buenos Aires and the archives of the Army War College in Palermo. In conjunction with the available secondary sources, this helped me see a consistent picture and control for biases in the analysis.

Regarding interviews conducted for one case, the three overarching questions noted above also formed the basis of the interview script. The script is partly based on the archival coding instrument. In Annex 2, I present the script that shows how the interviews addressed three objectives: (a) determining the army's beliefs as understood by the veterans, (b) identifying what kind of balances the army reached in terms of the three imperatives, and (c) understanding the impact of those beliefs and imperatives on the army's effectiveness during the battle. Since the interviews were semi-structured, participants had the opportunity to present their answers at length and push back against the ideas implied in some of the questions or my line of questioning. At times, participants even had the chance of presenting alternative explanations of events on the battlefield.

It is necessary to discuss the process I followed to find my interview subjects and control for potential bias issues. In the case of the British Army, I found my subjects through contacts in the London scholarly and military community. At first, I enquired with local scholars about the feasibility of finding interview subjects through United Kingdom-based veterans associations; I

was advised against this, as it was a prolonged process imbued with reluctance and suspicion from the war veterans.⁸ Instead, I accepted Dr. Helen Parr's offer to refer me to my first British interview, Colonel David Benest, OBE.⁹ With Colonel Benest's assistance, I was introduced to other British veterans from the Falklands, such as Lt. Colonel Phillip Neame and Brigadier David Chaundler, OBE. These two officers provided more introductions; Lt. Colonel Neame introduced me to Sargent Tom Hardy and Brigadier Chaundler referred me to Major General Michael Scott, CB.¹⁰ On a separate track, thanks to a conversation with Kings College London Professor Brian Holden Reid, I was referred to one of the two Brigade commanders in charge of the advance to Port Stanley, and subsequently of the Battle of Goose Green, Major General Julian Thompson, CB.

While this method of identifying subject raises the possibility of bias arising from working with individuals in a single network, I was able to mitigate the likelihood of such problems through two approaches. First, the fact that I was able to get an independent introduction to Major General Thompson allowed me to have an alternative view of the difficult choices that set the ground for British paratroopers prior the Battle of Goose Green; it contrasted with the accounts of Colonel Benest and the other paratroopers to whom he referred me. Second, thanks to the after-action interviews conducted by the army, and which are available at the archive center of the Army War Museum in London, as well as the Imperial War Museum paratrooper archives in Duxford, I was able to corroborate all the claims made by my interviewees with hard document-based evidence.

⁸ Beales, J. "Re: Doctoral dissertation relating to the British Army." Received by Cesar Cedeno, 20 Dec. 2018

⁹ Parr, H. "Re: Falklands War research". Received by Cesar Cedeno, 12 Dec. 2018. OBE stands for Order of the British Empire

¹⁰ CB stands for Order of Bath

This led to a situation in which I effectively saw differing narratives amongst some British veterans and was able to check them against the archival evidence I uncovered as well as other secondary source data.

In the case of the Argentine Army, the process was the same. My first Argentine contact was provided by Colonel Benest, who introduced me to an active senior officer of the Army who previously cooperated with him on a separate research project. While in London, I was able to get this officer's support to find more Argentine contacts who were willing to be interviewed. Through this officer, I was introduced to an Argentine retired General, a regimental staff officer who served in the battle I analyze, two company commanders, one section commander, and two non-commissioned officers.¹¹ The retired General provided an introduction to another regimental staff officer who was known to be both reluctant to provide interviews and criticized by other veterans of the battle. The fact that I was able to talk to this officer created an important check: I was able to interview a group of officers who shared a criticism towards the headquarters of their task force while also talking to one of the members of that headquarters. In addition to the alternative narrative this last interview subject provided, I was able to check claims made during all interviews against the very detailed after-action and blue-ribbon panels formed after the war to prosecute cases of dereliction of duty in the army, which are available in the Army Historical Service in

¹¹ Due to technical issues, I was only able to use one of these interviews.

Buenos Aires. I was able to ascertain when blaming got in the way of an objective assessment of the Argentine Army before and during the battle.

The three overarching questions also formed the basis of my general analytical strategy. Using qualitative analysis software (Nvivo), I used the interview script to set up coding instruments to organize the data contained in the responses of the participants as well as the primary and secondary sources. While I went through the material, I coded recurrent themes present in the responses of the interviews as well as the documents. Once this process was completed, I examined the patterns of each code, comparing each of the armies involved in the battle that was being analyzed. The comparison was done using tables in which I overlaid the data pertaining to each army's culture and battle decisions next to each other. This allowed me to see how different beliefs interacted in specific moments of the battle and its outcome.

To select my cases, I drew on Eckstein's most-likely/least-likely framework. Most-likely cases are those in which extreme values of relevant independent variables put my theory on its strongest footing while least-likely cases are those in which extreme values on relevant independent variables make it likely that my theory would fail, even if it was generally correct. If theories fail to pass most-likely cases or succeed in least-likely ones, such observations warrant great levels of confidence in the findings (Biddle, 2004, p. 78-79). For instance, if my organizational culture theory explains a case where its success seems unlikely, or if alternative theories fail to explain cases where they have all the advantages to do so, then these results can confirm or disconfirm my theory. This logic forms the core of my case selection criteria: to validate

my hypotheses, I must examine cases in which the alternative theories should have made certain forces more likely to succeed but the advantaged actor failed to perform as expected.

Accordingly, I have selected three cases in which traditional theories of military effectiveness and military power are not able to account for the actual militarily effectiveness and power of the engaged armies. These three cases were chosen because the defeated army was the one favored by alternative theories of military effectiveness and military power discussed in Chapter 1. To allow for the assessment of my own theory, in these cases, the effective and winning army adopted an organizational culture that, according to my logic, gave it a comparative advantage over its adversary. The cases are noted in Table 2.

Table 2

Case	Culture 1	Culture 2	Expected Outcome
First Battle of Sidi Rezegh 1941	British Eighth Army: Conformist Culture	Afrika Korps: Balanced Culture	Higher military effectiveness and military power for the <i>Heer</i>
Battle of Chinese Farm 1973	Egyptian Army: Hierarchical Culture	IDF: Balanced Culture	Higher military effectiveness and military power for the IDF
Battle of Goose Green 1982	British Army: Hierarchical Culture	Argentine Army: Conformist Culture	Higher military effectiveness and military power for the British Army

The first case is the First Battle of Sidi Rezegh in 1941, in which the German *Afrika Korps* defeated the British Eighth Army in North Africa, even in the face of terrible logistic, political, and manpower disadvantages. In this particular case, the British were favored by all of the reviewed theories. They were nevertheless defeated by the Germans who, to their advantage, had

a balanced organizational culture. This is a case in which an army with a fully balanced culture outperformed an army with a conformist culture. From the standpoint of theory development, in comparison to the advantages enjoyed by the British, the only advantage that the Germans enjoyed was their balanced organizational culture.

The second case is the Israeli counterattack after the Egyptian Army crossing of the Suez Canal during the 1973 Yom Kippur War. In this operation, known as Operation Stouthearted Men, the IDF had to contend with a massively superior Egyptian Army, which had coordinated its offensives with the Syrian Arab Army in the north of Israel. The Israelis were at a disadvantage numerically and technologically, as the Egyptians had received substantial arms transfers from their Soviet partners, who replenished Arab stocks after the 1967 war. Even more importantly, Anwar el-Sadat had instituted extensive organizational reforms in the Egyptian Army intended to make it more capable of employing independent action and individual initiative (Pollack, 1996, p. 234). The Egyptian reforms did not permeate below the higher command echelons of the force, however, and tactical initiative was still a problem for the Egyptian Army. The 1973 Egyptian Army is an example, albeit imperfect, of a hierarchical culture. The IDF, for its part, possessed a balanced culture and overcame the Egyptian foes.

The third case is the Battle of Goose Green, fought between the Argentina and British armies. In this case, the Argentine army failed to exploit its geographic and manpower advantages, which more than compensated for any economic and material advantages the British army enjoyed. In terms of culture, although the British Army made important strides to adopt German command concepts by 1982, its reforms were only known to a select few in the British Army high command (Shamir, pp. 111-112; Sangho, 1994, p. 56). This made the British Army representative of a

hierarchical culture. On the Argentine side, the army had a strong conformist culture that made it incapable of adapting to circumstances that were changing right in front of its soldiers' and officers' eyes. As my theory anticipates, the British Army outperformed the Argentine forces at Goose Green.

Having presented my cases, it is necessary to briefly explain why I have chosen to work with battles instead of campaigns. This is important because using entire campaigns could arguably benefit my research. Specifically, given their longer timespans, assessing campaigns could allow me to see how an organizational culture performs over an extended period of time. The reason I have not used campaigns, however, is to establish relatively harder tests of my claim. Examining battles positions alternative theories I assess alongside my own claim such that they are advantaged in competitive hypothesis testing. If organizational culture can be shown to have a more compellingly account for observed dynamics over short periods of time than existing theories can, we will have more reason to believe that confidence in its general validity is warranted. This approach follows Biddle's adept use of Eckstein's case selection method, in which he chose some of the cases he examined specifically to place his theory at a disadvantage in relation to other theories (Biddle, 2004, p. 78-79).

It is necessary to acknowledge that organizational culture presents important internal validity challenges. A significant problem with organizational culture, as noted above, is the difficulty of verifying, a) the existence of a causal mechanism that unambiguously shows its influence on the dependent variable, and b) that this influence is free of confounders that could

cast doubt on the reliability of the research design. In order to increase the internal validity of my research, I employ two additional methodological measures.

First, I rely on the congruence method in all my cases. According to George and Bennett, congruence analysis begins with a theory and then assesses its ability to explain the outcome in a case (Ibid, p. 181). Furthermore, the method relies on searching for congruity, which rests in the similarities in the relative strength and duration of hypothesized causes and observed effects (Ibid, p. 183). Special attention is put into the discarding of causal relation threats such as spuriousness, lack of causal depth, and causal priority, as suggested by scholars (Ibid, p. 185). In concrete terms, in each case, I ascertain the performance of the forces in the outcome of the battle and assess that result against the expectations of my claim and the other theories of military effectiveness and power. In doing so, I am able to check whether my theory or other alternative theories have congruence between their hypothesized cause-effect relationships and the battle's dynamics and outcome. This congruence method should make my case analysis reliable and clear for academic and policymaker users.

Second, to present a clear empirical explanation of the validity of any congruent relationships, I employ process-tracing analysis. Process tracing forces me to consider alternative paths through which the dependent variable's result could have been generated (Ibid, p. 207). It forces me to be forthcoming on how, precisely, an army's organizational culture was related to its military effectiveness and power outcomes. This is important given the difficulty in pinpointing

not only culture, but also its effects on my dependent variable, and in discerning how strong this influence was compared to that of alternative hypothesized explanations.

Using these two case analysis methods further allows me to rely on relatively reliable confirmatory criteria for my theory and hypotheses. If both the congruence and process tracing methods reveal a strong influence of organizational culture on military effectiveness and power, then this will be a strong confirmation of my theory. In practice, this means that, to have a strong confirmation of my theory, I expect the congruence method to reveal that there is correspondence between my organizational culture expectations and the historical record. Additionally, I expect to see process tracing results point to the influence of organizational culture on the military effectiveness and power outcomes. Failure in either of these two analytical methods will mean weak confirmation for my theory. Failure in both analytical methods will justify rejection of my theory.

The combination of congruence and process-tracing analytical methods I use in this project has seen important applications in the international security studies field. For instance, Khong combines these two methods, using process tracing to determine the way “the actor’s beliefs [analogies] influenced...his choice of a course of action,” and using congruence tests to establish “checks against overly subjective interpretations of raw data” (Ibid, p. 65-66). Grauer also combines these two methods of analysis. He uses congruence tests to assess if a theory accurately explains a case and then moves to process tracing to determine whether his theory’s causal

mechanisms operate as anticipated to generate combatants' military capabilities (2016, p. 19).

Thus, by combining these two analytical methods, I am relying on a proven analytical strategy.

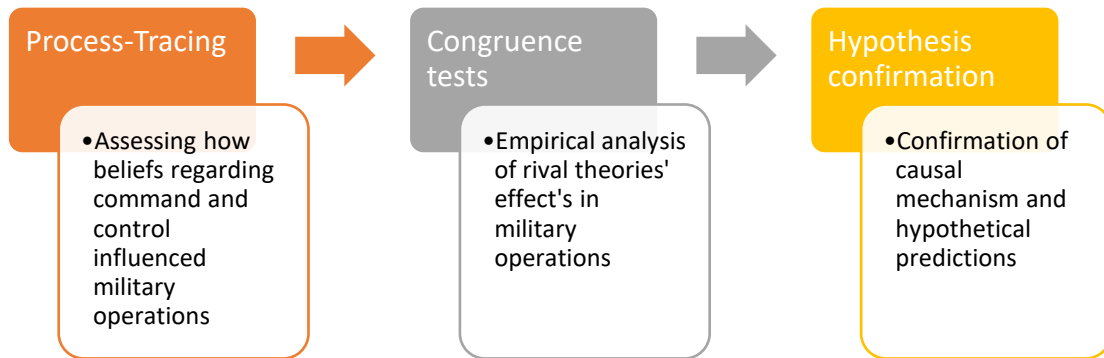


Figure 5

In each of the case study chapters that follow, I do three things. First, I present an analytical explanation of the armies' organizational culture. An analytical explanation is a variation of a historical narrative of a case that is couched in explicit theoretical forms (George and Bennett, 2005, p. 211). I do so by focusing on how the obedience, control, and certainty imperatives arose (or were avoided) and created patterns in the training regimes, staff discussions, and operational planning of the armies involved.

Second, I analyze how the forces' organizational cultures manifested in the actual conduct of military operations in the battles. My analysis at this stage is based on extensive reviews and examinations to control for spuriousness, lack of causal depth, and causal proximity. These checks allow me to determine whether the effect the variables my theory emphasizes had on military effectiveness and military power overcomes internal validity issues.

Third, I analyze the extent to which rival theories can explain the performance of forces in and the outcomes of the battles. While the second stage of my analysis reveals how organizational culture generated military effectiveness and power, this stage sheds light on how strong that influence was. Combined, these analyses allow assessment of the role organizational culture played in shaping the military outcomes as well as whether there are other, better explanations for the observed results.

3. Chapter 3: First Battle of Sidi Rezegh 1941

In this chapter, I test the explanatory power of my organizational culture theory on the battles between the German and British armies in North Africa in 1941. World War II featured some of the most masterful performances of military effectiveness in modern history. Among them are the operations of the *Deutsche Afrika Korps* (DAK) in North Africa during the First Battle of Sidi Rezegh in 1941. This is a useful case on which to test my organizational culture theory of military effectiveness, as every single conventional variable thought to shape military effectiveness was stacked against the DAK. The German Army, or *Heer*, was fighting without any material, economic, technologic, or other advantages against a British Army that was favored along each of these dimensions. The *Heer*'s organizational culture was a key driver of its ability to fight off the British. As depicted in Figure 6, the British and German forces had very different cultures:

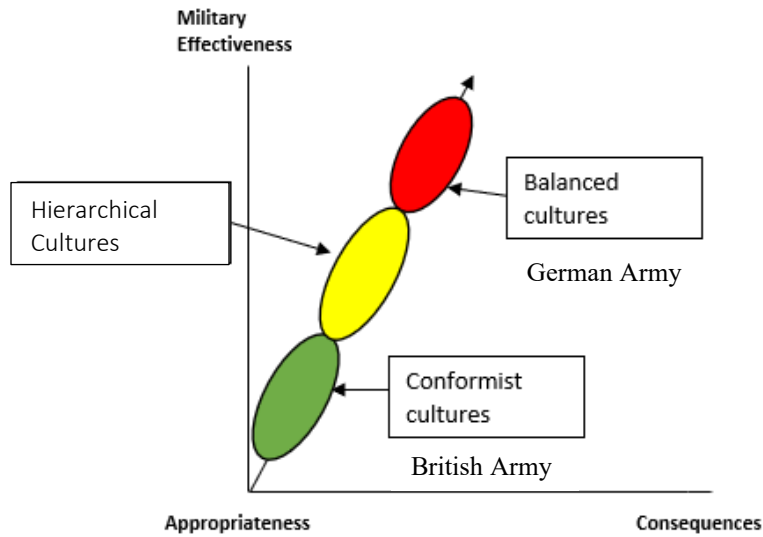


Figure 6

3.1. The Cultures

3.1.1. The British Army

The Obedience Imperative

The British Army displayed the obedience imperative, which steered its soldiers towards conformity with superior orders, even if they made no tactical sense. Throughout the history of the army, there was a pattern of putting strong emphasis on the belief that a soldier's obedience to his commanding officer (CO) had to be total: there was no room for the soldier to even question whether the order made sense with the tactical situation he faced; all that mattered was to obey superior orders. The main elements driving the obedience imperative in the British Army seemed to have been the Regimental system, the elitist ethos present in other units of the army, and the imperial policing missions assigned to the army. As this belief was cemented by military

experiences and other organizational trends inside the army, what eventually emerged was an organizational imperative to make soldiers as pliant and conformist as possible to allow British commanders to use them as they wished in battle.

The obedience imperative was grounded in perhaps the most salient feature of the British Army's force structure: the Regimental system. Through the Regimental system's interaction with other social, political, and military factors, the obedience imperative cemented its influence in the British Army's tactics and operations. One could say that the Regimental system was the mid-range technology through which different social, political, military, and bureaucratic elements that were part of the army's daily life in peacetime and wartime gave life to this imperative.

What was the Regimental system and why was it so important for the development of the obedience imperative in the army? The Regimental system was a type of force structure for British infantry units that allowed the army to rely on county-specific recruitment to man and staff the infantry Regiments of the United Kingdom. The Regiment itself was a common type of military combat formation that was known to most European armies, including the German Army. There were three distinctive features of the British Army's Regimental system, however. First, Regiments were hyperlocal in their composition and management. Second, the colonels controlling the Regiments possessed almost absolute authority over the operation of the units and the soldiers they contained. Third, the Regiments were infantry forces that very rarely possessed any organic support assets like artillery and combat engineers. The allocation of these assets to the Regiments was the role of the commanding generals with their staff assistants, who were expected to formulate a master plan for their employment (French, 2001, p. 505). These characteristics fostered a strong preference for absolute obedience throughout the British Army.

Since the English Civil War, English Regiments were raised and used at virtually the complete prerogative of the Colonel who commanded them. Regimental COs had considerable opportunities to exercise their own initiative, as, from the modern beginnings of the force, Colonels were empowered to do with their Regiments what they pleased, even if the units were raised with public funds (Chandler, 1994, p. 78). The result of this power allocation was that Regiments trained their soldiers to show total obedience to their battalion's instructions in battle, with no room for their personal initiative (Samuels, 1995, p. 48). These officers commanded with no sort of higher control or guidance in peacetime, and, in war, they would be temporarily commanded by the field force's Command in Chief, as was the case in the Battle of Malplaquet in 1709 (Ibid, p. 81). Wellington's victories in the Napoleonic wars were achieved with a collection of Regiments that yielded total obedience to his orders and instructions. The army's approach to combat always depended on securing the total obedience of subordinates to allow the "Great Captain" to organize every unit to achieve victory, but the success over Emperor Napoleon's Grand Armee strengthened this authoritarian and hierarchical approach even further on the grounds that it had worked (Shamir, 2011, p. 67; Burroughs, 1994, pp. 160-161).

The Crimean War fought between 1853 and 1856 revealed that the British Army struggled to generate military effectiveness despite this "successful" approach. During the war, the army made significant blunders, some of them memorialized by British poets. During the Battle of Balaclava, immortalized by Tennyson, Lord Raglan, the British Commander in Chief, ordered his cavalry commander to launch what was ultimately a suicidal frontal attack against the Russian entrenchments on Causeway Heights that ended in the near destruction of the Light Brigade (Ibid, pp. 180-181).

It was after the blunders of the Crimean War that the government undertook a review and reorganization of the Regiments (French, 2005, p. 3). The result of this review was the Localisation Act of 1872. The act structured the infantry Regiments permanently around two battalions: one that would draft and train soldiers from its county jurisdiction in the United Kingdom and another serving overseas that would employ the forces (French, 2005, p. 14). The localization of the Regiments had two important consequences. First, soldiers typically shared worldviews. Second, failure to perform in the Regiment, in which absolute compliance to superior orders was essential, could damage the soldier's reputation back in his community (Ibid, p. 15; Kinzer, 1991, p. 32). Failure to obey, however tactically sound any disobedience might be, would harm his standing in his county, with negative repercussions to his social life like being perceived as a coward or a disappointment. The Regimental system deliberately used this dynamic to suffocate any form of personal initiative, making the army an extremely rigid force, tactically (French, 1996, p. 5). Any tactical thinking was completely reduced to what the Colonel defined as valid (French, 2001, p. 48). Survival in the Regiment thus hinged on learning to obey first and foremost (Burke, 2005, p. 42).

The strong foundation provided by the Regimental system for the obedience imperative was consolidated by other elements that shaped the British Army. Organizationally, the British Army remained highly under-institutionalized above the Regimental level. Even after the Crimean War, there were no permanent higher headquarters for the army well into the twentieth century, and even basic elements such as a professional promotion system were introduced relatively late in the nineteenth century (French, 2005, p. 1). A Commander in Chief was an occasional luxury for the army, as he was only appointed during active campaigns (Gates, 1994, pp. 138-139). This

inattention to higher levels of command reinforced into the British belief that all that was needed to achieve victory in battle was to have fully obedient soldiers and a great captain who could command them.

To say that there was no permanent higher organization does not mean that there were no checks on Regimental commanders, however. In wartime, General officers issued detailed orders that were to be followed to the letter, with little deviation, and regarded any criticism of their instructions as a personal affront (Ibid, p. 130; Travers, 1994, p. 217). For instance, if a staff officer dared to inform his General that the orders he had produced were lacking in broader logistic or operational considerations, his action could be considered as disrespectful criticism.¹² Generals then used their unique prerogatives to design methodical battle plans and exploit Regiments' lack of organic support assets, and the consequent need for the capabilities that such assets could bring to the fight, to gain their obedience.

A second organizational factor that reinforced the obedience imperative in the British Army was the elitism present in its other units. The army contained different force structure systems: the Corps system, which organized the Royal Artillery, Engineers, and Supply services of the army; the Household Division, which organized the elite formations guarding the Royal Household such as the Horse Guards; the Rifle Regiments, which organized different rifle units across army; and the infantry Regiments of the Regimental system (French, 2005, p. 30). Of these systems, the Household Division constituted the pinnacle of the social fabric of the British Army and, inasmuch as it contained the aristocracy most likely to be in close proximity to the Royal

¹²Field Marshall Brooke, A. (1919). "Senior Staff Course." London, Kings College London Liddell Hart Centre for Military Archives, Alanbrooke 3/6, p. 2.

Family, of the kingdom itself. The Division's training system was heavily reliant on absolute obedience to fulfill its ceremonial duties, which required the performance of intricate military drills and choreography that were impossible unless soldiers followed to the letter the orders of their COs. Similarly, according to Burroughs, "conservatism was bound to be well entrenched in an authoritarian and largely self-contained institution dominated by a closely knit group of senior officers, personified by the Horse Guards who evince an unyielding traditionalism and unquestioning adherence to Wellingtonian practices." (1994, p. 170).

This is not to say that the Royal Household had undisputed control of the army. British parliamentarians feared that, if royal control of the army was unchecked, the army could be used against them as King Charles I did in 1642 when he invaded Parliament to arrest some of its members. Parliament accordingly made the deliberate decision to make the army dependent on the legislature through the control of its promotions (Avant, 1994, p. 36). But the control of officer promotions gave Parliament the ability to police its Regimental officers and make sure that only officers whose military preferences coincided with those of the legislature could rise through the ranks (Ibid, p. 40). Even Parliament could be distrustful of officers that, although loyal, would hold opinions regarding military matters that would clash with the existing legislative preferences. This served as another pressure point, pushing the British military—the Regimental officers and the troops they controlled—toward complete obedience.

Finally, imperial requirements also incentivized obedience in the British Army. The need to secure trade lanes, markets, and British subjects around the world led to colonial policing becoming the salient deployment of the army. For instance, at the height of the Napoleonic wars, two thirds of the army were engaged in colonial policing (Gates, 1994, 137). The Regiments

deployed to the colonies faced diverse security challenges, and the Regimental COs had to come up with unique tactical solutions. A common thread throughout the colonies, however, was that many of these environments were populated by numerous but militarily primitive adversaries that could simply be overpowered. As a result, no matter their specific form, British tactics were increasingly reduced to just obeying the orders of COs in order to maximize firepower (Spiers, 1994, p. 202). This experience of fighting battles where absolute obedience was necessary for the CO to muster sufficient firepower to overwhelm an enemy made the army increasingly attached to the belief that all that was necessary to win was soldiers who obeyed.

The obedience imperative was thus solidly engrained in the British Army by World War I (WWI). The army trained its soldiers to execute the orders of their superiors obediently and blindly. Samuels has noted that the army that entered WWI was wedded to “timetable tactics,” which were battalions charging with their bayonets at established times and requiring little thinking from their officers (Samuels, 1995, p. 117). This is important: even if local conditions told a first lieutenant that to execute an advance against a position in the ordered time by his Company CO was tactically unsound, the timetable was all that mattered to that lieutenant as he was trained with the imperative to obey orders at the expense of his judgment. This created an officer corps notorious for passiveness, little reliance on personal initiative, and conformity with superior orders (Ellenberger, 1938, 107; Liddell Hart, p. 665-669; Liddell Hart, p. 711). This tendency survived the fires of World War I and, at the beginning of World War II (WWII), the British Army still retained a solid adherence to the obedience imperative. For instance, British war correspondent Moorehead argued that “the leader should be the product and best expression of the system, not an individual experimentalist. The system should be flexible and inspired enough to throw up the best

men into leadership so that when the leader comes to take a daring decision it will be just the decision all his men would have taken.” (1967, p. 227). Thus, even at the height of operations in the desert where the creativity and unorthodox thinking of Generals like Rommel took a severe toll on British forces, British Generals remained committed to the obedience imperative.

The Control Imperative

One consequence of the obedience imperative is that British COs were required to practice minute control of their units to ensure their orders were being obeyed. This was the basis of the control imperative: the need to maintain detailed control of operations at all times to make sure orders were being executed as the plan required. This tendency toward control was exacerbated by the interaction of the Regimental system, the style of training, and concerns about personnel quality.

The Regimental system set the main stage for a strong emphasis on control. By treating units as the property of the Regimental Colonels, the system incentivized COs to assert their authority over all aspects of their operations. This dynamic is perhaps most clearly articulated in the 1909 Operations’ Field Service Regulations (FSR) of the British Army. For the army, commanders had to lay down precise time and places in their orders and give specific methods to be used to attain the object of the operation (War Office, 1909, p. 27). Command was all about controlling how things were done and not about the results to be attained.

This type of centralized and detailed control had significant implications for the conduct of British tactics and operations. Every command action, from the Division down to a Battalion,

was geared towards controlling how subordinates executed orders and maneuvers. For instance, Divisional training aimed at teaching Companies, Battalions, and Brigades a common drill for attack; Brigades tried to control the minute details of Battalion deployment (French, 1996, p. 271). At the Regimental training depots, the guiding principle of tactical training was to control soldiers as if they were automatons; soldiers were drilled until their standardized and discrete movements became second nature (French, 2001, p. 55).

This style of training then shaped how officers directed their units to perform specific tasks in battle, such as moving into a position, taking an adversary, flanking a defensive position, and other tactics-specific actions. This process-centric approach manifested in operational orders (OPORDs), which laid out the tasks assigned to units and formations within the plan elaborated by the COs. The British penchant for control was so asphyxiating that even the intentions section of OPORDs became victim to officers' tendencies to lay down precise methods by which they expected their subordinates to operate (War Office, 1928, p. 8).

Another important element that cemented the influence of the control imperative in the British Army was recurrent concern about the quality of its personnel. The Regimental training system was built upon the notion that British recruits were inherently inadequate to become soldiers (French, 2005, p. 63). Recruits were deemed too uneducated and attached to the comfort of urban areas to adapt to the demands of modern warfare (Spiers, 2005, p. 30). Because of this premise, there were two command consequences for the army. First, there had to be minute control omnipresent in the units to supervise these recruits. Second, their individuality had to be "stamped

out” (Samuels, 1995, p. 118). This was the process through which the army would “program” its soldiers to execute a set of drills during battle.¹³

In sum, these three factors—the Regimental system, the style of training, and concerns about personnel quality—tended to solidify the influence of the control imperative in the British Army. The imperative was so strong that it was able to invalidate most of the lessons the army did get from its WWI experience. In 1934, the War Office convened a select committee to ascertain the lessons of the war. Its members agreed that tactical trends broke the continuous communications between headquarters and assault units. In particular, Battalion commanders were unable to communicate with companies once the latter successfully opened a hole in the enemy defenses and attempted to exploit it (War Office, 1932, p. 18-19). Major General Kennedy even went as far as admitting that the “official history shows that the initial break in any modern battle throws out of gear the system of control” (War Office, 1933, p. 12). The army still refused to question the validity of the control imperative, though. In 1935, the army still held that control had to be strong at all times, requiring officers to check back with their superiors to get approval for any changes to their assigned orders (War Office, 1935, p. 28). Thus, the control imperative remained influential going into World War II, even in light of the army’s awareness that it was no longer possible in the battles of WWI.

¹³ Kings College Liddell Hart Centre for Military, Liddell Hart writings, Duties of a Section Commander during the attack. London, Kings College London Liddell Hart Centre for Military Archives, p. 1

The Certainty Imperative

With its reliance on the obedience and the control imperatives, the British Army had a very methodical and linear approach to combat. Such a manner of force employment fit well with the British Army's third tendency—adherence to the certainty imperative. British officers and soldiers believed they had to be absolutely certain about events before acting, and that this certainty could be derived from application of established principles and formulae that purportedly captured the essential nature of war.

The biggest driver behind the British Army's embrace of the certainty imperative was the role that colonial policing played in the tactical development of the army. Each Regiment across the empire tried to create its own linear connections between strict application of methods, effectiveness, and victory in battle. In doing so, they often fought in ways that mimicked the experiences of formations in similar areas of responsibility. For example, the use of squares in the Zululand and Sudan provided successes in these conflicts, even though these tactics were already obsolete in Europe (Spiers, 1994, p. 202). The mimicking of local experiences made it easier for all Regiments to create their own artificial certainties in the form of the strict application of purportedly general methods to ensure victory. As a result of this pattern, the Regiments trained their soldiers to think and act methodically, believing that, if each were to follow the Regimental methods, effectiveness and victory would ensue. British training was focused on infusing officers with methodical thinking; doing so would relieve soldiers from having to think for themselves in combat and avoid tactical mistakes caused by their potential lack of experience (Liddell Hart, p. 460; Burroughs, 1994, p. 168; British Army, 1928, p. 25).

With this methodical thinking came a deeper problem for the army: its officers were conditioned to create certainty by reducing combat to engineering-like principles. British Training Regulations in the early twentieth century reflected a belief that combat, and war, had a deterministic nature that could be derived into basic principles that would guide officers in operations. An officer proclaimed that the aim of the army training system should be to teach officers how to apply the six war principles in the proper way (Scammel, 1922, p. 264). These principles were the official formulae of the army regarding how to estimate and evaluate combat variables in war (Ibid, p. 265; Samuels, 2015; p. 504). Even officers considered to be “mavericks” or “unorthodox” reflected this attachment to deterministic formulas. Then Brevet Major J.F.C. Fuller, one of the army’s leading armored theorists, went as far as talking about the foundations of the science of war such as surprise, attrition, envelopment, and penetration, and warned that there was little to learn outside these elements (1920, p. 98). Captain Basil Liddell Hart’s main contribution was the creation of a formula for combat tactics: the principles of protective formation, reconnaissance, fixing, exploitation, and decisive maneuver, security, and economy of force (1920, pp. 2-4).

In this way, a properly trained officer was one who could use these principles like equations and derive solutions from them. Officers were not trained to look at tactical elements on the battlefield and exercise their judgment to combine them into tactical solutions for their particular combat challenges. They were trained to go over a large series of either Regimental or doctrinal methods and, once certain of the constellation of variables at play, execute approved solutions, devoid of any attention to the context in the hope that they would yield military effectiveness and victory. Hence, for the army, the strength of the certainty imperative permeated not only how

officers were trained but also how they saw war and combat: officers believed that war was a discrete phenomenon that could be ordered and mastered through techniques. British military leaders saw tactics as an engineering exercise that could derive formulas from victorious military campaigns and distill them into easy tactical methods (Gudmunsson, 1989, p. xiii). Entire tactical systems, such as Liddell Hart's "Man in the Dark" theory of infantry tactics, were preferred because they were easy to grasp and to apply as long as the causal relations were understood (1988, p. 20).¹⁴ Thus, at the core of the British Army belief system was the notion that war and combat's uncertainties could be expunged by the application of linear methods.

This organizational effort to eradicate uncertainty was diffused through the British Army through its system of officer training. Each officer was incentivized to memorize as many methods and formulas as possible, believing that the more methods he knew, the more successful he would be. There was a long-standing reliance on memorizing as many formulae and school solutions as necessary for officers to pass the examinations required for promotion (Samuels, 1995, p. 46). With this method, officers began and advanced through their careers not only believing that uncertainty could be neutralized, but that certainty was central to their professionalism. A very good example of this pathological learning system is none other than Field Marshal Douglas Haig, who spent over nine months with a private tutor before taking (and failing) the Staff College entrance examination (Ibid, p. 93). The result of this unrealistic learning system was that the army

¹⁴ Liddell Hart's Man in the Dark Theory was a positivist theory of combat that attempted to reduce tactics to steady principles that could be applied to a wide range of situations. The analogy used makes reference to a man who is in the dark and has to "ascertain the position and dispositions of one's enemy by actual contact." From this idea, Liddell Hart derives all tactics to the principles of discovery, searching, fixing, decisive maneuver, and exploitation; and these were governed by the "supreme principles" of security and economy of force. Capt. Liddell Hart, B. (1920). A New Theory of Infantry Tactics. The National Review July, 2020: 473-484

had officers who could excel at all kinds of military examinations with the exception of the final test of every officer: fighting his enemy in combat and in the midst of maximum uncertainty.

3.1.2. The German Army (*Heer*)

The Obedience Imperative

The *Heer* avoided the obedience imperative by requiring soldiers to be independent and apply their tactical judgement in combat. The force was created from the Prussian Army, which experienced a great degree of success with tactics heavily reliant on the obedience imperative during the campaigns of Frederick the Great in the 18th century. The Prussians reversed course, however, after the catastrophic defeats it experienced at the hands of Emperor Napoleon. The consequence of this radical change is that, for over 100 years, the *Heer* evolved towards an organizational culture that did not have the obedience imperative. On the contrary, the army's culture steadily evolved towards a balance between personal independence and the obedience that was required to conduct military operations.

The starting point to understand how the *Heer* escaped the obedience imperative is the Jena-Auerstadt campaign of 1806. The Prussian Army employed oblique-order tactics, created by Frederick the Great, in the two battles in fought against the French Army: at Jena, commanded by Prince Hohenlohe, and at Auerstadt, led by the Duke of Brunswick (von Clausewitz, 1984, p. 155). The Prussian Army until then had turned its recruits into totally obedient soldiers who would perform standardized actions at the rule-bound command of their officers. By contrast, Napoleon's

army was organized into different self-contained Corps that had organic cavalry and artillery, and often maneuvered independently, allowing their commanding general to make the best possible decision with the means he had at hand (Shamir, 2011, p. 32). When the Duke of Brunswick's 60,000-man army met a 20,000-strong Corps commanded by Marshal Davout in the fields of Auerstadt, independence won the day by allowing the French to outmaneuver the sluggish Prussian forces. Prussian Generals such as von Behrenhorst and von Bulow saw that the Frederickan tactics were the reason for the poor results shown by the army in the Napoleonic campaigns (Kitchen, 1975, p. 32). The 1806 defeat at Jena-Auerstadt showed that the Prussian Army placed too much emphasis on conformist obedience: Prussian soldiers were trained to mindlessly execute officer orders without any regard for local circumstances.

After Jena-Auerstadt, a group of young officers became determined to reform the Prussian Army in order to avoid a similar disaster from happening again in the future. This group of officers, led by *Generalfeldmarschall* August Neihardt von Gneisenau and *Generalleutnant* Gerhard von Scharnhorst, had themselves experienced the failure of the Frederickan era tactics, many of them being veterans of the wars against Revolutionary France and the Emperor. In their opinion, the Prussian Army needed to fix two deep problems.

The first problem was that soldiers did not think about their actions and now had to be trained to think for themselves about how to achieve a military result. Scharnhorst and the reformers concluded that the pre-1806 army put too much emphasis on personal authority that gave commanders absolutist power and did not put enough emphasis on individual training (Geyer, 1990, p. 186). For the Prussian reformers, the obedience imperative had become so strong that it stopped officers and soldiers from thinking about how they could use their military means to

accomplish the goal being pursued by their CO. For nearly half a century, Prussian soldiership was reduced to obeying orders and marching as commanded, to being a parade army. With this set of dynamics, there was no space for personal tactical thinking for anyone other than ranking officers. In short, the legacy of Frederickan tactics made Prussian officers unwilling to think.

To fix this, it was necessary to build up the army around a new notion. This was the belief that the responsibility of a soldier was to pursue the intent, or *absicht*, of his CO. The Prussian soldier still had to be obedient, but his obedience could not be an excuse to not use his military judgment in pursuit of the *absicht* sought in battle. If a soldier was given an *absicht* that stood against a previous order, the *absicht* had to carry the day, not the previous order. To accomplish this, the reformers called for allowing the soldier enough space for his own thinking, analysis, and tactical decisions within broad directives from the commander that explained his intent (Wider, 2002, p. 4; Millolat, 1992, p. 31; Geyer, 1990, p. 186). For Scharnhorst, the army had to transition to an obedience that could accommodate professional judgment, as opposed to an obedience that lacked any military judgment (Rosinski, 1966, p. 71). Therefore, the first step to recover from the disasters of Jena-Auerstadt was to purge the dominating role of the obedience imperative in the army and transition to soldiers who could think about how they could bring their assigned military means to achieve the *absicht* in their areas of responsibility. The army had to accept a reflective obedience that could allow not only for more organized, but more effective bottom-up dynamics.

The second problem was the absence of a capable group of officers who could use this space for personal thinking to increase the operational and tactical skills of the army. This deficit was the result of the ranking levels of the army being staffed, as most of the armies of the era were, according to the quality of an officer's noble lineage and not by his tactical acumen. To solve this

problem, a new body of professionally trained officers who could advise field commanders had to be created. The Prussian reformers sought to form a collegial group of officers who could share the same traits of practicality, common sense, and thoughtful consideration of tactical matters to produce war plans, research, and professional military education (Gudmundsson, 1989, p. 50; Shamir, 2011, p. 34; Millolat, 1992, p. 37). The aim behind the training of these officers was to improve their tactical and operational judgment so that they could assist their commanders with the professional judgment the latter very often lacked (Millolat, 1992, p. 37). To prevent these advisors from becoming too scholarly and disconnected from the realities of combat operations, they would constantly visit the line Regiments of the army (Millolat, 1992, p. 26; Kitchen, 1975, p. 33).¹⁵ This trained cadre of officers became the Great General Staff. Staff officers became the junior partners of the commanding generals they advised, enjoying considerable freedom, even to the point of dissenting on the record with the decisions of Army commanders (Samuels, 1995, p. 17).

However important and pertinent the Reformers' aspirations may have been, though, they ran into significant social and political obstacles in Prussia. The idea of a highly independent officer corps was anathema to the political interests of the Prussian royal family. Indeed, most of the senior officers of the army achieved their rank thanks to their noble lineage, even if they were unsuited for their task (Samuels, 1995, pp. 11-17; Demeter, 1965, p. 97). These royals only supported the reformers because of Prussia's weakness after Jena-Auerstadt and would eventually

¹⁵ Indeed, Clausewitz saw that excessive theory led to unimaginative Generals who plunged the Prussian Army into the disaster of Jena-Auerstadt. See Clausewitz, C. v., Ed. (1984). *On War*. Princeton, Princeton University Press, p. 155

turn against them after Napoleon's final defeat in 1815 (Rosinski, 1966, p. 79; Kitchen, 1975, p. 68). The active opposition to the reforms created a standstill in the army (Rosinski, 1975, p. 48; Kitchen, 1975, p. 60).¹⁶ The reformers were not blind to this reality, however. They understood that, in the army, authority was exercised solely as a personal privilege and that commanders saw themselves as beyond any questioning of their reasoning or instructions, even when such questions were warranted by local conditions.

The resolution of these competing impulses emerged from the creation of the Great General Staff, which served as the repository of the beliefs the reformers were trying to instill in the army. Since training to integrate the staff stressed the importance of military judgment over obedience to precise instructions, it formed a core group of officers who shared an important focal point: the *absicht* came first and all efforts were geared towards its attainment. Additionally, these officers could show in a less threatening way the benefits of abandoning the obedience imperative and operating under the focal point that the *absicht* came first because the General Staff, initially, only provided advice to field Army commanders and did not issue any orders itself. Prussian field commanders could choose to disregard the Staff's advice when issuing their orders, but the ones who chose to take the Staff's advice could also achieve higher levels of military effectiveness and victories in battle.

¹⁶ Furthermore, some German historians cast wider doubt on the extent of the reformer's influence over an army and society, which were still heavily conservative and ill-disposed to any liberal ideas, even if they promised increased military effectiveness. See Mann, G. (1968). *The History of Germany since 1789*. Translated by Marian Jackson. New York: Frederick A. Praeger, p. 34; Kitchen, M. (1975). *A Military History of Germany*. Bloomington: Indiana University Press, p. 60.

Thus, the idea of personal independence became less threatening as it bestowed field commanders with successes while the staff remained an advisory entity. Commanders did not feel threatened and personal independence began to look more like an asset for them. As a result, the General Staff attained a beachhead in an otherwise conservative and authoritarian institution that needed to experiment with a liberal approach to obedience on the battlefield (Kitchen, 1975, p. 69). This space served to normalize the idea that an officer could speak his mind on military issues, regardless of who the commanding general was, without impairing discipline and this could lead to higher levels of military effectiveness. The approach seems to have worked as, in the 1860s, there were more voices calling for more independence amongst the Prussian officer corps (Samuels, 1995, p. 11).¹⁷

The key moment that increased the influence, legitimacy, and acceptance of the General Staff was the Franco-Prussian War of 1870. During the war, the Prussian Armies would, for the first time, take their orders directly from the Chief of the Great General Staff, *Generalfeldmarschall* Helmuth von Moltke. Moltke characterized his command throughout the war as reliant on the initiative of the Armies' commanding generals. Also, he "never issued an order except for a few suggestions to General Blumenthal...He never foresaw the encirclement of the French which was due to their stupidity and the initiative of the Prussian Army commanders" (Shamir, 2011, pp. 40-41). The role that confidence in subordinates had in the victory over the

¹⁷ The *Heer* was then able to institutionalize the introduction of independent and creative combat theories in its academies. Amongst the beneficiaries of this openness were generals like Guderian and Rommel. See Muth, J. (2011). *Command Culture*. Denton, University of North Texas Press, pp. 190-191.

French consolidated the value of independence and triggered a debate regarding the extension of independent command to the rest of the army.

This debate focused on how independence could become both an asset and a problem for the army. The tactical lessons that arose from the war created a picture that was not entirely clear regarding how important independent command was in relation to concentrated firepower. Defensive fires could hold tactical columns at bay and attackers, in turn, had to resort to skirmishing lines and flanking maneuvers against enemy defenders (Echeverria, 2000, p. 71). This made firepower and the ability to concentrate it all the more important and, with it, obedience became necessary as any unwarranted initiative removed important levels of firepower from the hands of the COs. The question was: how should Prussian soldiers and officers behave in this maelstrom?

The first answer to this question hinged entirely on the importance of firepower. *Normaltaktik*, or normal tactics, supporters argued that soldiers had to be arranged in the same tightly packed formations of closed-order tactics to harness the firepower of their rifles and concentrate it against enemy positions and prevent their dispersion (Ibid, p. 34). The second answer was built on Moltke's reliance on subordinate initiative. Moltke argued that a man with well-rounded character who does things by himself and of his own will was what was truly essential in a commander (Foerstch, 1940, p. 46).¹⁸ For Moltke, judgement had to be used with as

¹⁸ These were the key desirable traits in the Prussian and German PME. Evaluators looked for particular characteristics: Anstaendigkeit (uprightness, decency, and reliability), verantwortungsfreude (joy in responsibility), sellenkraft (spiritual and mental force) and the ability to work long hours under pressure without sacrificing quality, see Van Creveld, M. (1990). *The Training of Officers: From Military Professionalism to Irrelevance*. New York, The Free Press, p. 30

much independence as possible to allow officers to adapt to the situations they faced (Samuels, 1995, p. 12). The *Generalfeldmarschal* even proclaimed that “the military hierarchy organization must assist both subordination and thought” (1993, p. 76; Samuels, 1995, p. 12). Moltke believed that extending independent command in the army was going to multiply the potential solutions to strong enemy defenses that commanding generals could employ in the course of operations. For instance, more independent commanding generals could trade firepower concentration for maneuvering power, which could allow them to outflank enemy positions that had exploitable weaknesses. One caveat is that most of Moltke’s ideas had as a basic premise that independence could be extended only as far down as the divisional commanders (Shamir, 2011, p. 38). Apparently, Moltke did not envisage that independence could also be exploited in units below the divisional level.

Other officers, however, were trying to understand how lower-level tactical commanders could also use Moltke’s command ideas to exploit the independence of their subordinates. One of these officers was Colonel Sigismund von Schlichting, who argued that the inherent risk of capricious commanders had to be accepted in order to apply Moltke’s ideas below the divisional level (Echeverria, 2000, p. 40). This was a direct reply to the fears that affording too much independence to officers could endanger the necessary firepower concentration to breakthrough increasingly strong enemy defenses. The resultant “Schlichting Doctrine” made it into the 1888 infantry drill book, which discontinued standardized units as a method of attack and delegated authority to junior officers and NCOs (Shamir, 2012, p. 45).

Moltke’s and Schlichting’s camps combined to create a powerful effect in the army. These two camps mutually reinforced each other to generalize an agreement throughout the *Heer* that

obedience was meant to empower officers to seek the attainment of the goals of their commanders. Discipline, however important, was only a means to the end, which was achieving the commander's intent. This was the essence of what became known as *auftragstaktik*, which contained these two trains of thought and created a powerful top-down and bottom-up consensus regarding what obedience looked like in combat. Obedience was reflective rather than conformist, and it required the soldier to concentrate his thinking power on how to attain the goal he was given instead of executing discrete tasks or instructions. *Auftragstaktik* had a powerful underlying cultural acceptance in the organization even before it became a formal part of the *Heer's* tactical and operational canon. Indeed, it seems that no one in the army knew exactly where *auftragstaktik* came from, as it was never formally sanctioned in a document even when it was practiced thoroughly by its members (Lewis, 1983, p. 85).

Because of its use of *Auftragstaktik*, the *Heer* displayed remarkable levels of effectiveness and flexibility in WWI, to the point that the Germans developed the assault tactics, or *stosstruppen*, that broke the stalemate in the Western front in 1918. These tactics were built on using independent squads or battlegroups combining different weapons to break through enemy trenches and aim at their command centers (Citino, 1999, p. 16). They served well beyond the Western Front, too; in Rumania, future *Generalfeldmarschall* Rommel showed how a combination of silent approach, suppressive machine-gun fire, and small-unit maneuver allowed for important breakthroughs at Lesului in 1916 (Rommel, 1979, p. 106). By the end of WWI, the *Heer's* ability to overcome trench warfare showed how it had moved away from the hold of the obedience imperative in nearly a century of steady change.

Where a defeat could have put an end to this evolution, Germany's loss in WWI actually accelerated it. The Treaty of Versailles reduced the army to 100,000 soldiers and disbanded the General Staff (Mann, 1968, p. 344; Kitchen, 1975, p.23). These terms gave German Generals the opportunity they needed to do a complete realignment that would preserve officers who valued the role of independence in combat and were most likely to exploit it successfully. Versailles allowed retention of the talented soldiers of General Staff and the release of even experienced frontline soldiers who did not represent the spirit of independence and creativity that the post-WWI generals wanted to preserve (House, 2001, p. 76; Demeter, 1965, p. 49). An irony of the Treaty is that it thus gave the successors of Scharnhorst and the Prussian reformers the perfect weapon they needed to purge from the army the last vestiges of opposition to the increased independence of soldiers and officers. Rather than impairing German military effectiveness, the elimination of the General Staff actually helped its dissemination throughout key commands and positions in the army (Lewis, 1983, p. 49). This is why General Hans von Seeckt did not see the dismissal of the staff as something that would impair its influence (Addington, 1971, p. 28). All soldiers, regardless of their specialization, subsequently came to speak the same tactical and cognitive language prior to WWII: What am I ordered to do? What can I do? What will I do? (Lauer, 2010, p. 195).

The Control Imperative

Absicht was a very important focal point that was useful in providing subordinates a clear expectation of how to focus their energies during combat. Nevertheless, the *Heer* still required some way to weave the independent officers into a coherent and consistent operational effort to

maximize effectiveness and power. Control was thus still important for the Germans, but it had to be a form of control that was consistent with the needed space for individual application of military judgment. *Absicht* was equally useful in this regard. The *Heer* controlled its independent officers by having COs define the results that had to be attained. Officers in the *Heer* were trained to accept that control was not detailed and that it was up to their subordinates to define for themselves the tasks they had to perform to accomplish the *absicht*. Thus, in the *Heer*, officer training was solely focused on improving their capacity to identify the necessary battlefield results that had to be accomplished in pursuit of a campaign objective and use it to shape the collective efforts of his subordinates.

The disastrous results of the Jena-Auerstadt battles of 1806 provided much of the justification for the drive towards decentralization in the Prussian Army. The Prussian Army that fought in these battles was designed to have very minute levels of control to manage the maneuvers required for the application of oblique-order tactics; NCOs, for example, were positioned behind the firing line to supervise their soldiers (Gudmunsson, 1989, p. 50). Scharnhorst also observed an unnatural level of choreographed tactics, noting that morale was more important than sterile parade ground maneuvers (Kitchen, 1975, p. 36). He believed that NCOs could be more than mere supervisors and called for increasing the quality of their training and encouraged their application to officer schools (Shamir, 2011, p. 34). The Prussian reformer also increased the actual tactical training and marksmanship of companies and made them the basic tactical unit of the army (Ibid, p. 35). Thus, a direct result of the defeat of the Frederickian tactics at Jena-Auerstadt was a very deep decentralization of the army, with power, training, and leadership being moved down from the hands of the nobility in command of the armies to tactical units.

There were, however, genuine military concerns regarding the viability of these reforms as well as domestic political constraints limiting the speed of the initiatives. These were the concerns that emerged from the tactical lessons of the Franco-Prussian War of 1870. In the military sphere, early 19th century warfare was characterized by smoothbore muskets and cannon with very limited accuracy, which limited how much tactical decentralization could be achieved before firepower was diluted too much to be effective. Lynn gives a very detailed explanation of this reality: even if the 18th century musket could have a range of 240 yards, it was accurate to only about 25% of that range (2004, p. 122). Technological limitations incentivized the massing of soldiers in tight linear formations to concentrate musket firepower that could be targeted properly. Furthermore, smoothbore weapons had extremely low rates of fire. Smoothbore muzzle-loaded flintlock muskets, such as the French Modele 1777 or British Brown Bess that were the workhorses of the infantry that fought in the Napoleonic wars, could fire no more than three volleys every minute.¹⁹ Therefore, it was not just about having enough firepower per volley, but having enough men under control to face an adversary. Thus, the argument for centralized and tight control was that only the commander had a complete view of the battlefield and could know where to make use of this concentration of firepower to achieve his objective (Shamir, 2011, p. 32).

Another problem was the political constraint on command decentralization in the Prussian Army after 1806. As noted above, the army was a conservative institution in which taking away authority from a noble to give it to a trained, but common, Prussian officer was resisted. If there was an effort to promote meritocracy in the army, the aristocracy circumvented it as a result of the

¹⁹ Moore, Richard. Napoleonic Guide, <https://www.napoleonguide.com/weapinf.htm>, accessed July 26, 2021

hold it had on the command of the Prussian Regiments. If the reformers tried to change the curriculum of officer schools, the aristocracy held their efforts at bay by refusing to implement the changes outside of the Berlin War Academy (Shamir, 2011, p. 36). Additionally, ideological delegitimization was used to brandish reforms as dangerous and foreign. For instance, Scharnhorst's ideas would earn him the dangerous label of "Jacobin" in a society that looked with dread at the excesses of the French Revolution (Kitchen, 1975, p. 36).

The technological changes in European battlefields after the mid-19th century and the increasing acceptance of the General Staff gradually began to tilt the balance in favor of decentralization. As noted above, the General Staff gained acceptance due to their non-threatening position in the chain of command. Their officers could speak their mind, but had no command of operations, at least until 1870. On the technological side, rifled barrels for artillery and infantry weapons significantly increased the firepower available to small units: rifles could now reach 500 yards with a significant hit probability (House, 2001, p. 16). This allowed smaller formations to detain attacking troops that previously would have overwhelmed them at longer distances. The battlefields of the Austro-Prussian War showed the disastrous results that these new technological capabilities inflicted upon armies still fighting with 1800s tactics, in some cases leading to tens of thousands of casualties (English, 1981, p. 2). At the same time, skirmishes after initial assault quickly dissipated the firepower the units needed to overcome defenders (Samuels, 1995, pp. 69-71). The issue of decentralized versus centralized command still needed to be resolved, as firepower could both achieve significant gains and be easily dissipated if it was not employed with any coherent operational guidance.

Auftragstaktik supporters had two different responses to solve the potential counterproductivity of decentralized control. First, proponents of decentralization believed that, even in optimal tactical circumstances, control could never be totally centralized in the way supporters of *normaltaktik* favored. They argued that both the disposition of the enemy troops and terrain could easily deny a commander all the control he required (Samuels, 1995, p. 38). For these supporters of decentralization, any attempt to maintain centralized command did not make sense with the command constraints that battlefields imposed on COs and the force should make the pragmatic admission that modern combat required accepting decentralization. Second, Schlichting argued that a commander's intent or *absicht* was the essential element through which a commander controlled the assignment of specific tasks, or *auftrage*, to his subordinates in modern operations (Ibid, p. 40). This school of thought did not advocate lack of control, but rather a new form that switched the fixed instruction for a generalized awareness of what the CO intended to achieve. It argued that the focus of control had to be on the ability to use the *absicht* to define what the forces were pursuing and not on the *auftrage* that each of its commanders had to determine based on their particular circumstances. Supporters of decentralization thus argued for the right amount of control and not its complete demise.

The solution that *Auftragstaktik* offered was that it focused on the main problem of skirmishing requiring coherent guidance on the battlefield. By focusing on the *absicht* that had to be achieved in the battlefield, the officer provided the guidance that was necessary for its unit commanders to work out the *auftrages* that were necessary. Because the subordinate could not change the *absicht*, his efforts were encased in a clear framework that set the breadth and reach of the operation. This theoretical discussion became a reality in WWI, when the creator of assault

tactics, Hauptmman Rohr, decentralized command to the level of sections so that German small units' COs could operate on their own initiative while keeping the general intent in mind in order maximize their speed and overcome enemy resistance (Ibid, p. 93; Gudmundsson, 1989, p. 50). German section commanders could determine the best combat tactics to break through allied lines and achieve the intent that was required out of them. This is why proponents of *Aufstragstaktik* championed COs having a forward presence—so that they could determine the best way to maneuver their combat reserves on the enemy flanks (Samuels, 1995, p. 55, 73).

To ensure that they focused on defining intent rather than rigid instructions, German officers were trained to use broader forms of control the higher up the chain of command they rose. The first step to achieve this end was to increase levels of trust between soldiers and officers by trying to recruit men of good education and physical attainment (Cooper, 1978, p. 118). In general terms, there were no massive educational or ideological differences in the German officer corps, as every soldier's formative experience was the product of a "liberal" professional military education system in which rewards were used to elicit high performance (Muth, 2011, p. 182). The second step was to inculcate officers with the notion that the mission and situation defined the course of action to follow, which meant freedom of action for subordinates so long as they did not adversely affect the CO's intent (Condell and Zabecki, 2001, p. 23). This was ingrained from early in the officer's training when he was taught to write and understand Regimental orders that did not exceeded one page. Even then, many German officers complained one page was too long and detailed; verbal orders were encouraged as a way to further reduce commander dictation of operations (Muth, 2011, p. 151). As a result, the German officer was trained to trust his subordinates to work out how to attain his intent.

The cumulative effect of these measures was the spread of decentralization across the army. Decentralization was first achieved by Moltke during the Franco-Prussian War of 1870, when his acceptance of subordinate initiative permitted the German armies to operate as separate and mutually reinforcing formations that could work across space and time to outmaneuver the French Army (Citino, 2005, p. 152). Decentralizing authority between a handful of army commanders was easier than allowing decentralization across tens of thousands of junior commanders, however. At the operational and tactical levels, it was a very big risk due to the multiplicity of divergent tactical preferences that a heterogeneous officer corps could have. This is where common character and intellectual traits played an important cohesive and social trust role, as they decreased the intellectual gaps between members of the officer corps. Finally, radio provided a technological aid to bring together the German habit for short and verbal orders and its ability to weave together a greater number of decentralized units pursuing a common intent (Citino, 2005, p. 255). It must be stressed that the wireless radio's potential for the *Heer* was not simple technology exploitation; it was grounded in a profound culture that allowed momentous decisions to be taken by soldiers without having to report back to their headquarters and COs who trusted those subordinates to find ways to achieve their intentions.

The Certainty Imperative

The certainty imperative was avoided in the *Heer* due to a generalized army belief that soldiers should embrace personal danger and risk. As a result, German soldiers believed that certainty was antithetical to war. The primary way this risk was embraced can be seen in the

implications of how the *Heer* developed its beliefs regarding obedience and control. Regarding obedience, soldiers and officers were told there was no way out of having to use their judgment to solve the tactical problems they faced. There was no linear order or plan that would relieve them from embracing the risk of having to solve the tactical problem with nothing other than their military judgment. Regarding control, officers learned that they could not avoid the risk of trusting their subordinates' judgment by micromanaging their actions: either COs focused on identifying the result that had to be attained and accepted the risk of not knowing how subordinates would solve the problem or they would lose their battles while trying to make sure every subordinate did what he was ordered to do. Acceptance of uncertainty and risk at all levels was thus the common denominator across the army, creating a powerful unifying belief and practice that allowed the *Heer* to avoid the certainty imperative.

One of the most important results of the Prussian defeat in Jena-Auerstadt was the emphasis in abandoning any sort of linear or methodical tactical beliefs in the army. As noted above, in 1806, the Prussian Army was engrained with the belief that blind adherence to Frederickan tactics like the oblique order and prompt execution of drill commands led to victory (Kitchen, 1975, pp. 32-35). After this belief collapsed at Jena-Auerstadt at the hands of Napoleon and one of his Marshals, Prussian reformers realized that it was necessary to expunge this belief from the army.

Doing so was not easy, as it entailed planting a radically different ontology of war in the mind of every Prussian officer. The reformers started this process with a series of moves that aimed at the operational, institutional, and educational dimensions of the army. First, Scharnhorst advocated the need to engage in battle as quickly as possible under optimal conditions, which often required marching divided (Ibid, p. 50). This in effect took away traditional sources of military

comfort such as planning, superiority, and secure marches, forcing commanding generals to recognize that uncertainty was the only constant of the battlefield. This was not about rash and misguided action; rather, it was about forcing commanding generals to accept that delaying battle and refusing to engage the enemy just to avoid the risk of facing the unknown was misguided. Battle, and the uncertainty it meant, had to be faced with professional judgment.

Second, the reformers promoted the importance of ability as the criteria to move forward in an officer's career (Kitchen, 1975, p. 41). This was essential for forcing commanding generals to forget about avoiding battle until they had certainty about their alternatives and the disposition of their enemies. If a General was told to face his adversary sooner rather than later and use his professional judgement instead of school-solution methods, this commanding officer had to possess the necessary ability to do so. As noted above, the General Staff became a key repository of the advice and expertise commanding generals needed to succeed. Since admission to the staff was contingent on a candidates' demonstrated ability to look at the key battlefield variables and examine the possible options they permitted, staff officers' advice managed to offset the lack of experience of many noble commanders.

Finally, the reformers realigned Prussian military education curricula to facilitate development of the needed skills. The centerpiece of their efforts was the creation of a War Academy to educate Prussian officers in their military judgment and practice its application (Shamir, 2011, p. 33). This move, despite the above-noted efforts of the Prussian aristocracy to circumvent the reforms, became the key measure in achieving the goal of developing a new ontology of war. The Academy hosted a scholarly and academic environment that promoted the insightful study of warfare, which provided pupils with a platform to develop a more practical

understanding of combat beyond just the application of past formulas. The best representative of this generation of soldier-scholars was none other than one of Scharnhorst's disciples: General Karl von Clausewitz. The General argued that "war is the realm of uncertainty [...] A sensitive and discriminating judgment is called for; a skilled intelligence to scent out the truth" (1984, p. 101). This is why Clausewitz believed that the only way to operate in this uncertainty was to develop in commanders "an intellect that, even in, the darkest hour, retains some glimmerings of the inner light which leads to the truth; and second, the courage to follow that faint light wherever it may lead" (Ibid, p. 102). Clausewitz discarded the possibility of a positive theory of war and explained that, at best, a theory of war was limited to the study of its ends and means (Ibid, p. 144). This creation of a center to educate the judgment of the Prussian officer was concomitant with the rise of scholarship that provided more substance to what his military education had to look like with the full embrace of uncertainty.

Clausewitz's contributions at the War Academy, and later in his military writings, constituted the cornerstone of the new Prussian ontology of war. After Jena-Auerstadt, the Prussians, more than any other army in Europe, understood war as the foremost unpredictable activity in modern society. In an age when success was thought to hinge on the application of infantry or cavalry drills, the Prussians renounced that comfort and stood by the idea that success in combat depended on the judgment of the officer corps. At the core of these contributions were two essential elements that made it possible to translate this awareness into the beliefs that were required for successful command after the Napoleonic wars. First, soldiers and officers had to accept that there was no way to expunge the risk of personal danger in war. Contrary to the British experience, any attempt to use proved methods was shirking from the essential action that every

officer had to undertake to begin his education: that he was training to “learn how to die” (Muth, 2011, p. 85). Second, each officer had to accept that there would be no linearity between his efforts, goals, and results in combat. By accepting that the only way to sort out uncertainty was to follow his professional intuition—or inner light, using Clausewitz’s words—the officer accepted that the results his efforts would achieve in war would depend on how he dealt with the multiplicity of factors that the fog of war hid away.

The avoidance of the uncertainty imperative was not due only to the development of a new ontology of war and its transmission through military education institutions. As important was turning this conceptual shift into a training program that united concept and practice. To accomplish this, the *Heer* structured a training system designed to expunge any delusions of linearity in the minds of all German officers. The cornerstone of this design was the complete abandonment of using tactical methods to teach combat to officers and soldiers. The *Heer* adhered to the fact that war was inherently non-linear and it presented too many unknowns to make tactical templates reliable (Samuels, 2015, p. 455). This approach was consolidated as early as 1889, right after the tenure of von Moltke the Elder. The General argued that war was darkness and from it “the correct thing has to be felt out and frequently guessed at to enable the issuing of orders whose execution may encounter unforeseen eventualities” (1993, p. 173). He turned this notion into a reality by pushing commanders to dispose of rigid orders and to accept that their rank implied being more comfortable with sticking to general guidance (Citino, 2005, p. 152). Tactical writings presented engagements and combat as situations so fluid that officers had to both be able to make decisions without much reconnaissance due to demands of time and give orders under conditions of uncertainty, reminding the force that “Das Begegnungsgfecht hat kein Schema!” (The meeting

engagement has no schema") (Ibid, 1999, p. 17). Between 1885 and 1910, field regulations routinely emphasized that warfare was not only unpredictable, but was clouded in sheer darkness (Samuels, 2015, pp. 459-463). The most profound and clear commitment to this seemingly nihilistic approach to war was found in *Truppenfuhrung*, where the army stated that warfare's problems were "wicked" (non-linear and chaotic) and that uncertainty was ever present (Ibid, p. 455; Condell and Zabecki, 2001, p. 17). The embracing of uncertainty was not just an attempt to shape the command attitude of officers; it was an essential part of the German tactical culture.

Officers were accordingly taught to command by accepting two hard but necessary realities. First, the farther away from the battle an officer's rank was, the more comfortable he had to be with taking the risk of not knowing exactly what his subordinates would do. Second, officers were trained to accept that their role was to identify their intent for the operation instead of writing lengthy orders and plans. The result of this training regime was a system that was geared to eliminate the fiction of linearity in the tactical and operational practice of German officers. For instance, in the War Academy created by Scharnhorst, there were no such thing as school solutions (Muth, 2011, p. 191). All German officers had was their ability to use their tactical judgment to look at the battlefield and its variables to design their tactical options. This emphasis is revealed in German field regulations; there were no words for "manage" or "doctrine," which were common to other militaries of the early 20th century. Instead, the emphasis was on "lead" and "attack" (Ibid, p. 195).

This final point about German field regulations is crucial to understanding the *Heer*'s approach to uncertainty. Where doctrinal documents usually provide insight into what methods an army believes will work in combat, German regulations had only reminders that everything was

chaos. Compared to British Army FSRs, which would tell officers how attacks were to be prepared, started, and conducted, German documents told officers that combat was “wicked” and that it presented an unlimited variety of combat situations (Samuels, 1995, p. 455). The *Heer*’s leadership agreed that it was more important for officers to learn how to think than to memorize textbook situations (Lewis, 1983, p. 61). Uncertainty was central to how the Germans thought about war—a fact that is perhaps best expressed in the *Heer*’s acceptance of a one percent fatality rate in training as the price that had to be paid to have realistic instruction that exposed the soldier to the dangers he would face in the battlefield (Hart et al, 2016, p. 8).

3.2. The Armies’ Cultures and Their Expected Performance

Based on their adherence to all three imperatives, I classify the British Army as having a conformist organizational culture. As discussed in the previous chapter, a conformist organizational culture has the most negative implications for military effectiveness of the different types of organizational cultures my theory identifies.

Because of the obedience imperative, I expect the army’s officers to struggle with the creation of local solutions to local military problems. The problem with the obedience imperative in a conformist organizational culture is that it arrests any possibility of the use of tactical initiative in response to unexpected military problems in the course of combat. With this, the main consequence for the army’s effectiveness will be command and control (C2) processes that are unwieldy and cannot adapt easily to local conditions. Furthermore, with the obedience imperative,

I expect to see very poor information management, as the traffic between command levels will expand in order to transmit local requests for action to senior commanders. This will in turn take valuable space from more important information traffic between command levels regarding changes in the commander's intent or urgent battle developments.

In terms of the control imperative, the British Army should display levels of detailed control beyond what is realistic and feasible. Because the army trained its officers to show themselves in control at all times, I expect senior officers to try to strictly control all significant actions of their subordinates and prevent them from contributing to the battle. Again, this will lead to an unwieldy C2 process, in which tactical flexibility is significantly hampered and stereotyped tactics are routinely employed in inappropriate settings. It will also lead to distorted combat assessments in which the senior CO's excessive control can impose his understanding of the adversary and the battlefield amongst his subordinates.

Finally, the adherence to the certainty imperative should lead British officers to avoid risk and uncertainty in their combat decisions. Because of the tendency to create artificial certainty from the adherence to methodical thinking, army commanders and COs should display an aversion to acceptance of calculated risks in battle decisions. Furthermore, British Army officers will likely display a strong tendency towards hedging against the remotest risks, even at the expense of larger operational considerations. This will likely lead to poor information management as battle decisions are made with methods disconnected with actual combat events. Furthermore, tactical inflexibility will take a significant toll, as combat tactics will follow textbook templates that do not necessarily fit the challenges presented by adversaries.

Contrary to the British Army, the German Army had a balanced organizational culture because it did not adhere to any of the three organizational imperatives. As explained in the theoretical chapter, a balanced organizational culture is likely to facilitate generation of the highest levels of military effectiveness and military power of all three cultures.

Because it did not adhere to the obedience imperative, I expect German Army officers to be more capable of solving local military problems with their initiative. The army's culture, as explained above, developed a functional understanding of obedience that made it subservient to individual initiative. With this, I expect to see more examples of German officers being able to make decisions on their own to solve local challenges. This in turn should lead to higher levels of military effectiveness, as tactical flexibility is increased by the ability that an officer has to develop his own custom-made solutions to an emergent challenge. Furthermore, information management will likely be more efficient as the traffic between ranks is reduced to the absolutely minimum necessary since subordinate commanders do not have to request permission to make their decisions.

Having avoided the control imperative, the German Army should also have better lower-level adaptability in operations as long as those efforts are directed towards battle goals. As explained above, the German Army trained its officers to use *absicht* to direct the independent efforts of their soldiers. This means that tactical flexibility should be common both because lower command levels could base their tactics solely on their battle challenges and because these independent efforts were all directed towards a common commander's intent. In addition, I expect to see better combat assessments, representative solely of the evaluation of the officer dealing with his portion of the battle.

Finally, because there was no adherence to the certainty imperative, the German Army should display comfort with risk and uncertainty in battle. Because the army based the tactical training of its officer corps on the formation of military judgment, officers were more likely to deal with each tactical problem on its own merits and not through the application of a given tactical template. Furthermore, German officers should be more likely to accept calculated risks in the course of operations and dispense with unnecessary precautionary measures that would get in the way of attaining battlefield objectives.

In terms of military power, I expect that the German Army will display a higher level than the British Army. As explained in the previous chapter, organizational culture also has important implications for military power, as it preconditions how much capability armies can extract from their mid-range and hard technologies. In essence, holding all other conditions equal, a side whose organizational culture helps generate more military effectiveness will defeat one with an organizational culture which generates less effectiveness. Therefore, the main implication for military power that the theory presents is that it will create a relational effect where one culture maximizes the probability of victory over another one.

In the case of the British and German armies, I expect to see a battle dynamic that allows a balanced culture to easily defeat a conformist culture. The German Army's balanced culture will allow it to have better information management, combat assessment, and tactical flexibility, giving it higher military effectiveness. Against this culture, the British Army's conformist culture will give it poor information management, combat assessments, and tactical flexibility, thus causing the lowest possible military effectiveness. When these armies clash with each other, I expect to

see a victory for the German Army, as its operations are likely to overcome any combat effort made by the British Army.

3.3. The Battle

Strategic Context:

The first step to understanding the strategic context of the First Battle of Sidi Rezegh is to grasp its relative irrelevance in the context of the German invasion of the Soviet Union. The material requirements of the Barbarossa campaign pushed Germany's military resources to the limit: the Soviets outpaced German tank production by a factor of 8 and fielded nearly 350 divisions in European Russia (Stolfi, 1991, p. 159; Guderian, 1952, p. 14). This is why the Germans concentrated two thirds of all available *Heer* Divisions for the operation (Hoth, 2015, p. 40; Stolfi, 1991, p. 88). Therefore, Germany left itself virtually devoid of any military resources for other theaters.

In this context, the contribution of Italy could have become essential for German military strategy. But Italy could not even be relied on for strategic cooperation. For instance, *Generalfeldmarschall* Kesselring observed that Italy could not provide safe passage of German forces and supplies to North Africa (1953, p. 114). Additionally, Italy dragged the already depleted *Heer* into peripheral campaigns at a time that Germany could not spare any more forces. North Africa was such a peripheral campaign. By January 1941, the Tenth Italian Army was practically

destroyed by British Army forces at Sidi Barrani.²⁰ The Germans responded in February by sending the *Deustche Afrika Korps* (DAK) under the command of General Erwin Rommel to support the collapsing Italian effort.

Complicating this picture further were German disagreements regarding the objectives to be pursued in North Africa. The Commander in Chief of the *Heer*, *Generalfeldmarschall* von Brauchitsch, wanted to restrict the German commitment to limited assistance to Italy (Rommel, 1953, p. 105). Rommel, on the other hand, publicly gave the impression that he was seeking the defeat of the British in the theater; and would use his proximity to Hitler to promote his goal at the expense of Brauchitsch and, later, Kesselring's desires for limited goals (Liddell Hart, 1948, p. 155; Kesselring, 1953, p. 153). The disagreement between von Brauchitsch, Kesselring, and Rommel shows that the German commanders were not in the same page regarding the significance of the North African campaign.

Axis Forces

The *Heer's Panzergruppen Afrika* (PGA) was a Panzer Army formed by the DAK and Italian Army formations. The core of the Panzer Army was the DAK, which contained what was effectively its main maneuver and combat assets. The DAK consisted of three German divisions: the 15th and 21st Panzer Divisions, which arrived in two stages during 1941, and the 90th Light Division, which arrived in mid-1941 (Gilbert, 2000, pp. 206-214). The two Panzer Divisions were essentially lightly armored formations that were upgraded a month before the beginning of the

²⁰It is important to stress that this same mechanism was behind the German intervention in Greece in January 1941. See Murray, W. and Allan Millet. (2001). *A War to be Won*. Cambridge: The Belknap Press of Harvard University Press, p. 99-102.

battle.²¹ The combined panzer strength of the DAK before the battle was 249 vehicles (Von Mellenthin, 1956, p. 54). This relatively small amount of armor in North Africa was a function of Germany massing every Panzer available to invade the Soviet Union. The PGA's other formations were the Italian 21st Corps, the "Mobile Corps", and the Divisional and additional units grouped under the "Frontier Group" totaling 7 Divisions, two of which were armored (Prasad, 1956, p. 214). But the nearly 70,000 Italians still required German support. For instance, 23 of the 40 8.8cm Anti-Tank (AT) guns had to support the Frontier Group and 146 of the Italian M13s tanks had their effectiveness discounted to the point that they were called "tin-coffins" (Carver, 1986, p. 31; Cooper, 1978, p. 359; Von Mellenthin, 1956, p. 54). Figure 7 shows the composition of the Panzergruppe:

²¹ For example, the two Panzer Divisions in Africa only had one motorized infantry regiment while similar division on the Eastern Front had two such regiments (McGuirk, 1987, p. 102)

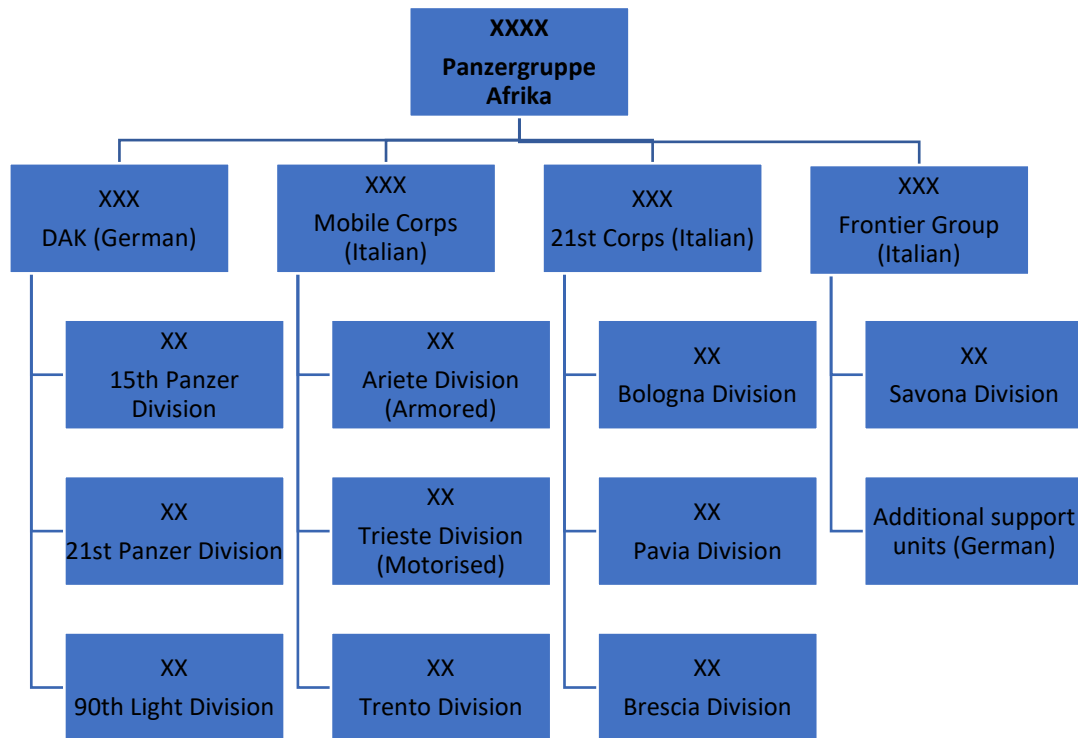


Figure 7²²

The PGA suffered from several qualitative shortcomings. First, German tanks themselves had different armor or ammunition deficiencies. Of the 249 German panzers, only a small number were the PzKpFw IVs that had a 75-mm gun and were considered to be heavy tanks with significant armor (McNab, 2011, p. 119). Even the IVs, however, required tungsten-core ammunition to improve penetration on enemy tanks and had a reduced chance of effective penetration engaging targets more than 100 meters away (Ibid, p. 121). Finally, severe supply issues created by the pressures of the demands of the Eastern front and the British interdiction of German supplies reduced the availability of spare parts and fuel for the tanks. Thus, the panzer elements that were supposed to be the main thrust of force of the AK were very weak at the time of the battle.

²² Bharucha, P.C. 1956. The North African Campaign. Calcutta: Combined Inter-Services Historical Section, p. 214

Second, the infantry units had their own limitations. The three Divisions mustered at most 48,000 German soldiers, with varying levels of firepower and organic fire support and with 11,000 soldiers on the sick list (Ibid, p. 95; Kitchen, 2009, p. 146). While the Panzer Divisions possessed organic fire support, the 90th Light Division had no such assets (McNab, 2011, p. 110). This means that the Light Division's natural defense capability and its role in German combined arms tactics was limited because it lacked the necessary AT components to halt enemy advances or flanking actions (Guderian, 1999, p. 166). Even more disadvantageous was the mobility situation of the divisions. Of the total of 4,000 DAK vehicles, only a very small minority were tracked personnel carriers, which are essential to mechanized infantry movements in the desert (Ibid, pp. 129-130). With the majority of the infantry reliant on wheeled vehicles, which necessarily had to confine themselves to the undeveloped road network of North Africa, it was easier for defending forces to block the main passages. As Figure 8 depicts, this could be easily done, as there was only one road they could traverse, the Via Balbia, and it ran through every major city on the North African coastline.

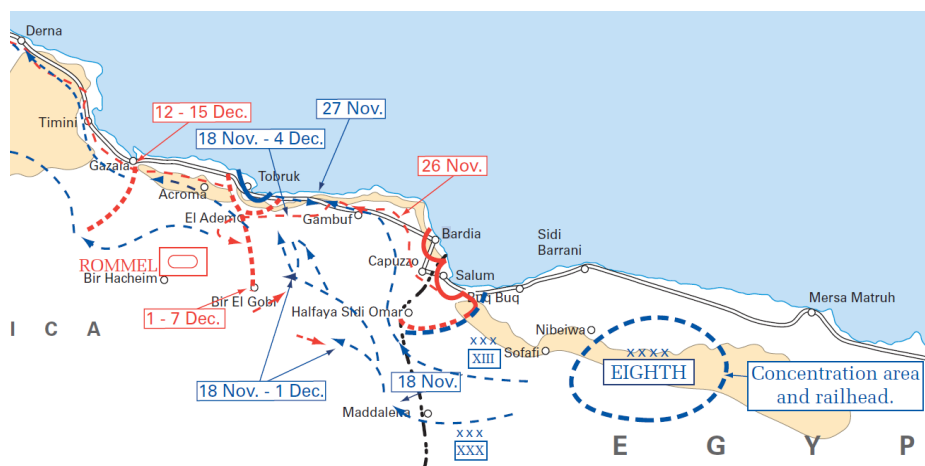


Figure 8²³

Third, the artillery assets in the PGA were spread thin between the Italian and German units. Amongst the most notorious such assets were the AT Battalion and two 8.8cm *Flak* gun (Anti-Aircraft Artillery) Battalions (Cooper, 1978, p. 359). But the 8.8cm guns were a scarce asset, there were only 30-40 of them.²⁴ This point cannot be overstated, as the AT weaponry was key for the Germans' tactics. Indeed, German armored tactics either avoided tank-on-tank combat or lured enemy tanks to an AT screen behind German spearheads (House, 2001, p. 79).

Finally, air support was a constant necessity that could not be met due to the demands of the Eastern front and the fragility of German supply lines over the Mediterranean. Air support was provided by 20 medium bombers and 50 dive-bombers in addition to the aircraft under control of the X *Fliegerkorps* (FK) in Sicily (Gilbert, 2011, p. 206). However, all air assets of X FK were overtaxed. According to von Kesselring, the X FK assets had to simultaneously perform multiple

²³ United States Military Academy at West Point. World War II European Theater. Accessed May 4th, 2021

²⁴ The *Afrika Korps* suffered from the same structural deficiencies that marked the *Wehrmacht* more generally in the procurement of key weapons systems. In AA and AAA, these deficiencies were keenly felt, as the formations that made up the Corps were deployed prior to having to exchange their modern 5cm PaK 38s for older 37mm PaK 35/36s, only regaining these systems by September 1941, and even then the 33rd Battalion was not up to full strength. In addition, there was only one Battalion, the 605th *Panzerjager*, that had self-propelled weapons, this being key for the mobility and flexibility of artillery support in the desert. See McNab, C. (2011). *Hitler's Army*. Oxford, Osprey Publishing, pp. 124-126.

missions, such as dealing with the British air interdiction performed from Malta, in addition to Rommel's ever increasing close-air support demands (1953, pp. 103-109). This would lead OKW to tell Rommel that any offensive operation he intended in November 1941 should be postponed until next year in light of British air superiority (Liddell Hart, 1953, p. 155). So deficient was the German air support situation that even essential air reconnaissance tasks were limited, which in turn meant that the German forces were often operating at an intelligence disadvantage (Ibid, p. 158). The DAK's military situation by November 1941 was thus very challenging: it relied on a weakened Panzer arm, a disorganized and difficult-to-move infantry, deficient artillery support, and scarce air support from the FK.

To make all these German weaknesses worse, the Italian forces under the PGA had a negligible contribution. The nearly 70,000 Italian soldiers of the seven Italian Divisions were commanded through a very contentious arrangement between the Italian High Command (*Commando Superiore*), Kesselring as C-in-C South, and Rommel as C-in-C PGA. Kesselring had to deal with the resistance of General Cavallero, the Italian Chief of Staff, to both his command and his strategy. Marshal Bastico, the Italian Governor of Tripolitania, opposed any changes to the existing organization of the Italian forces in North Africa (1953, p. 105). This was not an arrangement that was conducive to consistent and coherent command efforts in North Africa.

British and Commonwealth Forces

By the time of the First Battle of Sidi Rezegh, the British Army forces were reorganized into the Eighth Army and their command had been given to General Alan Cunningham. The 4th Indian Division and the 2nd New Zealand Division were grouped into the XIII Corps; and the 7th Armored, 1st South African Divisions, 22nd Guards Motorized, and 4th Armored Brigades formed

the XXX Corps. The force together totaled 118,000 soldiers (Lyman, 2010, pp.261-262; Carver, 1986, p. 30). In addition, the 70th Infantry Division, a Polish Infantry unit, and the 32nd Tank Brigade were holding Tobruk (Lyman, 2010, p. 294). The organization of Eighth Army is shown in Figure 9:

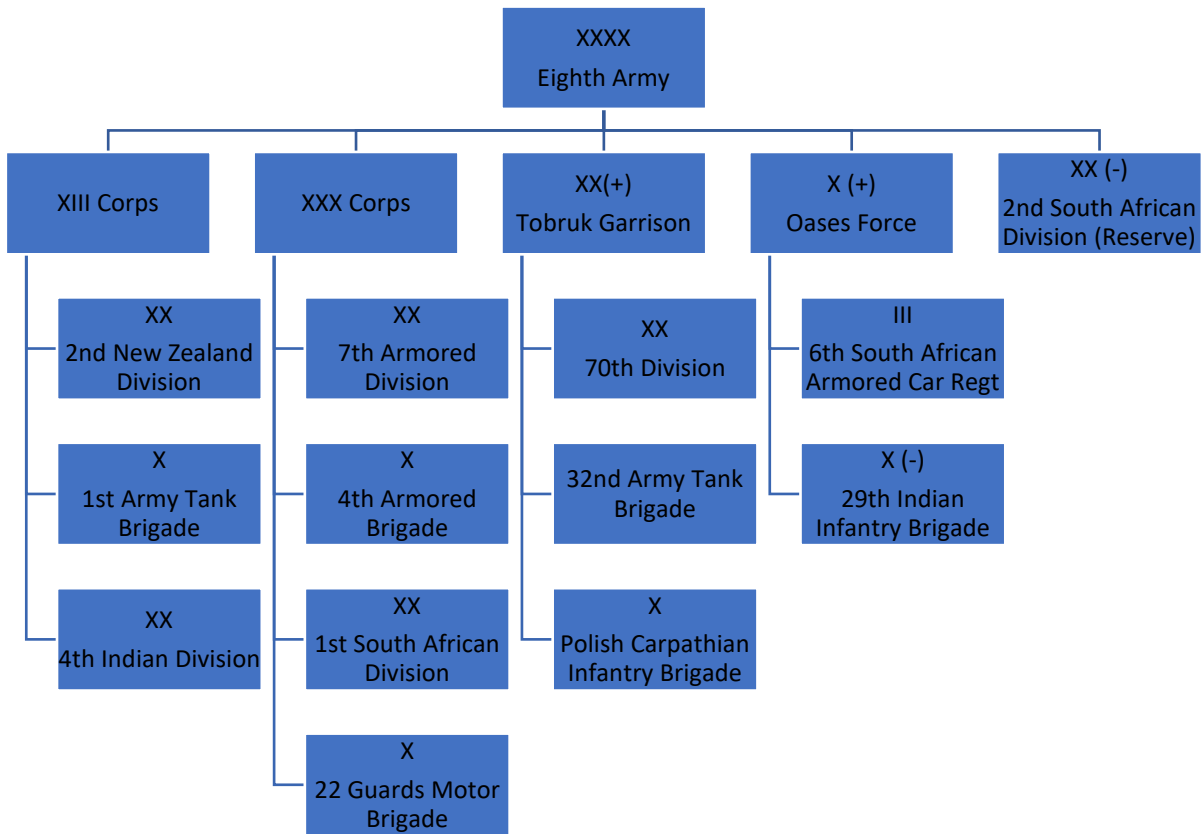


Figure 9²⁵

The Eighth Army had many advantages. British tanks outnumbered anything Rommel could muster between his Panzers and the Italian armored units. British and Commonwealth forces had a total of 748 tanks, 201 of which were thickly armored infantry tanks and 523 had a

²⁵ Bharucha, P.C. 1956. The North African Campaign. Calcutta: Combined Inter-Services Historical Section, p. 215. (-) denotes that the formation was not up to full combat establishment.

37-mm gun with effectiveness at ranges of at least 457m (Carver, 1986, p. 32; Von Mellenthin, 1956, p. 54). British armor was not perfect, however: there were delays in vehicle recovery, some elements of British tanks were in the process of being absorbed by the army, and there were technical reliability and capability issues with some of the tanks.²⁶ But the advantages outweigh these problems. The British had nearly three times the number of tanks Rommel had, and most of them were capable of longer-range engagements. This meant that the Eighth Army forces could exploit their maneuverability and flexibility while the Germans were constrained in their tactical options. Furthermore, the presence of infantry tanks meant that British Army forces could support their infantry units in a way that German forces could not: with more mechanized infantry-supporting vehicles, the British Army had the option of pinning down the defenders, who were reliant on wheeled vehicles and improved roads.

British infantry also had important advantages compared to the German Army. First, the army had at its disposal the 4th Indian Division, which was well-trained in desert tactics and had excelled during the British counteroffensive against the Italian Tenth Army in 1940 (Carver, 1986, p. 17). This Division was supported by 57 “I” tanks, and thus served as a reservoir of important combat experience for the upcoming British offensive (Barnett, 1982, p. 35). The fact that the British infantry Divisions had organic tank support could allow them to pin down enemy defenses while they executed flanking actions using the expanse of the desert. Furthermore,

²⁶ For instance, the Stuarts had a very short range of 40 miles and there were still older versions of the Crusader and Cruiser tanks that had to be replaced. The Crusader tank itself remained a mechanical headache to the British armored units and tankers were still mastering their equipment. Most of the experienced British Generals in armor had been either reassigned or killed by the time of the First Battle of Sidi Rezegh. See Lyman, R. 2010. *Longest Siege: Tobruk*. London: Pan Books, pp. 261-262; Carver, M. 1986. *Dilemmas of the Desert War*. London: BT Basford, p. 32; Barnett, C. 1982. *The Desert Generals*. Bloomington: Indiana University Press, p. 85

British infantry Divisions had important organic artillery support; 4th Indian Division, for example, had a Royal Artillery Field Regiment attached (Bharucha, 1956, p. 39). British manpower thus had important advantages that could help them either outmaneuver or blast through German defenses, and any losses suffered by the Eighth Army could be relatively easily replaced.

Another advantage was the Royal Navy and Air Force operations in the Mediterranean, which created significant pressures that choked the PGA's logistical support. Royal Navy vessels and Royal Air Force fighter groups operated from Malta and Egypt, creating an umbrella of interception points that reduced Rommel's already-meager supplies, denying him almost half of his supplies and more than two-thirds of his gas (Overy, 1995, p. 54). As has been shown, the PGA's forces that were highly reliant on a small subset of German armor were already at a disadvantage, and not being able to reliably resupply those forces imposed additional constraints on its operational abilities.

Perhaps the most important British strategic asset, however, was the cryptographic team led by Alan Turing known as "ULTRA". ULTRA broke the German ENIGMA code, which allowed British military leaders to have very good insight into the decisions and disposition of German forces in the Mediterranean. The British had a unique advantage: they knew exactly what Rommel was up to and the PGA's actual positions. British decision makers knew how strong German forces were, to the point that they could read actual German formation's strength levels (McGuirk, 1987, pp. 100-102). The British Army and Commonwealth forces thus had a unique advantage that not only gave them a comparative edge in information superiority, but also

gave them unique access to the German information channels through which their assessments, decisions, and intentions flowed. Britain could literally read Rommel's military correspondence.

Eighth Army's Auspicious Beginning: 18 November – 20 November

The Eighth Army's plan to capture Sidi Rezegh was part of Operation Crusader. Cunningham's plan for the larger operation was to draw the Axis armored forces away from their defensive positions into battle and, once the panzers were defeated, force a link up with the Tobruk garrison (Prasad, 1956, p. 212). This was to be achieved by concentrating two Corps on the Egyptian frontiers: XXX Corps would swing wide south of the Sollum-Sidi Omar-Ft. Maddalena line while the XIII Corps pinned down the PGA's Frontier Group. XXX Corps was then expected to force a battle that would destroy the DAK, allowing the XIII Corps to cut off the defending PGA forces on the Bardia-Sollum-Ft. Capuzzo line, as shown in Figure 10. After these moves, XXX Corps would link with the reinforced 70th Division in Tobruk and expel Rommel from Cyrenaica.

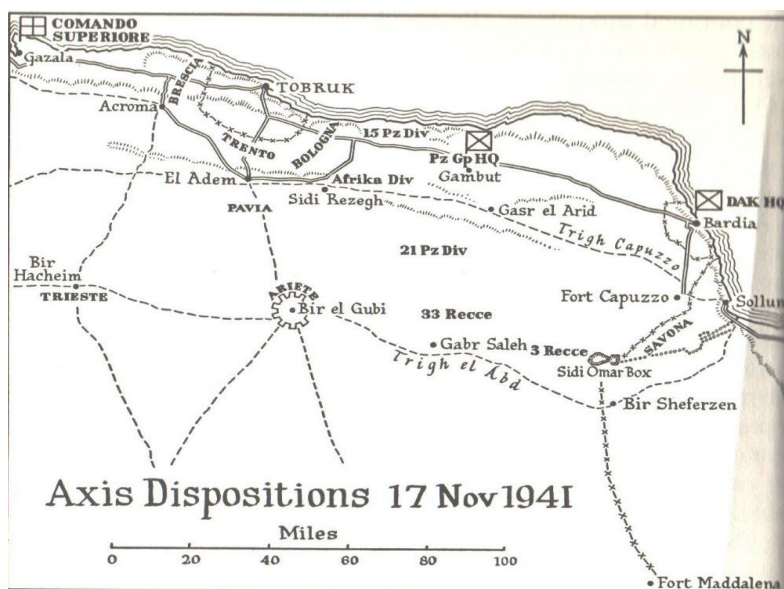


Figure 10²⁷

Rommel was trying to capture Tobruk and its port facilities to improve his precarious logistical situation. Against the warnings of even *Comando Superiore*, Rommel launched his attack against Tobruk on 16 November, committing the DAK's scarce artillery support to the assault (Ibid, p. 61). This move left the PGA's entire rearguard exposed to an attack by XXX Corps because the gap between Sidi Omar and Bir Gubi was covered only by two German reconnaissance units.

The initial attack by XXX Corps began on 18 November and took advantage of the weak German defenses protecting the PGA's rear. The 7th Armored Brigade advanced until it was stopped by German defenses at the Sidi Rezegh airfield (Gilbert, 2000, p. 214). The advance was so promising that elements of the 7th Armored Brigade approached the proximity of the El Duda and Belhamed, right on the peripheral road bypassing Tobruk. As Figure 3.5 shows, the forces

²⁷ Maj. General Von Mellenthin, F. 1956. *Panzer Battles*. Norman: University of Oklahoma Press, p. 58

besieging Tobruk could be attacked on their rear by the incoming British armor. However, Cunningham was anxious of a fast advance without first destroying the German armor (Carver, 1986, p. 33). As Figure 11 shows, he spread out the three Brigades of the 7th Armored Division in order to both maintain contact with the XIII Corps and prevent a gap that could be exploited by a German counterattack (Ibid, p. 34).

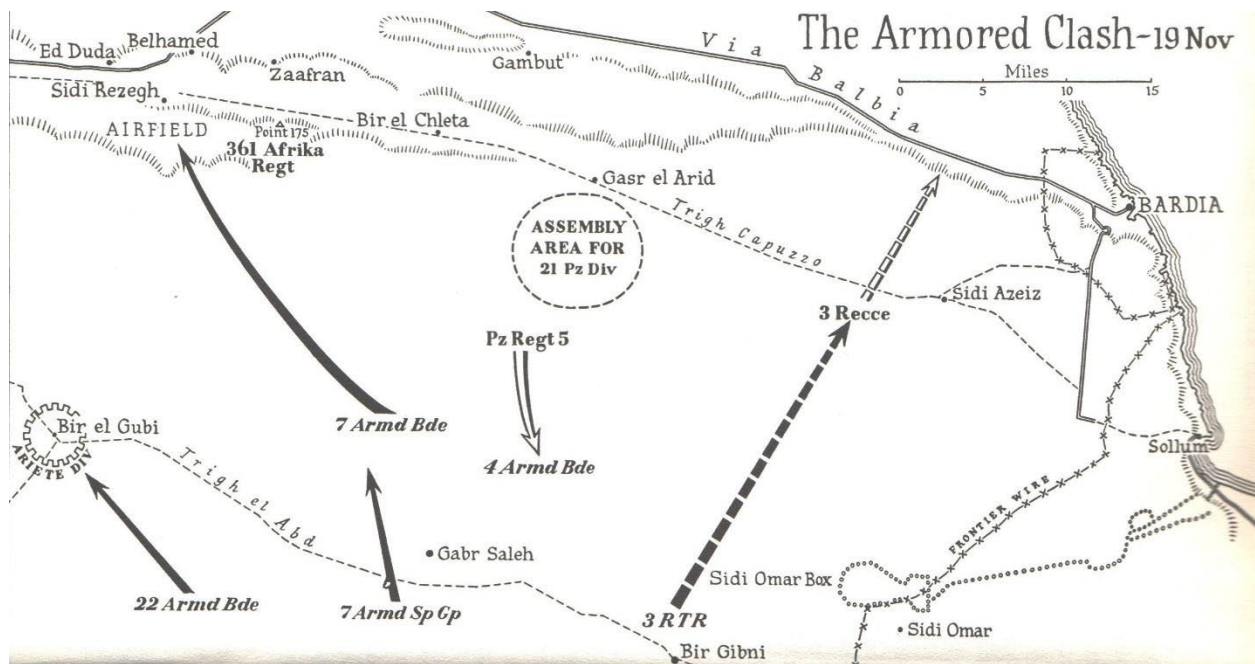


Figure 11²⁸

This was a very auspicious beginning for the Eighth Army on 18 November. Rommel's lack of concern allowed the German outposts screening the Bir el Gubi-Sidi Omar line to be driven back on the 19, as shown in Figure 11 (Liddell Hart, 1953, p. 159). In a very short while, British tanks were driving towards the Trigh Capuzzo, putting the attackers in reach of an important desert track through which the lines of communication and supply of the Frontier Group ran. While this

²⁸ Maj. General Von Mellenthin, F. 1956. Panzer Battles. Norman: University of Oklahoma Press, p. 58

was happening, General Cruewell, who commanded the DAK, consistently tried to warn Rommel, and make him see the precariousness of the situation (1956, pp. 61-63). Rommel remained unmoved and kept his attention on Tobruk.

While Rommel and Cruewell were arguing regarding the nature of the threat, unexpected events in the British plan began to complicate its execution on the 19. As the 7th Armored Brigade captured the Sidi Rezegh airfield, its partner formations were scattered further to the south and southeast. Starting from left to right in Figure 11, 22nd Armored Brigade was stopped at Bir el Gubi by the Italian Ariete Division, which managed to take out half of the British armor after repelling its frontal assault (Carver, 1986, p. 35; Von Mellenthin, 1956, p. 64; Carver, 1982, p. 96). On the right flank of XXX Corps, armor was being diverted to cover the gap that the advanced created with the XIII Corps. Thus, an unexpected operational complication arose: was it better to maintain the cohesion of the push or use the 4th Armored Brigade to maintain the link with XIII Corps? Cunningham decided to use the armored Brigade to maintain the link between the two Corps. To achieve this, Cunningham had the 1st South African Division's Brigades take over blocking Bir el Gubi from the 22nd Armored Brigade so that the latter could concentrate with the 4th Armored Brigade and march to Sidi Rezegh. The problem was that this takeover, including other natural difficulties of the redeployment, took a long time to execute and covered just 20 miles (Carver, 1986, p. 36). Furthermore, the move delayed the vital reinforcements the 7th Armored Brigade in Sidi Rezegh needed to link with the 70th Division in Tobruk (Lyman, 2010, p. 267). This meant that, at the critical juncture of the operation, two thirds of the 7th Armored Division were unavailable for the assault on Tobruk. To make matters worse, the 4th Armored Brigade still maintained a dual role of covering the gap between XXX and XIII Corps and had not been released

to the former Corps' commander (Barnett, 1982, p. 98). It was 20 November and most of the key formations of XXX Corps were now concentrated almost 30 miles from their operational goal in Tobruk, as shown in Figure 12:

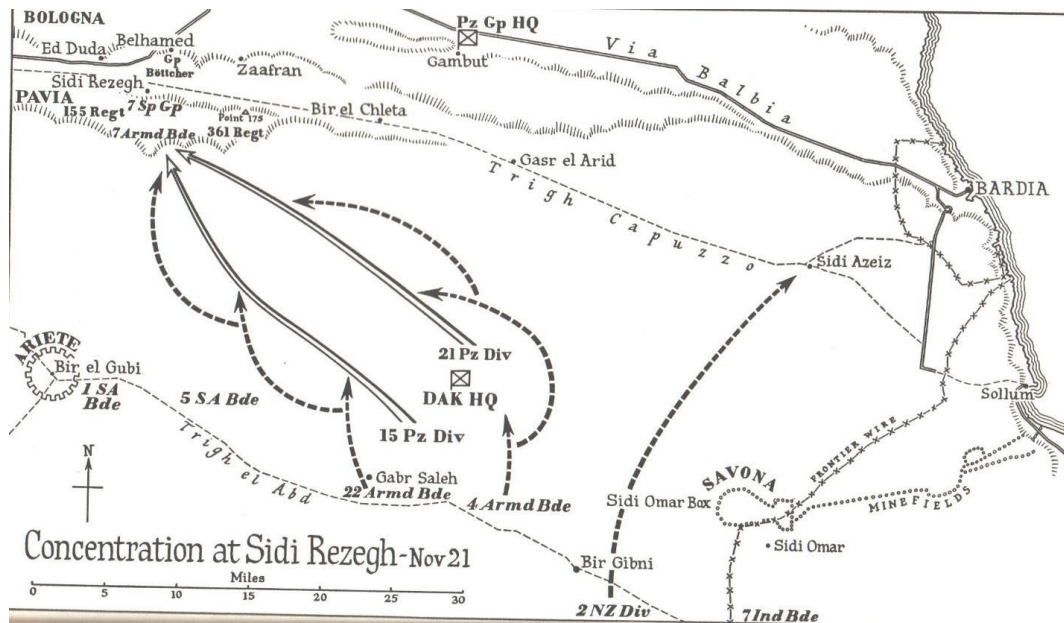


Figure 12²⁹

PGA's recovery

While Rommel was determined to take Tobruk, General Cruewell took actions of his own without Rommel's approval. Cruewell alerted the 15th Panzer Division to be ready to move south of Gambut and support 21st Panzer Division against the advance of British armor (Von Mellenthin, 1956, p. 61). Further, Cruewell kept insisting on the looming dangers of the XXX Corps advance and kept debating with Rommel in an effort to change the latter's overoptimistic assessment. The

²⁹ Maj. General Von Mellenthin, F. 1956. Panzer Battles. Norman: University of Oklahoma Press, p. 66

morning of 19 November, as British forces were in Sidi Rezegh, Cruewell pressed for the advance of 21st Panzer Division to Gaber Saleh and the assembly of 15th Panzer Division south of Gambut, to which Rommel finally agreed (Ibid, p. 63). Rommel now gave free hand to Cruewell with a very simple intention: destroy the enemy battle groups in the Bardia-Tobruk-Sidi Omar area before they threatened Tobruk (Ibid, p. 65).

Cruewell took Rommel's intent and swiftly came up with a customized solution to the situation. First, Cruewell concentrated both Panzer Divisions north in the Gabr Saleh-Sidi Omar gap, thus checking the 4th and 22nd Armored Brigades (Liddell Hart, 1953, p. 159). Then, 15th and 21st Panzer Divisions formed two columns and marched northwest to take 7th Armored Brigade from the rear at Sidi Rezegh (Barnett, 1982, p. 100). Cruewell organized his few 8.8cm guns into rearguard screens to deal with the trailing 4th and 22nd Armored Brigades while the German armor and artillery advanced to Sidi Rezegh (Von Mellenthin, 1956, p. 67). This was in essence an offensive-defensive march.

This was not the standard maneuver of an armored formation: attacking at the front while simultaneously defending at its rear. Though this tactic could have been considered too dangerous, its payoff was substantially higher. By 20 October, the British lost 207 tanks and the Sidi Rezegh aerodrome fell to Rommel (Barnett, 1982, p. 101). From being nearly surrounded, the PGA was now back in control of the Sidi Rezegh airfield and the British armored Corps had only one complete armor formation, the 4th Armored Brigade. In a bold and highly risky defensive-offensive march, 15th and 21st Panzer Divisions stabilized Sidi Rezegh. Now, much of the armored strength of XXX Corps had been destroyed by the PGA formations, meaning that any possible link up with the Tobruk forces became more remote.

PGA's Victory at Sidi Rezegh

With the PGA inflicting severe wounds on the Eighth Army's armor, Rommel moved to finish the kill. To do this, he would have to defeat the two Armored Brigades and 7th Support Group that were still in Sidi Rezegh. As can be seen in Figure 13, the DAK dominated the area surrounding Sidi Rezegh, with the Pavia, 15th Panzer, and 21st Panzer divisions in control of the Southwest-Southeast escarpments. In addition, there were two German Regiments and the Butcher *Kampfgruppen* (Group) covering Belhamed.

At this juncture, a series of unrealistic assessments doomed the British armor. The 7th Armored Division's situation was exceedingly dangerous and required an honest assessment of what was possible regarding the intended link with the 70th Division. But General Gott, CO of the 7th Armored Division, thought there was little enemy resistance between him and Tobruk. While the link with Tobruk was supposed to happen after XXX Corps defeated the panzers using the full force of the Corps, Tobruk was now going to be taken with only one Regiment and the 7th Support Group of the 7th Armored Brigade (Prasad, 1956, p. 224). While the British were losing time trying to move requests for action up and down the chain of command to execute the link, two German Divisions, AT batteries, and a battlegroup were ready to stop them (Von Mellenthin, 1956, p.68). In essence, Gott was trying to adhere to the original timeline of the operation for the linkup with Tobruk; even though current conditions made the timeline unfeasible. To make matters worse, Cunningham, who also thought the German armor was destroyed, ordered the 4th and 22nd Armored Brigades and the 5th South African Brigade to join the attack (Barnett, 1982, p. 99). The British were playing into Rommel's trap to defeat the XXX Corps assault.

Rommel and Cruewell proceeded to deal with Sidi Rezegh. Thinking he had been surrounded, Cruewell decided to move 21st Panzer Division towards Belhamed and 15th Panzer Division south of Gambut; both moves were undertaken without Rommel's approval (Carver, 1986, p. 38). With news of the 2nd New Zealand Division outflanking the Frontier Group, Cruewell was given command of the DAK Divisions besieging Tobruk, and ordered to prevent the linkup (Von Mellenthin, 1956, p. 68). Cruewell used his new mandate to take the 21st Panzer Division and move to assemble it in the Belhamed area, which allowed the British 7th Armored Division to concentrate (Ibid, p. 69). This appeared counterintuitive considering Rommel's intent: to prevent the link of the British forces, it was necessary to disrupt their efforts by all means and not to let them concentrate their armored forces. Nevertheless, this was the trap into which Cunningham and Gott were sending their forces. In the meantime, Cruewell repositioned one of his Panzer divisions, thus leading to the situation seen in Figure 13:

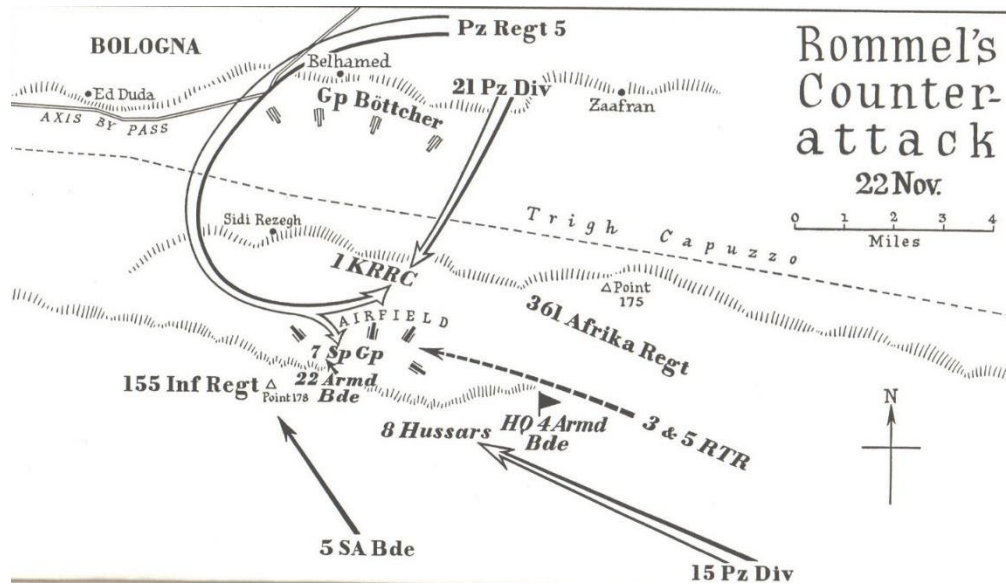


Figure 13³⁰

Completely unknown to Cruewell, Rommel arrived at the 21st Panzer Division positions on 22 November. Rommel ordered von Ravenstein to attack towards Sidi Rezegh while Panzer Regiment 5 and the AT batteries swung north from Belhamed and took the British forces on their left flank (Von Mellenthin, 1956, p. 71). At the same time, on Cruewell's orders, 15th Panzer Division attacked the British from the southeast, just as 5th South African Brigade and other British tank Regiments were moving to support Gott (Liddell Hart, 1953, p. 160). In a completely haphazard way, the DAK executed a double envelopment of the lead armored elements of XXX Corps, which were effectively trapped.

The result of this envelopment was drastic and sealed the fate of XXX Corps. 4th Armored Brigade's HQ was captured, including its CO (Carver, 1986, p. 40). 22nd Armored Brigade HQ

³⁰ Maj. General Von Mellenthin, F. 1956. Panzer Battles. Norman: University of Oklahoma Press, p. 70

was also overrun in the attack, adding to the confusion of the moment (Barnett, 1982, p. 102). 7th Support Group, along with the rest of the armored Brigades, had to abandon its position in Sidi Rezegh, which allowed Rommel to attack 5th South African Brigade further south, leading to its practical destruction (Prasad, 1956, p. 225). What began as an auspicious British advance that caught Rommel completely unprepared turned into a near rout of XXX Corps. Thus, the First Battle of Sidi Rezegh ended in a victory for Rommel's PGA.

3.4. Organizational Culture and the First Battle of Sidi Rezegh

The First Battle of Sidi Rezegh featured important episodes that show the influence of an army's organizational culture on its military effectiveness. Here, we see an important interaction: the British Army behaved in a manner consistent with its beliefs in the areas of obedience, certainty, and control while it had at its disposal massive strategic advantages. The Germans also displayed behavior consistent with their beliefs, which was a double-edged sword, and had no major advantages of their own. In this interaction, even despite the British significant advantages and the German's cultural defects, the PGA routed a superior army.

In the case of the British Army, the impact of their organizational culture in their military effectiveness during the battle was completely negative. Starting with the obedience imperative, its strongest and most deleterious impact to the British offensive was during the key hours of 19 November. As the XXX Corps is attempting to reach Tobruk with diminished armored assets while also satisfying other, albeit conflicting, goals assigned by Cunningham. Cunningham

operated a HQ far-removed from the 4th and 22nd Armored Brigades and would not release them to the XXX Corps commander at a key point of the battle. Even when the Corps commanders tried to present options to Cunningham, they were rejected because they required rethinking, even redesigning the plan as the situation unfolded. This was clearly contrary to the obedience imperative: plans were deemed too important to treat in such a fungible way and the CO was tasked with protecting their implementation. British commanders who realized that plans or timelines were no longer realistic had to go through a cumbersome interaction between command levels with all the wasted time that entailed. Due to the obedience imperative, there was no room for the Corps commanders on the ground to step up to the situation, make the decisions that had to be made for the Corps to attain its goal, and rethink the operational course they had to follow. Reinforcing this attitude was Cunningham's distance from the main battlefield, where he relegated himself to the role of a battle manager who was keeping track of the operational timetables, very much in line with the managerial role of those British commanders who were trained in their Regiments.

What is salient from these events is the weight of the obedience imperative in the British Army. None of the commanders were able to do what Cruewell and von Ravenstein did so easily in the DAK: be independent. For instance, after Cruewell maneuvered the DAK back to Sidi Rezegh, no one in the British Eighth Army seemed to question Cunningham's overoptimistic and unrealistic conclusions that German panzer strength had been diminished significantly (Jackson, 1975, p. 163). Furthermore, at this time, no officer raised objections to make momentous decisions under unrealistic assessments. Imagining the DAK to be on the run, Cunningham ordered three armored Brigades of the 7th Armored Division to attack Tobruk when they had in fact been separated by the DAK, thus incurring the fatal mistake of committing armored formations in a

piecemeal deployment (Moorehead, 1967, p. 221). In all these mistakes, there are no records of British officers questioning these moves, indicating that the obedience imperative was as influential here as it was in the Battle of Balaclava when the Light Brigade foolishly charged against entrenched positions. Once again, blind obedience cost the British the battle.

The control imperative influenced British effectiveness and outcomes during the battle. When the 4th Armored Brigade was unable to advance towards Sidi Rezegh, XIII Corps suggested using the New Zealand Division and its heavy tanks to support the Brigade. This was rejected by Cunningham on the grounds that XXX Corps alone was the decisive instrument, thus showing he was driven by the “rigidity and departmentalism of the British mind” (Barnett, 1982, p. 99). This is an important observation, indeed. Cunningham rejected a flexible and practical solution because it did not conform to the template that guided the Eighth Army’s operation. Operational command was rigid and centralized to the point that military decisions required significant time to implement. When the British were trying to link up with the Tobruk forces, Gott had to press General Norrie, CO of XXX Corps, to urge Cunningham to order General Scobie, CO of the Tobruk Garrison, to launch his attack towards Gott (Carver, 1986, p. 35). The significant problem about this is that Gott had one armored Brigade in front of Scobie, which could simply coordinate the link laterally instead of having to traverse all the way up to the center to coordinate an operation. Even tactical command was excessively centralized. For instance, General Gatehouse of the 4th Armored Brigade ordered his tank units to follow a classic cavalry tactic: charges against German guns and tanks (Moorehead, 1967, p. 222). Under this situation, some of the lightest and under-gunned British tanks, the Honeys, charged against German anti-tank units and Panzers. These two examples show how the control imperative was determinant in shaping British military

effectiveness during the battle, as it precluded any form of decentralized command decisions that could be made under the specific conditions under which tactics were executed. This imperative seems to have been influential throughout the chain of command.

Finally, the certainty imperative also had a negative impact on British military effectiveness during the battle. The first place to see this is the rigidity of the British plan. Cunningham devised a plan that took Rommel as a passive agent who would fold on what was seemingly a disadvantageous position: no reliable supply, smaller armor forces, unreliable allies, and an exposed rearguard. The British plan seems to have been premised on the belief that all of those disadvantages and the massive imbalances they brought determined what Rommel could and should do: collapse or retreat in the face of an advancing and superior British force. As Moorehead admits “the whole British plan seemed to be based on the assumption that the Germans once surrounded would be forced to fight from inside while their dumps and lines of communication lay outside” (1967, p. 220). Here, the British belief that well-designed plans that assumed the enemy would conform to them played a key role in shaping the First Battle of Sidi Rezegh. Cunningham devised and tried his best to make Rommel conform to his plan, but his efforts were stymied from the beginning by PGA’s commanders and their ability to think and act on their own terms.

Another good indication of the influence of the certainty imperative on British military effectiveness was the advance of the XXX Corps. In a very linear and regimented fashion reflective of the British Army, XXX Corps advanced towards its main target of Sidi Rezegh trying to do two things at the same time: prevent any unexpected surprises from German panzers and concentrate all of its armored assets on linking with Tobruk. The only way to do both was to

maintain a sort of contiguous line with the lead elements of XIII Corps while sacrificing the speed of XXX Corps' advance. Cunningham felt uncomfortable with Ariete being left unmolested in Bir el Gubi while XXX Corps moved towards Tobruk and wasted elements of the South African Division sealing off what was an entrenched force with limited operational capability (Prasad, 1956, p. 223). One could say this was a classic Staff College move: hedge all risk and prevent any upsets to gain certainty. The certainty imperative also powerfully influenced the rigid way that the XXX and XIII Corps interacted. XIII Corps was supposed to act on the coast and secondarily in support of the advance of the XXX Corps, which had to move fast both to take out the German panzers and then link with Tobruk. As result of Cunningham's desire to keep a line, however, he wasted the 4th Armored Brigade securing the link between these two Corps, distracting important armored elements that were necessary to take Tobruk.

The adherence to the certainty imperative resulted in a lack of focus in British operations on the day. Due to the British fixation on a controlled and conventional march that could be easily tracked and supervised, XXX Corps wasted too many assets and too much time on giving unnecessary tasks to the other lead armored Brigades of the 7th Armored Division. By wasting a day and half in masking the Ariete Division and then turning the 4th Armored Division into a juncture with XIII Corps, the British searched for certainty in line with their inability to accept the risky nature of war. This point cannot be overstated, as it was the waste of time and assets that played almost too exquisitely into Cruewell's decisions to redeploy the DAK from Tobruk into a more central position where it could choose when and how to deal with XXX Corps. The British inability to accept risk in war helped Cruewell extricate himself from Tobruk.

The second place where we can see the impact of organizational culture in military effectiveness is in the performance of the PGA. Starting with the Germans' avoidance of the obedience imperative, Rommel's laissez-faire attitude allowed PGA commanders to work out solutions for themselves. While Rommel spent two full days choosing to believe that the British foray was an insignificant nuisance, von Ravenstein and Cruewell prepared a contingency deployment. This required Cruewell making decisions with 15th and 21st Panzer Divisions without Rommel's approval. Thanks to this, XXX Corps was prevented from striking panzers in their rear as they marched into the Tobruk area, and the latter managed to be in position to upset the key concentration on which the assault on Tobruk depended.

The DAK's initial reaction to XXX Corps' offensive revealed the best, and worst, traits of German organizational culture. The *Heer* promoted the belief that a CO should not and could not excessively burden himself with the details of how the subordinate units would conduct their tasks. Rommel brought a distinctive approach to this belief: leading from the front to properly evaluate the situation of the battlefield and thus react to the unexpected (McNab, 2011, p. 132). This meant that Rommel did not afford much attention to overseeing his direct subordinate commanders and preferred to focus on the parts of the front he deemed decisive. Rommel was doing what the *Heer* COs did best: giving his subordinates an intention and letting them work out things on their own. Since Rommel used this to, initially, ignore the real scale of the British advance, one could make the case that this created initially a significant problem for the German response: while the DAK commanders were trying to avert disaster, their CO was not able to give them the support they needed in terms of additional maneuver and support formations.

At the same time, however, we can see how the best traits of the German organizational culture compensated for the aforementioned problem. The *Heer*'s strong beliefs in independence allowed Cruewell to candidly speak his mind to Rommel. Cruewell also spent two days conferring with subordinates and other ground commanders in an effort to find a way to understand what the British foray meant and what the DAK had to do to win the fight. Cruewell worked with von Ravenstein and other officers to come up with a course of action that he put in motion to the best of his ability, prerogative, and knowledge at the moment. This is what he did when he alerted both panzer divisions and displaced them to new positions to maneuver his way out of the British offensive. The most notable aspect of these efforts is that they were done against Rommel's desires.

The avoidance of the control imperative also was essential for German military effectiveness, as it proved key for the maneuver that would rout the XXX Corps armor. While 22nd Armored Brigade spent valuable time trying to concentrate with 4th Armored Brigade, Cruewell came up with a very flexible tactical formation that moved to support Sidi Rezegh. Once he was in the escarpments surrounding Sidi Rezegh, both 15th and 21st Panzer Divisions had different orders. German decentralization played an important role here by allowing each to pursue their own orders while retaining a single-unified intent in their efforts. With this in mind, each General used the panzer divisions in the best possible way to achieve the intent that ultimately rendered the defeat of XXX Corps.

The remarkable level of independence amongst the *Heer* officer corps interacted with the Germans' avoidance of the certainty imperative. Cruewell was able to come up with an alternative defense concept without having much information about the British deployments other than that

there was a full-blown British attack to the southeast of Tobruk. For instance, Cruewell took advantage of Rommel's brief absence from the theater until 15 November, to celebrate his wife's birthday, to alert the 15th Panzer Division and have it ready to meet this threat (Kitchen, 2009, p. 154). Rommel also did not stop Cruewell from concentrating both Panzer Divisions to strike at the British forces in Sidid Omar on 20 November (Ibid, p. 155). These two measures showed how independent minded could a German officer truly be. At the same time, these measures were taken without knowing the shape and direction of XXX Corps' thrust. During the entire battle, Rommel's forces operated without air reconnaissance and even proper communications (Warren, 1976, p. 28). This is important because, while Cruewell went on what Jackson calls a "wild goose chase" looking for the XXX Corps armor, he deduced that the British 7th Armored Division line of advance ran through the Trigh-el-Abd to Sidi Rezegh and decided to make a bet on this estimation (1975, p. 158). This bet ultimately took the shape of the tactical formation seen in Figure 12 which managed to both meet Rommel's intent to prevent the link up of the British 7th Armored Brigade in Sidi Rezegh while also dealing with its two partner armored brigades in Gabr Saleh (Ibid, pp. 160-162; Kitchen, 2009, pp. 155-156). Therefore, the high levels of independence that the German officer enjoyed interacted with its ability to embrace uncertainty by allowing it to rely on his tactical judgement and senses alone to meet the intent of his commander. The same beliefs that led to near recklessness in Rommel enabled his subordinates to take responsibility and act with the best judgment they had of the situation.

The unique German ability to embrace risk and uncertainty served as a very dangerous double-edged sword in this part of the battle. One of the distinguishing features of the intelligence available to Rommel was his relative lack of sufficient SIGINT data, which should have made him

wary of taking the situation at face value (NcNab, 2011, p. 141). As a result, Rommel was mostly in the dark regarding the intentions and dispositions of his adversaries on the eve of November 18th. This did not mean that Rommel was clueless about a possible threat to his rear, however. In addition to the General Staff's intelligence estimate, PGA notified all its formations of large quantities of enemy war material and troops moving into Egypt while SIGINT assets detected the move of two commonwealth Divisions to the Nile Delta (Liddell Hart, 1953, pp. 157-158). Rommel at the very least knew there was a forming threat of a British military action in the near future.

Yet Rommel was used to operating with a sword over his head. For example, Rommel operated completely surrounded during the French campaign (Von Mellenthin, 1977, p. 59). This is why, when von Ravenstein and Cruewell first raised their concerns about the weakness of the reconnaissance units, Rommel chastised them and urged them not to lose their nerves (Ibid, 1956, p. 63). Once again, Rommel embraced risk, following the German belief that risk was a natural part of war and that one had to command through uncertainty, not eliminate it. This is also evident in the way Cruewell decided to deploy the DAK to stop the 4th and 22nd Armored Brigades southeast of Sidi Rezegh. Cruewell accepted a significant level of risk by deciding to place his scarce AT assets in the rear of the DAK marching columns while his panzers led their march towards the airfield. This embracing of risk allowed Cruewell to display a significant level of flexibility in his command that allowed the DAK to stop the British capture of Sidi Rezegh.

These events, key as they were to bring about the results of 23 November, show that there is a strong degree of internal consistency between organizational culture and military effectiveness. On the German side, their beliefs regarding obedience allowed them to form different estimations

that were closer to the ground reality. This is evident in the way Cruewell acted during the first two days of the battle. Furthermore, the embracing of uncertainty played an important role in how the Germans reacted at the beginning of the battle and escaped the potential risk that XXX Corps presented. Rommel, Cruewell, and von Ravenstein all managed to proceed without much information about the situation and took as many risks as necessary to fight the British from Tobruk. Finally, the decentralized control of the *Heer* allowed the DAK to act despite Rommel's initial opposition and played a key role in the way in which the PGA enveloped XXX Corps formations in Sidi Rezegh, routing them back to the frontier wire. On the German side, there is a clear connection between cultural beliefs and military effectiveness.

On the British side, the results are the same but in a negative direction. First, the entire Eighth Army seems to have taken as a given that the plan would unfold linearly and did not raise enough alerts or criticism regarding its lack of creativity. Furthermore, as the operation unfolded everyone else in the command staff went along with the wastage of efforts, with the isolated instance of the New Zealand Division CO trying to present an "alternative" for Cunningham's consideration. Second, the search for certainty of the British Army was very clear, as there was no ability to leave the template designed by Cunningham until he was removed from command. During the battle, the British seemed to have bet solely on their advantages without assuming any sort of risks, and always proceeded by guarding against the unexpected. This proved to be their undoing. Third, the degree of control exercised in the battle also played into their lack of effectiveness. Cunningham's refusal to allow the Corps and Divisional commanders independence to command meant that he did not have access to alternatives that could allowed the XXX Corps to achieve its objectives.

With these different effects organizational culture had on the two armies, it possible to assess the validity of my hypotheses regarding military effectiveness and military power. *H1me* establishes that balanced cultures will display the highest levels of effectiveness of all types of organizational cultures. As has been shown, the *Heer*'s more balanced culture allowed it to reach a higher level of military effectiveness compared to the conformist culture of the British Army. The *Heer*'s beliefs regarding obedience allowed its officers to look at tactical and operational situations as they were and challenge in a respectful manner the assessments of their superiors if they were not militarily accurate. The belief that controls was decentralized and could not stifle the responsibility of an officer to act upon the ground situation to the best of his ability further interacted with the *Heer*'s obedience beliefs, as it allowed its officers to carry out actions with freedom to the point of redesigning their own missions. Finally, its commanding generals accepted the inherent risks of these two beliefs as well as the changing circumstances of battle. Indeed, as was shown, Cruewell irritated Rommel several times, which itself had the risk of putting him at odds with the General and jeopardizing his command. Nevertheless, both officers were able to operate without having much certainty as to the intentions and means of their adversaries. Therefore, the effectiveness shown by the *Heer* was consistent with the potential brought by these beliefs. The PGA was able to, even without access to significant SIGINT resources, outthink its adversary. Rommel, Cruewell, and the rest of officers were able to manage the information they had in a way that could lead them to faster and more tactically sound decisions. This tactical decision-making allowed the army to show a remarkable degree of flexibility in operations as it used its organizational and material means in ways that the situation demanded. The PGA was able to fight with conventional formations such as Regiments or divisions, and, when necessary,

switch quickly to more ad-hoc configurations like *kampfgruppen*, as well as even customize its organization as the offense-defense columns of the AK did when marching towards Sidi Rezegh on 22 November.

The hypothesis is also confirmed by the low levels of effectiveness shown by the British Eighth Army during this operation. Consistent with the predictions for a conformist culture, the British Army showed a marked inability to adapt to sudden changes that arose from the unreflective obedience prevalent amongst the officer corps. For instance, in the case of the cavalry charge ordered by Gatehouse, none of his junior officers executing the charge had any leeway to change this foolhardy tactic until the General himself did so and, even then, this cost 30 British tanks to 4th Armored Brigade (Moorehead, 1967, p. 224). Reinforcing this was the managerial and detailed nature of the control exercised by superior officers, who often saw themselves as the master managers of plans, able to make the enemy conform to their expectations. These officers were trained to believe they were the task masters of their forces, and no challenges were expected once they issued their instructions. Moorehead identifies this trait as one of the characteristics marking Cunningham's plan at the beginning of the battle: assuming he could isolate Rommel and that the Germans would fight like the British expected (1967, pp. 220-221).

Finally, the British Army was very wary of uncertainty and trained its officers to always look for ways, through planning or the massive build-up of numerical and material superiority, to create the certainty that would connect their decisions with their goals in a linear fashion. Even though it held massive information advantages, literally reading into Rommel and Cruwell's communications, the British Army was unable to turn certainty into advantage. For instance, Warren explains that, even when it was relatively easy for the British to know where the German

forces were located and even had British forces in range to join the battle, they were not able to do so (p. 28). Therefore, the British Army's conformist culture possessed all the three imperatives characteristic to these cultures. As a result of these imperatives, the British Army was unable to manifest the necessary level of adaptation to change its tactics and operations based on the emerging conditions of the battle that began on 20 November. Ground officers did not try to press alternative assessments to Cunningham and seemed to replicate his mindset regarding the operation: the British advantages were superior and a straightforward application of them would pierce Rommel. As the battle unfolded and this proved unrealistic, however, Cunningham's orders and assessments remained unchallenged and unchanged. This tendency was reinforced by the detailed control exercised by the Eighth Army commander, who micromanaged the deployment of XXX Corps armor into its dissipation and kept in place timetables that were no longer tenable. The general aversion to uncertainty shown by Cunningham led to efforts that wasted valuable time and assets in peripheral and even irrelevant assignments such as the screening of Ariete Division, which ultimately cost the army its link with the Tobruk Garrison. These beliefs therefore sacrificed the large SIGINT and air reconnaissance information advantage that the British held over Rommel, stopped the right data from influencing Cunningham and made him change the British plan, and stifled British operations by denying them any flexibility.

Finally, these different results in military effectiveness also explain the different results in the armies' military power levels during this campaign. *HImp* states that armies with balanced organizational cultures will display higher levels of military power when combatting all other types of organizational cultures. In the case of Operation Crusader, the metrics of each side's fatalities clearly show that the *Heer*, with all its strategic weaknesses, was nevertheless a deadly force to be

reckoned with. The British started with nearly 760 tanks opposed to the 250 German panzers. During the first day and a half of operations, the DAK took out 257 British tanks; captured the HQ of the British 4th Armored Brigade, effectively denying their almost 100 tanks for 24 hours; destroyed the combat capabilities of the 1st South African Division; threw the British command staff into such a confusion that it stopped all movements of XIII Corps until an assessment could be made of the armored strength available; and managed to inflict such an upset to Cunningham's morale that he was replaced in the midst of the battle (Barnett, 1982, pp. 102-103; McGuirk, 1984, p. 105; Liddell Hart, 1953, p. 162). Furthermore, from having an exposed rearguard a day and a half prior, Rommel managed to approach the supply depots and railhead upon which the entire Eighth Army depended for its operations (Carver, 1986, p. 43). The DAK covered nearly 30 miles in 24 hours while the British took a day and half of haphazard and methodical attacks to cover this same distance. To the PGA's further credit, Rommel covered this distance while maintaining the siege of Tobruk and facing the potential actions of the British XIII Corps, which were held by the weak Italian forces of the Frontier Group.

In line with these results, the Heer's losses were significant but lower than those of the British side. Cruewell began the battle with 250 tanks, of which only 90 vehicles were left after five days of operations (Carver, 1986, p. 40). It is important to note that 70 of the German panzers were lost during the hardest part of the battle, which involved Cruewell's attack against the 5th South African Brigade during the afternoon of 23 November (von Mellenthin, 1956, p. 74). Nevertheless, unlike the fate of the formations of XXX Corp, two of which were practically destroyed, the PGA's forces during the battle were able to retain their structure and organization, which indicates their human losses were not as high as those of the British forces during the battle.

Therefore, in terms of military power, the *Heer* was far superior to its British adversaries. This, in the face of severe strategic constraints and local advantages favoring the British Army. The level of superior force applied by the British Army should have achieved its intent of linking with Tobruk and causing Rommel's destruction, especially considering the weaknesses affecting the German forces. What the British achieved in two days of operations at the cost of 250 tanks, the functional loss of two Divisions, and a failed attack by the Tobruk garrison was undone by the Germans in just one day. In the process, the Germans also undid the British aspirations to link with the Tobruk garrison and forced them to alter the plans for Operation Crusader, putting the burden of the advance on XIII Corps.

3.5. Alternative Explanations

This chapter has traced the process through which the weaker and smaller PGA was able to fight more effectively than and defeat the larger and stronger British Army. Process tracing shows how the key moments of the Battle of Sidi Rezegh were defined by an interaction between the British and German armies' cultures and rendered results anticipated by my theory: the Germans' balanced culture was more militarily effective and powerful than the British Army's culture. Nevertheless, as explained in Chapter 2, conducting a process tracing analysis that shows a connection between my independent and dependent variables is not enough. The next step in my analysis strategy is to show that no other alternative explanations could have explained the

outcome of the First Battle of Sidi Rezegh. I do this by explaining how other theories fail to account for the results of First Battle of Sidi Rezegh.

Starting with material superiority, the most basic prediction of such theories is that the sheer material size of the countries fighting determines their military power, with better endowed forces expected to be more powerful. From a slightly different angle, the economic development theory of military effectiveness argues that states with higher levels of economic development generate higher levels of human capital, which in turn give their armies higher levels of military effectiveness. Finally, FFR theories use the manpower imbalance between combating forces to predict battle outcomes, arguing that, as a general rule, a 3:1 advantage favor victory for the attacking forces. Based on these theories, XXX Corps and XIII Corps should have been able drive straight through Rommel's rearguard, capture Sidi Rezegh, link with Tobruk, and bring about the destruction of the PGA.

British and Commonwealth forces had the massive resources of the British Empire at their disposal. Some of the most relevant of these resources were important oil reserves in Iraq, the manpower that was available from Africa and India, and other significant mineral and agricultural resources. The British Empire accounted for 500 million people and \$568 billion of GDP in 1990 dollars (Harrison, 1998, p. 40). UK nationals produced \$5,983 while colonial subjects accounted for \$684 (Ibid). Compared to this, Germany only had 74 million people, counting the Austrians, and a GDP of \$375 million measured in 1990 dollars, which meant that Germans per capita GDP was \$5,126 (Ibid, p. 40). The Italians added 43 million people and \$140 million in GDP. Germany had some advantages in the realm of natural resources, such as aluminum and machine tools

(Overy, 2020, p. 20). However, Germany had to designate virtually every bolt it had to Barbarossa, which demanded nearly 66% of its manpower and nearly all its armored and natural resources.

Yet the PGA managed to defeat XXX Corps at Sidi Rezegh and inflict a major blow to Operation Crusader in 1941. Though Rommel did eventually withdraw to Cyrenaica, his Panzer Group was not destroyed, as expected by the British. Even more important is that Rommel withdrew later in December on his own terms and was not routed. More importantly, the higher levels of British economic development did not manifest as higher military effectiveness. The British were not able to outmaneuver the Germans in the desert. Despite the expanse of the desert seen in Figure 3.3, the Eighth Army chose a relatively straightforward dash into Rommel's forces and was unable to change the pace of its operations accordingly when it was not able to draw the DAK into battle. Therefore, British economic development did not bring about a more effective tactical performance during the battle.

Finally, the FFR advantages of the British over the Germans also failed to provide the expected boost. The former had 760 tanks available while the latter had 250 vehicles, which is virtually the 3:1 advantage highlighted by FFR theory. The British Eighth Army was 118,000 men strong, and the PGA was nearly 100,000 soldiers strong, but just 30,000 of them were DAK forces with the rest being, at their very best, unreliable Italian units. Furthermore, most of the Italian forces were maintaining the siege of Tobruk, leaving Rommel with only the Frontier Group and DAK as available forces. Factoring in the unreliability of the Italians, the Germans could only effectively use the DAK forces. This meant that the British had a nearly 3:1 advantage in tanks and more than 3:1 advantage in frontline forces for the offensive. Yet, the Germans managed to inflict a significant setback that took out a third of the British tanks and effectively destroyed the

armor of the British XXX Corps. More importantly, this favorable FFR does not seem to have compensated for the deficiencies in tactics and operations that reduced the British military effectiveness.

Another important alternative theory that must be considered is that of technological superiority. In essence, this theory argues that technological imbalances carry significant weight in generating military power because they give the more advanced side an advantage in launching and winning offensive operations. A variation of the theory argues that technology plays a significant role in generating military effectiveness because more advanced military tools provide armies with much greater ability to pursue military operations. However, in the case of Sidi Rezegh, this was not what happened. The British had important technological advantages such as their heavy tanks: these tanks could engage their German adversaries at greater distances and had a thicker armor. Contrary to these advantages, Rommel had mostly light tanks that belonged to the earliest classes of panzers that were manufactured before or during 1939; a severe deficit in tracked vehicles, limiting German combined arms tactics; and a near total intelligence black out.

Yet, none of the technological advantages available to the British had any bearing on their power or effectiveness. First, the British offensive mustered a significant amount of power that was wasted through a combination of risk aversion, methodical tactics, and simple mental rigidity. None of the technological advantages possessed by the British compensated these issues. Second, even if the British had significant armored advantages, they were totally outfought by a few, but very flexibly employed, German AT weapons integrated with infantry and tanks. The possession of longer-range tank guns and heavier armor that could take more direct hits did not suddenly gave

British armor and infantry commanders the ability to use these assets in a flexible and purpose-specific way that gave them tactical successes.

The non-material theories' predictions regarding Sidi Rezegh have the same inability to explain why PGA was not destroyed that November. Starting with democratic effectiveness theorists, they argue that democracies produce higher levels of initiative in soldiers as well as more professional generalship due to the merit-based selection of flag officers. Social cohesiveness theorists predict that societies with fewer internal conflicts are able to integrate their communities together and produce higher levels of military power. In a similar claim, but focused on the role of primary group cohesion, Shils and Janowitz argue that those armies that have groups that can nurture and affirm the primary needs of soldiers in combat will see higher levels of military effectiveness. From a strategic cultural perspective, Kier predicts that societies with a commonly shared culture about the role of their militaries will tend to intervene in them based more in their international concerns than those where there are different cultures. Finally, the cultural theory of Pollack predicts that the society with cultural traits that facilitates the pursuit of military operations, a culture which best conforms with the values and beliefs that modern military operations require, will generate higher levels of military effectiveness.

From the standpoint of these predictions, Britain should have won the day at Sidi Rezegh. Britain was a vibrant democracy that gave its citizens the tools necessary to develop their initiative and select their Generals based on merit and not political allegiance. There was a unified societal and political consensus that the role of the army was to pursue the interests of the Empire, which meant that it was mostly focused on responding to the international needs of the United Kingdom. The British Army's regimental system generated important primary group infrastructure that

served the needs of its soldiers and formed the necessary cohesion to weave them into unified military groups. Finally, Britain's societal culture emphasized the importance of private enterprise, which meant that individuals had to display the ability to be entrepreneurial and take the lead in producing results.

Yet, none of these theories account for the events of the First Battle of Sidi Rezegh. Being a democracy did not make British soldiers more creative, as they remained committed to frontal and methodical tactics. The quality of generalship goes the same way: Cunningham was not able to adjust his battle plans to the conditions on the battlefield. The *Heer's* officers were able to show initiative and use the decentralization of the force to turn their initiative into actual measures that were executed based on the situation they were facing and not on Rommel's authorization. In the end, the undemocratic army proved to be more effective than the democratic one.

Regarding non-organizational cultural theories, the same results show that they were not able to account for what happened on the battlefield. The British had a clear consensus of what their army was to do, while there were key disagreements between Hitler and the OKW regarding military strategy during the war. This is clearly evident in Barbarossa, where Hitler's and OKH's visions never aligned, causing the eventual wastage of effort that stopped the *Heer* from capturing Moscow in 1941. Nevertheless, for all their consensus, the British Army remained unable, at least in November 1941, to turn their military doctrine into a pathway to victory against the smaller, weaker, and more isolated German forces in North Africa. On the contrary, the *Heer* was able to show outstanding levels of military effectiveness and military power disproportionate to their situation, size, and challengers. What is even more telling is that, even if the regimental system created more cohesiveness around each of the British territorial Regiments, this actually proved to

be the undoing of the British, since they were unable to unify their different arms into combined tactics. Compared to this, the *Heer* was able to produce high levels of military effectiveness without formations as closely knit together as the British Regiments.

Societal differences between the two countries also do not prove capable of accounting for the results in the First Battle of Sidi Rezegh. British society was one of the homes of the European entrepreneurial spirit, and also valued courage and cohesiveness from its experience in colonial warfare. But the British Army placed too much unreflective emphasis on obedience, managing war as a science, doing everything possible to purge risk from operations, and exerting detailed control of subordinates. The Germans, on the contrary, came from a highly conservative culture that prized aristocracy and deference to authority and yet were able to show much higher levels of military effectiveness. This is because the *Heer* promoted reflective obedience, risk embracing, and functional control. This shows that, without accounting for the interaction with organizational cultures, societal culture theories of military effectiveness have a limited capacity to account for battlefield results.

Finally, force employment and command structure theories are complimented with the way that organizational culture explains the results at the First Battle of Sidi Rezegh. From a force employment perspective, the British showed some grasp of essential concepts such as fixing forces to flank them or seeking breakthroughs on enemy lines to target enemy headquarters, communication centers, and supply lines. The problem is that British execution of these concepts was plagued with methodism, rigidity, and lack of officer initiative. Furthermore, there was a “modern” force employment only in the initial stages of the operation, but this disappeared once the plan was invalidated by reality.

In terms of command structure, my findings provide an important correlate to some of its causal mechanisms. As depicted in Figures 7 and 9, both forces were similar in their organizational arrangements. The British Army and *Heer* all had Army, Corps, and Divisional command levels and headquarters which, in theory, could make decisions to adapt to the circumstances of their surroundings. Both also had access to communication networks without seemingly any significant differences between each other. Finally, their organizational architectures were in essence the same, both relying in traditional military channels and discipline regulating commander-subordinate interactions. Yet, this did not stop the *Heer* from being better able to achieve greater information superiority, better management, and more operational flexibility in the First Battle of Sidi Rezegh. Cruewell's ability to use the assets assigned to him after Rommel realized the predicament of DAK to coordinate the successful deployment of Axis forces around Sidi Rezegh is a case in point. Therefore, these two last theories require a deeper look to understand the mechanisms through which the engaged forces were more or less able to produce their expected effects.

3.6. Conclusions

This chapter tested the validity of the organizational culture of military effectiveness in the First Battle of Sidi Rezegh, finding that the *Heer*'s organizational culture was key in driving its effectiveness and military power. Even though the British had more advantages and assets to its disposal, the *Heer*'s organizational culture gave Rommel the ability to extract more effectiveness

and power than what his material, technological, political, and social resources would seem to suggest. The key junctures that led to the German victory at Sidi Rezegh were moments when the British Army's conformist culture was easily outfought by the *Heer's* balanced culture. Alternative theories do not seem to account for the results of the battle, which shows that the results of the analysis are congruent with my theory's expectations.

4. Chapter 4: Operation Stouthearted Men, Yom Kippur War

On 6 October 1973, the combined armies of Egypt and Syria attacked the state of Israel on two fronts: on the Sinai Peninsula and in the Golan, completely surprising Israel. The Israeli Defense Forces (IDF) had severely misread the tactical, operational, and strategic lessons of their success in 1967. In this chapter, I will test my organizational culture theory on the battle that the IDF forces fought to cross the Suez Canal on 15 October 1973. After Egypt captured the Bar Lev Line defenses on the East bank of the Suez Canal, Israel faced a dangerous situation. If the vastly superior Egyptian forces were not stopped, there were few Israeli forces that could stop them from crossing the Sinai Peninsula and threaten Israel's main cities. In this chapter, I argue that what gave the IDF an upper hand to pull the campaign out of the abyss was its organizational culture.

As depicted in Figure 14, the Egyptian and Israeli forces had different cultures. The Egyptian Army had a hierarchical independence culture that made personal initiative a privilege of the higher command echelons and was strongly shaped by its certainty and control imperatives. By contrast, the IDF possessed a balanced culture that highlighted the importance of promoting the individuality and initiative of its soldiers alongside working as part of a cohesive force, emphasizing that officers had to be comfortable with minimum necessary levels of control, and that risk was the normal state of warfare. In this, my theory expects the IDF to generate higher levels of military effectiveness than the Egyptian Army and, ultimately, generate a higher level of military power. My theory's expectations are reflected in the historical record.

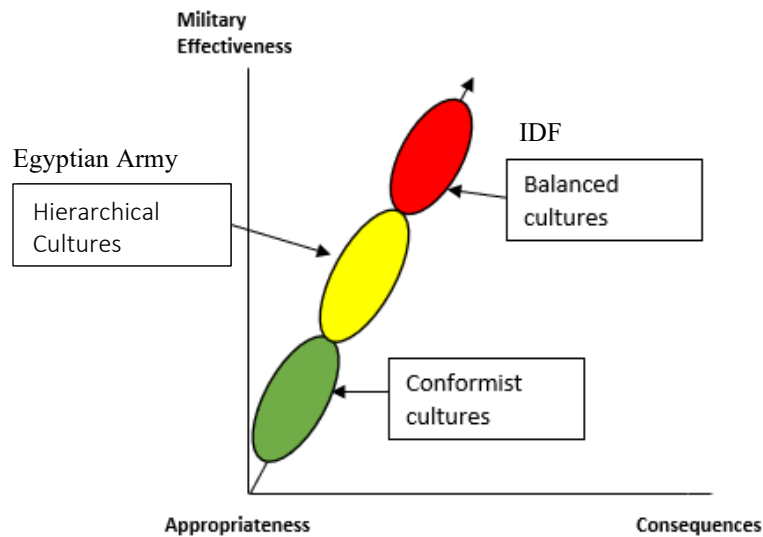


Figure 14

I develop this argument in three stages. First, I present an analytic description of the armies' organizational cultures. Second, I analyze how the battle for the crossing of the Suez Canal, codenamed Operation Stouthearted Men, was a result of the IDF's organizational culture edge over the Egyptian Army. Finally, I engage with alternative military effectiveness and military power theories to test how my explanation fares in this case compared to the alternative theories. I wrap up the chapter with conclusions regarding this case.

4.1. The Cultures

4.1.1. The Israeli Defense Forces (IDF)

The Obedience Imperative

The IDF was able to avoid the obedience imperative thanks to two key factors that shaped its emergence after the War of Independence in 1948: the idea of empowering subordinates to

avoid the obedience imperative and the IDF's extreme divergence of combat experiences. These two factors were rooted in the nature and operations of the three major combat organizations that merged to create the IDF: the Haganah, the Palmach, and the Irgun. In this section, I explain how this merger accentuated the independence of the Israeli soldier, which helped the IDF avoid the obedience imperative.

Turning to the first factor, the bottom-up interactions of subordinates with their commanding officers (COs) were guided by the idea that such actors should be empowered with tactical judgment to achieve their goals without the need for higher guidance. The origins of this idea can be traced to the combat beliefs of the Palmach, a shock force created to counter Arab irregular forces. The Palmach stressed that the *mem-mem* (platoon leader) was the key military leader, as he was the only decision-maker close to his soldiers and directly responsible for the creation of the *lohem* (fighter) (Rolbant, 1970, p. 16; Perlmutter, 1969, pp. 38-39). The *mem-mem* not only could inspire his men through deep relations that could generate high levels of trust, but he could also tailor the training of his men to accentuate their skills depending on their personalities. Bowden concludes that the effectiveness of the IDF soldier was a result of "special emphasis upon the smallest unit and on the platoon commander as leader, educator and friend to his men" (Bowden, 1976, pp. 14-15). The foundation of Israel's policy of military individualism rested in the IDF's understanding of the level at which a *lohem* was formed: at the platoon level and through the efforts of each *mem-mem* to influence the recruits under his command.

This emphasis on individualism is distinct: while most modern armies have seen force generation as the output of an army-wide effort following standardized organizational processes, the IDF, emergent from distinct earlier military organizations, saw force generation as the result

of the work of individuals. The Palmach designed a training program that aimed to provide the lowest tactical leader with a thorough understanding of the tactical variables that interacted in battle. A Palmach section commander thus spent the majority of his time learning tactical concepts and then was forced to show how he used his tactical judgment in applying these concepts to solve tactical problems; amazingly, he was only required to spend approximately two hours learning about the elaboration of battle orders (Allon, 1970, p. 127). General Yigail Allon, commander of the IDF's Southern Command during the War of Independence, put it in very blunt terms: Israel had to rely on soldiers who were highly skilled in tactics and strategy while at the same time making leaders inseparable from their subordinates (Allon, 1970, pp 48, 262).

The war of 1948 validated this emphasis, as section commanders suddenly found themselves handling units the size of a normal company and commanding operations on fronts that averaged ten miles in length (Rolbant, 1970, p. 28). For instance, during Operation Dani in 1948, Moshe Dayan, then a battalion commander, decided to disobey his Brigade's orders and successfully took Lydda and then Ramle by surprise, defeating the Jordanian defenders in the area and clearing the road to Jerusalem (Eshel, 1989, p. 17). This was a remarkable success. A single IDF makeshift armored battalion was able to secure the important road to Jerusalem, seizing on opportunities that could not have been envisioned by the standing orders of the Brigade.

This feat would be repeated again during the 1956 Suez War. During that war, a single IDF paratrooper Brigade under the command of Ariel Sharon was able to advance 190 miles in 28 hours after being dropped behind Egyptian lines in the Sinai and captured the vital Mitla Pass, one of the three passages that connected the Sinai Peninsula with the Suez Canal in Egypt (Luttwak and Horowitz, 1975, p. 144). It is worth noting that, during this time, Sharon rose in only four

years from a limited Battalion commander to a Brigade commander in charge of the main thrust of a front-wide operation (Ibid, p. 117). Because of the emphasis that the Palmach had placed on individual performance prior to the 1948 war, it was possible for IDF commanders to handle higher levels of independence and the responsibilities these carried. Furthermore, not only did the IDF have commanders who could deal with momentous responsibilities, but it was also able to solidify the belief that the use of personal initiative to seize military opportunities in the battlefield was the utmost expression of military skill and judgment.

The Palmach was not the only driver of the IDF's avoidance of the obedience imperative; there were additional factors encouraging IDF soldiers to practice independent decision-making. The IDF had COs who had been thoroughly trained to operate with little or no guidance. The pioneers of this training were Yitzhak Sadeh and Orde Wingate. Yitzhak Sadeh was one of the first officers commissioned in the Red Army in Russia and immigrated to Israel in 1936, where he set up a mobile unit of young volunteers from the Jerusalem Haganah (Luttwak and Horowitz, 1974, pp. 12-13). Charles Orde Wingate was a British Army officer and ardent Zionist who developed a fondness towards Jews while he was deployed with the British Mandate forces. He worked together with Sadeh and was responsible for the establishment of the Special Night Squads (SNS), which implemented night fighting and commando-style raids for a strategy of active defense (Ibid, pp. 14-15). Sadeh and Wingate both stressed the necessity of training soldiers to be able to operate with "cascading intents," which meant that an officer had to be able to observe and implement an intent regardless of their command echelon while also understanding that improvisation was part of their duty (Shamir, 2011, p. 84).

The second factor that allowed the IDF to escape the obedience imperative was the extreme diversity of the forces from which it was created. The Haganah, Palmach, and Irgun reflected different military traditions, which influenced the beliefs that future IDF officers. For instance, General Yigal Yadin, Chief of the General Staff after the War of Independence, was famous for saying that he had studied Liddell Hart and practiced Rommel's ideas in military operations (Rolblant, 1970, p. 14). General Israel Tal, commander of the Armored Corps prior to the Six Day War, had extensive military experience and training thanks to the British Army's Jewish Brigade and was credited with having introduced British military ideas into the IDF (Golan, 1968, p. 168). Shamir has noted that the IDF's command philosophy was, at its best, essentially an outgrowth of German command beliefs (2011, p. 87). To make matters more complex, the IDF thought it was important to avoid unnecessary communications and to limit organizational bureaucracy so as to avoid disruption of their operations should any officers be captured (Begin, 2002, p. 61; Luttwak and Horowitz, 1975, p. 11). Therefore, not only was the IDF assembled from different military experiences, but its members were used to operating on their own to avoid exposing their peers to the counteractions of the British mandate forces.

The diversity of the IDF's membership and constituent parts helped the force avoid the obedience imperative in another way: the fact that the IDF was made up of soldiers who did not always speak the same language meant that allowances had to be made for individual action. According to Eshel, during the War of Independence, it was not uncommon that one Tank Company would only speak Russian, another Tank Company would only speak English, and their German speaking Battalion commander, not knowing Russian, English, or Hebrew would issue orders with no assurance that they had been properly understood by the Tank Company's COs

(1978, p. 14). The IDF not only was assembled from different military schools of thought, but from different languages. Because of these reasons, the IDF bet on having skilled individual leadership at the lowest command echelons. Having a force made up of leaders at every level who were trained both to develop their own military judgment and to use it to make tactical decisions allowed the IDF to bridge the disparate military traditions and even languages from which it was assembled.

The Control Imperative

The IDF avoided the control imperative in large part due to the underground nature of its origins. The Jewish security forces that were assembled to protect the agricultural settlements, communities, and organizations in Israel were deemed a threat to the British mandate in Palestine (Allon, 1970, pp. 8-9). As a result, they were designed to be highly secretive, resistant to disruptions, and capable of operation even in the event of the capture of their leaders. In this section, I explain how this reality translated into the beliefs that allowed the IDF to avoid the control imperative in its culture.

The Haganah, Palmach, and Irgun shared a common organizational trait: they were highly decentralized. These forces were pursued relentlessly by the British Army in Palestine because one of them, the Irgun, often launched attacks against British personnel and Arab residents (Bowden, 1976, p. 6; Begin, 2002, p. 212). In this context, when these forces wanted to recruit, train, and field personnel to protect Jewish communities, they could not do so in the open; overt operations would have made them more susceptible to the British efforts to destroy them. As a

result, there was a deliberate decision to decentralize all operational aspects of these organizations. For instance, the Haganah relied on the Kibbutzim, Jewish agricultural communities, to recruit and train its personnel away from British surveillance efforts. In exchange for protection by the Haganah, the Kibbutz offered their facilities and grounds to train Haganah members, which reduced the Haganah's operational costs and risks to its forces (Luttwak and Horowitz, 1975, pp. 20-21; Perlmutter, 1969, p. 32).

Illegality and the need for survival then normalized decentralized command amongst the officers who would come to populate the IDF. This was evident in the conduct of its operations during and after the War of Independence. For instance, in 1948, the IDF was able to decentralize even Brigade-level decisions to the Company level, which helped the Brigade HQ to focus on the pressing supply and administration issues that required its attention (Eshel, 1978, p. 22). Since many officers had trained and fought in a setting in which they had to operate in decentralized cells, in war they saw a benefit in being able to decentralize decisions and to leave decision making to the officer on the ground so as to focus their attention on higher-level challenges. This in consequence led to the IDF promoting the belief that the commander's primary job was to define the objectives and timeline that their operations had to meet (Rolbant, 1970, p. 49). This was concomitant with the emphasis on individual skills described above. An empowered soldier could not realize his or her potential unless their commander understood that his job was not to tell them how to operate but the results they had to generate.

This emphasis on commanding by results was more than just creating a consistent paradigm to reconcile the role that a CO had in an army of highly independent soldiers; it was about creating the wider C2 interactions that were necessary for highly mobile warfare. The IDF understood that

mobile warfare hinged on C2 that made commanders comfortable with a degree of control that did not slow down the pace of operations. In order to accomplish this, communications between command levels could not overburden officers with decisions that required their endorsement, and thus maximum authority was decentralized to the point that an infantry platoon CO was expected to make battlefield decisions that, in other militaries, were often made by the Brigade commander (Rolbant, 1970, p. 49). Recall the Dayan example in the 1948 Operation Dani mentioned above. There, a Battalion commander deliberately disobeyed a Brigade commander's decisions in order to maximize the contribution of his operation to attain the Brigade's operational intent. This approach effectively allowed Majors, or Lieutenant Colonels at most, to directly disobey Colonels, making decisions typical made two levels above them.

The other source of the belief that the officer's role was to identify, but not personally bring about, a result stemmed from the IDF's long-standing experience with maneuver warfare. Since the creation of the Special Night Squads and the mobile patrols by Orde Wingate and Yizhak Sadeh, respectively, the Haganah had been exposed to mobile tactics and ambushes (Cedeno, 2015, pp. 8-9). To implement the mobile and unconventional tactics that were paying off for the pre-state Jewish communities, Sadeh and Wingate set up the theoretical and practical framework establishing that discipline had to coexist with improvisation. It was under this notion that Sadeh would establish underground field companies (Shamir, 2011, p. 84). These units and their beliefs concerning the roles of the officer and soldiers continued to influence the IDF throughout the first years of its existence. Thus, in the 1950s, dealing with the problem of Arab infiltrators, the IDF again turned to highly mobile tactics to surprise its adversaries (Ibid, p. 20; Sharon, 1989, p. 96). All of these experiences highlighted the benefit of structuring C2 interactions so as to prevent HQs

from having to endorse the decisions of the ground COs, which would have slowed down the pace of operations.

Like the IDF's beliefs regarding obedience, there was a nuance in its attitude regarding control. Some IDF officers, like General Tal, were more prone to directly involve themselves in the control of their forces as a result of their military experience with the British Army. These officers were so prominent and vocal, that Prime Minister Ben Gurion wanted to remodel the IDF in line with their approach (Schiff, 1974, p. 53; Cedeno, 2015, p. 13). Other IDF officers like Generals Yitzhak Rabin and Moshe Dayan were supporters of the belief that detailed control was not conducive to highly effective operations, however. Indeed, Dayan, sometimes to his chagrin, saw the benefits of letting go of the reins of operations so that his subordinates could exploit the evolving situation (Dayan, 1965, p. 91; Cedeno, 2015, p. 24). Between these extremes, officers like Ariel Sharon trusted their officers, since they could see the terrain better, but never left everything to their discretion (Landau, 1968, p. 164). This continuum of viewpoints resulted in the implementation of what can be termed "optional control". Under optional control, decentralization would be the baseline tendency of the IDF, but it was part of an officer's initiative to decide if his involvement with an operation was necessary for its success (Van Creveld, 1985, p. 228).

Despite the adherence to the notion of optional control, however, the general practice in the IDF was that a commander was very rarely to control in detail the actions of his subordinates. Accordingly, a commanding officer was likely to issue either abstract guidance or no guidance at all in how to attain an objective. This may be why the Agranat Commission, the blue-ribbon panel that the Israeli government organized to investigate the military failures behind

the Yom Kippur War and published the first formal after-action assessment of the conflict, found shocking levels of detachment and even lack of care in the guidance COs issued to their subordinates. For instance, the commission found that COs would generally give highly abstract guidance to their subordinates such as “exert a little pressure forward” (Sakal and Tlamim, 2014, p. 80). This order exemplified the IDF’s avoidance of the control imperative. The officer’s role was to identify the results that had to be achieved and his subordinate’s role started with deciding just how he could achieve them.

The Certainty Imperative

The IDF managed to avoid the certainty imperative thanks to two factors: the Arab nations were, and to some extents still are, determined to destroy Israel and, thanks to millennia of anti-Semitism, Jews had been barred from military circles. The first factor created a constant stream of danger that challenged Jewish forces on a daily basis, providing the grounds to put tactics and soldiers to the test. The second meant that Israel had no access to the military know-how to create soldiers and armies. Indeed, Jews throughout most of their history showed a total lack of care developing expertise in warfare (Cohen, 2008, p. 19). In this section, I explain how these elements helped the IDF avoid the certainty imperative in its organizational culture.

The threat environment faced by the few Jews who began a systematic effort to reclaim their homeland was very high. As Zionist organizations in Europe made a renewed effort to bolster the Jewish presence in Israel, there was also an effort to develop military solutions for the threats against Jewish communities. For instance, the earliest tactics of Jewish residents were to establish

defensive fire lines behind kibbutz fences and fire against incoming Arab attackers (Cedeno, 2015, p. 8). These tactics evolved thanks to the introduction of mobile and night tactics by Yitzhak Sadeh and Orde Wingate (Dayan, 1976, p. 45-46; Schiff, 1974, p. 18). As the Haganah and Palmach experienced great success with these tactics, future IDF soldiers were trained during the actual execution of military operations and adjusted their tactics based on their military results (Marcus, 2018, p. 59; Rolbant, 1970, p. 50). In essence, danger fueled a very adaptive and practical approach to war (Bar-Or, 2001, p. 264).

After Israel's victory in the 1948 War of Independence, there could have been a drive towards a more conventional approach to military training. Nevertheless, the practical approach to military education remained. The IDF was established with the understanding that the 1948 victory was a result of maintaining a high level of adaptability and functionality in its tactics (Allon, 1970, pp. 58-59). From the beginning of their training, Israeli soldiers were taught to improvise solutions to problems and act immediately once a situation deviated from the proscribed plan (Gal, 1986, p. 363). This led to a strong principle in the IDF: the only thing that matters in evaluating a soldier's performance is his reaction to uncertainty. For instance, officers being considered for command of a Brigade were given two days to prepare for field maneuvers and then, as the maneuvers began, they were told suddenly that the entire situation they had studied had changed. Additional changes were then announced throughout the maneuvers, with the officers always being thrown into the unknown (Rolbant, 1970, p. 98). In the end, the only thing that mattered to the IDF was what a soldier did while facing the unexpected.

This led to the key belief that allowed the IDF to avoid the certainty imperative. The IDF believed that a soldier must be trained to be "an action-oriented individual capable of conducting

many tasks swiftly and successfully” (Shamir, 2011, p. 88). Under this belief, the IDF doubled down on the notion that training had to refine the judgment of the soldier instead of providing him with doctrine, methods, or military theory. The constant demand for responses to ongoing Arab aggression meant that units were constantly put under the ultimate test of live combat and the losses it entailed. For instance, it was the retaliatory operations that the IDF had to carry out against the Arab marauders in the 1950s that revealed gross incompetence in the force and the need to improve its infantry training (Cedeno, 2015, p. 17). As a result, an experimental unit, Unit 101, was set up under Ariel Sharon to address these deficiencies. Landau explains that no one in the IDF knew precisely how the unit would ultimately improve its capacity to counterattack the Arab marauders while simultaneously improving the IDF’s infantry training, as they believe that the ideal combat tactics would have to be worked out experimentally on the job (1968, p. 161). This openness to accepting the uncertainty of not knowing *ex ante* how an experimental military unit was supposed to work paid off, as Sharon used this blank check to develop highly effective raiding tactics that would come to underlie the operations of the IDF’s paratroopers (Dayan, 1976, p. 173; Luttwak and Horowitz, 1975, p. 112). Armored tactics were also the result of improvisation. Indeed, the first IDF armored course consisted of trainees learning about their tanks by operating and maintaining them on their own as best as they could. This allowed them to develop original armored tactics that would guide them during the Yom Kippur War (Eshel, 1978, p. 25).

Separate from the constant threat to the country, antisemitism proved to be another important element that allowed the IDF to avoid the certainty imperative. The hatred for Jews until the end of Holocaust had different expressions throughout history. By and large, though, Jews

were treated as second-class citizens who were banned from entire professional fields such as agriculture or fields regulated by guilds (Botticini and Eckstein, 2003, p. 5). War was one of the fields from which Jews were barred throughout most of European history. The ban was so thorough that war was one of the few spheres of human endeavor in which Jews made no contribution until 1948 (Cohen, 2008, p. 19). Thus, until the IDF gained combat exposure, Jews had effectively been denied the chance to learn to protect themselves from adversaries and hostile forces for almost two thousand years.

The effects of anti-Semitism lingered after the creation of the state of Israel; even after the Six Day War, the IDF had problems accessing military know-how due to linguistic limitations. Since Israel was populated with the return of Jews living in exile around the world, commanders did not fully share a common language with all of their fellow soldiers. More importantly, of the waves of Jews returning to Israel, few spoke English. This limited their ability to access military papers and reports that could inform them of the lessons that other armies were learning from their operations.

All of these realities combined to create an unorthodox training and education system that further accentuated the belief that soldiers had to be trained to be action-oriented individuals. The IDF structured an education system that deemphasized academic education in favor of field experience. It was decided to forego having a military academy and instead rely on having officers with high levels of combat experience staff IDF units (Shamir, 2011, p.87). This meant that all the military know-how that the IDF developed came from its own combat experience and the people who were part of it. Finally, in some ways to its own institutional detriment, the IDF decided to create and maintain a Staff College that only lasted ten months. There was little

classroom reading and the Staff College failed to attract the best officers from the forces (Shamir, 2011, p. 92). This does not mean that the IDF disregarded foreign military experiences, but, when it did make use of such experiences, there was a heavy emphasis on customizing the lessons for the IDF's own practical needs instead of developing a theoretical understanding of combat.

Collectively, these beliefs and challenges led the IDF to see uncertainty as the normal state of war and the commander's judgment as the way to achieve the power of decision in such a setting. Indeed, until the Yom Kippur War, a constant message that all IDF soldiers received during training was that the power of decision making entails the acceptance of significant risks and that true decision making consisted of selecting a course of action when choices are difficult (Rolbant, 1970, p. 97). Consequently, the IDF spent significantly less time training their soldiers to execute a defined tactical template and more time focusing on developing their military judgment.

4.1.2. The Egyptian Army

The Obedience Imperative:

The Egyptian Army of 1973 was able to create a limited space for individual initiative and even developed some theoretical awareness of its importance. This was a remarkable, albeit relatively limited, change that was a definite break with the historical beliefs the army maintained regarding obedience in combat. In 1973, the army believed that it was important to foster initiative throughout its officers and soldiers but at the same time it was unable to realize that achieving this goal would require a deeper change of its institutional beliefs. In this section, I describe how, despite the legacy of its beliefs, the Egyptian Army was able to change plans in time for the

execution of Operation Badr, the codename of the offensive launched against the IDF on Yom Kippur day of 1973.

The history of the Egyptian Army was shaped by the British and Ottoman Empires. Muhammad Ali first created the Egyptian Army in order to fight the Ottoman Empire and establish an independent Egyptian state, only to have the Sultan defeat him with the help of European powers (Pollack, 1996, p. 161). After this effort floundered, the British Empire took over Egypt and turned its army into an auxiliary force. As a result, Egypt's military then degraded to the degree that, by May 1942, the Egyptian Territorial Army was considered useless (Perlmutter, 1974, p. 27; Vatiokis, 1969, p. 351). It was in this context that the Egyptian Army had its first conventional warfare experience in 1948, when it attacked Israel.

In terms of the obedience imperative, throughout most of its modern history, the Egyptian Army was an oppressive organization that reflected and consolidated the class and social cleavages of Egyptian society. In 1842, when Muhammad Ali's was forced to recruit the Egyptian *fellahen* into the army, the Ottoman Staff College only accepted Ottoman or Mamluk officers from Constantinople (Perlmutter, 1974, pp. 23-24).³¹ By 1880, the Egyptian Army officers were in such a disadvantageous situation relative to Ottoman officers that they had to storm the War Ministry to press for promotions (Vatiokis, 1964, p. 147). To make matters worse, the *fellahen* were deeply imbued with tribal cultural traits, mostly reflecting Bedouin societal values, in which warfare was highly ritualized and compliance was of utmost importance in combat (Bowyer Bell, 1975, pp. 8-

³¹Fellahen is plural for *fellah*, which is a concept that describes an Egyptian or Arab-speaking agricultural worker. The fellahen were recruited by Ali only when his original plan to use African slaves for the army did not work out. See Perlmutter, A. (1974). *Egypt, The Praetorian State*. New Brunswick, Transaction Books, p. xiv

9). Thus, by the twentieth century, the Egyptian Army was made up of mostly compliant and passive soldiers who had no exposure to the idea of individual initiative in war.

After its defeat in 1948, Egypt went through a revolution led by Colonel Gamal Abdel Nasser. Nasser's revolution did not do much to solve the army's problems and, in some cases, made them even worse. The tribalism that was an organizational trait of the Egyptian Army was turned into what Pollack calls Commissarism, the co-opting of military leadership to guarantee their allegiance to political leaders (2018, p. 81). With Nasser in power, there was a drive to ensure that the Free Officers Corps, the revolutionary government that supported Nasser, gained control of the army to secure its obedience to the new leadership. Nasser appointed Major Abdel Hakim Amer, who eventually was promoted to Field Marshal, as Commander in Chief of the Armed Forces and he, in turn, proceeded to appoint officers who were loyal to both him and Nasser throughout the command structure of the army (Pollack, 1998, 171). General Abdul Munim Riad, who died in a foxhole along the Suez Canal during the Egyptian Israeli War of Attrition of 1968-1971, observed that the years of Commissarism had a disastrous effect on the army. For Riad, the army was in disarray, with nepotism and leaders trying to profit from their office (Aboul-Einei, 2004, p. 14).

Nasser's revolution left a devastating effect in the army. While educated Egyptians were consistently given exemptions for military service, the poor and illiterate peasants were required to serve in the army (Barnett, 1992, p. 92). These recruits were then subject to despotic treatment and were not even given basic literacy to perform their military duties. In the Egyptian Army, corporal punishment was pervasive with officers and NCOs punching their men (Armstrong, 1983, p. 162; Pollack, 1996, p. 172). More generally, the army officer corps became solely invested in

external symbols of modernization at the expense of the internal reality of the army (Bowyer Bell, 1975, p. 11). For example, Nasser hired a German military mission led by former WWII commanders to design the Egyptian training program as well as advise Egyptian field commanders (Pollack, 1996, p. 171). This was all a waste, however, as long as Nasser continued policies that reinforced the terrible socio-economic divide that the army maintained since the days of Ali.

In parallel with Nasser's revolution, the Egyptian Army's wartime experience reinforced the asphyxiating nature of its obedience imperative. During World War I, the British Empire took over the protection of Egypt without incorporating its army into the defense effort, despite the fact that Egypt had a 15,000-soldier force trained by British officers like Lord Kitchener himself (Chatham House, 1952, p.3; Vatiokis, 1964, p. 191). During the interwar years, the Egyptian Army remained modelled and trained along British Army procedures and organizational patterns, which, as discussed in Chapter 3, had a conformist culture that was dominated by the obedience, control, and certainty imperatives. It was then sidelined again during World War II (Vatiokis, 1964, p. 279). Thus, during the two world wars, the Egyptian Army was largely an inert and inconsequential player that was not exposed to the high-intensity combat that might have given its officer corps an understanding of modern warfare.

After WWII, the Egyptian Army collapsed several times in the battlefield, only finding some form of redemption in the ability of its soldiers and units to stand their ground. In 1948, although Egyptian soldiers were courageous in local and point defenses, the army largely remained motionless even while it was being outflanked by the IDF for two days at al-Aujah (Pollack, 1996, p. 169). Eight years later, this same conformism took a significant toll on the army. At Abu Ageilah, "Egyptian local commanders consistently waited for directions from the highest levels

before undertaking any actions,” allowing a small Israeli force to outmaneuver them without even a single Egyptian blocking attempt (Ibid, p. 183). Finally, in 1967, there were reports of Egyptian pilots plainly refusing to fly their fighters on the grounds that they had no orders to do so (Badolato, 1984, p. 71). Summing up Egypt’s performance during these years, Pollack explains that “Egyptian junior officers showed little ability to innovate or improvise responses once the course of the battle deviated from their original orders; when forced they either did nothing or continued to execute previous missions" (Pollack, 1996, pp. 182-183). The Egyptian Army in 1967 was a force plagued by the obedience imperative.

Egypt’s defeat in the 1967 Six Day War was traumatic for the country and its military. The Egyptian Army suffered 63,000 casualties, lost 965 tanks, and had 444 aircraft destroyed (Cordesman, 1987, p, 25; Asher, 2009, p. 14). The defeat even led Nasser to offer his resignation, entrusting the Presidency to Zakaria Muhi al-Din (Gamassy, 1993, p. 72). To make matters worse, Egypt paid a heavy economic price for the defeat, as the Suez Canal was effectively closed and Israel controlled the Sinai’s oil fields (Asher, 2009, p. 14). Egypt was left in an extremely vulnerable position.

These adverse consequences of the defeat led the Egyptians to make significant improvements in their military. The Egyptians aimed to rebuild their army from the very root of the organization, both materially and morally (El Badri, Maghdoub, Bin Zahdi; 1978, p. 10). To begin with, Nasser, who had been a staunch supporter of Commissarism in the army, began its depoliticization by personally selecting all Egyptian officers from the rank above Colonel and emphasizing merit in the hope that this shift in promotion standards would spread through the military (Gawrych, 1987, p. 547; Pollack, 1996, pp. 220-221). It seems that, this time, Nasser was

looking solely at the officers' military merits and results. In the words of Pollack, Nasser "scrupulously chose only the most competent and most thoroughly apolitical officers" (1996, p. 220). Thus, Nasser now deliberately looked away from politics and concentrated on skill. Consequently, the Army shed 800 officers from the rank of Colonel and higher who were forced to resign, some of them charged with military crimes, the perpetration of which had led to a massive loss of public face for the army (Gamassy, 1993, pp 75-78; Pollack, 1996, p. 220).

As a result of these efforts, however, more seasoned, educated, and skilled Egyptian officers took the helm of the army. During their review of the 1967 performance, these officers finally understood that their army was not designed for fluid combined arms operations (Pollack, 1996, p. 232). The new Minister of Defense, General Mohammed Fawzi, spotted significant flaws in the internal makeup of the army that could not be fixed through simply signing new arms deals with the Soviet Union. For instance, Fawzi believed that "proficiency has to begin with the individual soldier" (Aboul Einei, 2014, p. 105). This was a massive shift. For the first time, Egyptian Army commanders saw in the lowest soldier, one who traditionally has been treated with contempt, the key to building military effectiveness. Fawzi also argued that "intellect is the core of what makes a good fighting force" and the army chief of staff was assigned responsibility for its training standards (Ibid, p. 106). This was a massive leap, as Nasser had focused previously on arming the military without training or improving the quality of its soldiership. Fawzi's successor, General Ahmad Ismail Ali, would continue this emphasis, as he intended to "change the old concept that arms make the man to the man makes the arms. Unless our men were confident in themselves their arms would never protect them" (O'Ballance, 1978, p. 25). The army became, at

least theoretically, aware of the importance of exchanging the compliant officer and soldier for a skilled soldier who could use his intellect to fight.

With this newfound awareness, the army's General Headquarters (GHQ), incentivized more collegiality and even initiative in the force. Because the army's leadership had this theoretical understanding of the importance of the individual, there were now calls from ranking Egyptian generals to allow individuals to use their initiative on the battlefield. General Riad, who was the army's chief of staff between 1967 and 1969, urged his subordinate generals to give junior officers chances to excel and learn from their mistakes, and even to solicit advice from lower ranks before making a military decision (Aboul-Einei, 2004, p. 15). This does not seem to have merely been a rhetorical effort. After 1967, the training program for higher level officers was revamped to emphasize improvisation and a reduction of the officer-enlisted gap in the army (Pollack, 1996, p. 233).

Before 1967, the army allowed its officers themselves to become a political elite, as many came from the upper strata of Egyptian society (Perlmutter, p.1974, p. 115). These officers had very little in common with the poor *fellahen* who was recruited into the Egyptian Army to serve as soldiers. The result of this social distance was that officers rarely cared for their soldiers, and in many cases abandoned them in the direst circumstances (Pollack, 1996, p. 213). The Egyptians aimed to create more proximity between officers and soldiers to be able to generate links of trust that could improve tactical performance during operations. General Ismail placed a high emphasis of this matter as he promoted a new attitude. Officers had to care for their soldiers and were to remain with their troops until they "got used to eat[ing] sand" (O'Ballance, 1978, p. 26).

This shift affected how the army's generals prepared for the Yom Kippur War. Crucially, however, this drive away from the obedience imperative remained limited in its impact, shaping only higher command echelons of the army while lower echelons remained wedded to the old patterns of belief and behavior. The drive for a greater consideration of the Egyptian soldier did not put an end to harsh treatment, as corporal punishment remained unchanged up until 1979 (Armstrong, 1983, p. 162). Furthermore, the calls for initiative and independence were not reflected in concrete training programs or in personnel policies in the army at large.

The Control Imperative

Unlike the modest liberalization in its beliefs about obedience, the Egyptian Army remained tightly wedded to the control imperative until the Yom Kippur War. Indeed, while the 1967 defeat contributed to a modest change of beliefs regarding obedience, it strengthened the notion that centralized control was a sine qua non of military success. In this section, I present the evolution of the Egyptian regarding the control imperative.

As explained above, the Free Officer's revolution led to the practice of Commissarism in order to secure the loyalty of the army. However, Commissarism was not just a criterion for personnel selection; it also shaped command practices that centralized the entire military command structure around the defense minister, Field Marshal Amer. Under his aegis, Cairo kept a tight rein on all its field commanders by requiring GHQ approval for all of their command decisions in the field (Pollack, 1996, p. 183). This eventually turned Amer into a threat to Nasser himself, as the entire Egyptian Army was growing unified behind him (Brooks, 2007, p. 118). Amer's

centralized control was so significant that, only three weeks before the Six Day War, he created an entire major combatant command, the Front Command, to give him a direct link with the Sinai operations that were supposed to be under the command of the field army on the peninsula (Ibid, p. 120). In short, the army at this point believed not only that control had to be centralized, but that it had to be centralized at the highest political level.

As a result of this belief, the army became a sclerotic force that moved and operated extremely slowly. Dayan explained that “the Egyptians are what I would call schematic in their operations, and their command headquarters are in the rear, far from the front. Any change in the disposition of their units ... takes them time-time to think” (1965, p. 35). Pollack also observes this trend. In 1948, the main Egyptian force that invaded Israel took two days to send two infantry and one armored Battalions against an Israeli position defended by a Company only to be repelled in three hours by the Israeli Company (1996, p. 163). In 1967, an armored Division took two full days to cover 90 Km while an Israeli unit could move 150 Km in only one day (Ibid, p. 182).

The Egyptian centralization around Amer meant that field commanders could not make decisions without his approval. During the Six Day War, Amer forced the Sinai commander to follow his exact instructions until he arrived at the Sinai to take direct control of the operations (Gawrych, 1991, p. 281). This was not an issue confined to the Sinai. In Yemen, Egyptian formations refused to move and fight on their own initiative, waiting for even the most minor decisions to be made by Sanna HQ (Pollack, 1996, p. 192). This was the army that collapsed in flames in 1967. At the height of the Israeli offensive, GHQ was approving and countermanding orders to its field commanders while its communications networks were repeatedly cut off (Gawrych, 1991, p. 298).

While the shock of the 1967 defeat was strong enough to force the army to consider alternative viewpoints regarding the type of obedience it needed from its soldiers, in the case of the control imperative, the defeat only made this belief stronger. The irony is that this effect is not due to some staunch lack of trust of their subordinates by Egyptian commanders, but rather to a rarely seen, honest post-operational assessment prepared by the army to define a plan for their return to the Sinai Peninsula. In it, the army argued that the kind of control that could produce a favorable military result was one that was used in the framework of a thoroughly researched operational plan. This in consequence meant that control had to be centralized at the highest level where thorough operational research was possible. In the case of the Egyptian Army, this meant that General Ismail, the Minister of Defense, became the controller of the field forces (Sunday Times, 1974, p. 340).

The assessment also revealed the kind of operations for which the army was more capable. The army was not designed for fluid maneuvers required by highly mobile armored and mechanized operations incorporating, as needed, different combat arms (Pollack, 1996, p. 232). With the honesty of this self-appraisal, the Egyptians also decided to build their tactics from their existing strengths. In particular, army leaders sought to exploit the fact that their soldiers did excel when fighting from fixed defenses, when they could direct their fire in an interlocked pattern at anticipated lines of approach from well-prepared positions (Ibid, p. 212, 230). This insight effectively became the Egyptian operational plan for 1973. Specifically, Ismail was determined to advance across a line that could be used to establish an anti-tank and anti-air defense umbrella that would give the army the fixed positions it needed to fend off Israeli counterattacks (Aker, 1985, p. 43). The result of this emphasis on fire support was that the army chose to maintain its

centralized control so as to coordinate the advance of its forces with the timing and range of its artillery.

With this operational preference, centralized control was an essential instrument for the army. The army leadership committed to operate from a centrally conceived plan, putting its efforts into preparing its soldiers to execute it thoroughly (Sunday Times, 1974, p. 221). The army appears to have never questioned the need for strong centralized control. For instance, General Ismail ignored the Air Force staff, personally designing the air strike against Israeli communications, and personally controlled the actions of Egyptian field officers through the operational plan he designed with only seven other Arab officers (Sunday Times, 1974, p. 67, 221). That is, the Minister of Defense bypassed the entire organizational apparatus of the Egyptian Army to personally research and devise the operational plan for Egyptian soldiers on the East bank of the Suez Canal. Ismail, who had been trained in the Frunze War Academy in the Soviet Union, decided that, if there was any hope for success in crossing the canal, he had to fully apply his military capabilities to devise a military solution which, concomitantly, required him to maintain the same level of centralized control that Field Marshal Amer maintained in 1967.

Thus, the control imperative remained quite strong in the army throughout the 1948-1973 period. Before its collapse in 1967, the army's decisions were made by a politicized Minister of Defense whose primary concern was to cement his power in the government. After 1967, the center of decision-making was moved to a professional soldier who took it upon himself to remotely control the actions of his forces against Israel.

The Certainty Imperative

Just as the honest assessment of its performance in 1967 strengthened the Egyptians' commitment to the doctrine of centralized control of its forces, it also cemented their adherence to the certainty imperative. The honest assessment reaffirmed Egypt's predilection for a schematic and linear understanding of combat that the army originated from its experience under British, and later Soviet, guidance. Notably, however, the army did not blindly copy the methods it derived from its external sources of influence. In this section, I explain how the army developed its own strong understanding of why the certainty imperative was important for its success in the Yom Kippur War.

One of the most consequential legacies the British Army left behind in Egypt was a predilection for schematized tactics. As described in Chapter 3, during the early twentieth century, the British Army's staff and tactical training emphasized detailed planning and a methodical approach to war. This was the curriculum to which future Egyptian leaders like General Ismail were exposed, and which played a key role in influencing their understanding of the importance of the certainty imperative (Dupuy, 1978, p. 388; Armstrong, 1983, p. 162). A central element of this preference of British tactical methods, which at that time emphasized concepts such as linear defenses, was clearly seen in the army's operations after Egyptian independence. When the Egyptians advanced against Israel in 1948, they settled into a long line of fixed defenses that were broken into pockets by the IDF (Armstrong, 1983, p. 147; Pollack, 1996, pp. 162-163).

After the 1948 war, while Field Marshal Amer was busy building up his political influence in Egypt, training was completely abandoned to the point that most Egyptian divisions

only prepared for a single operation, usually a defensive one. For instance, for almost a whole year in 1966, the only training that the 11th Infantry Division had was to rehearse its defense of El Arish (Aboul-Einei, 2004, p. 31). Furthermore, most Divisions held no Divisional-level exercises after 1954 (Ibid, p. 23). General Fawzi plainly explained that the sole principle that guided the scant training the army received was practicing defensive warfare to the point of becoming a human Maginot line (Ibid, p. 29). Egyptian defenses continued to emphasize strengthening positions as a means of blocking adversaries, as had been their practice in 1948, demonstrating a clear preference for following established methods. Furthermore, defensive operations could be easily trained and repeated so as to allow participants to memorize their roles and actions in case they had to face an adversary.

With the beginning of the Cold War and Nasser's moves against British influence in Egypt, a new source for military art emerged, namely the Soviet Union. The Soviet Union was an essential military partner for Egypt, as it supplied countless weapons systems to the army during its struggle against Israel. Furthermore, the Soviet Union was an important source of professional military education for Egypt. Most of the Egyptian senior commanders, including General Ismail, were educated in the higher direction of war at the Russian Frunze Military Academy (Armstrong, 1983, p. 162; Dupuy, 1978, p. 388; Sunday Times, 1974, p. 221). With the Soviet influence on Egyptian military education came a new operational approach to campaign design. Egypt had been a victim of poor and unreliable military planning that, in the case of the 1967 defeat, was a major factor for its collapse on the battlefield (Gawrych, 1991, p. 301). Now, under the influence of Soviet military education, the leadership that took over the helm of the army after 1967 realized

that planning and the strict adherence to it could be the key to recapturing the Sinai and achieving victory over Israel.

The Egyptians decided to put into practice the scientific and discrete approach to operational planning that they learned from the Russians. According to Herzog, the Soviets trained the Egyptians to take a military problem, analyze it, derive a solution, and turn the solution into a plan that was to be executed (Herzog, 1975, p. 35). This may have seemed like a sensible approach to solving military operational problems. However, the Egyptian Army turned this process into a rigid method that was practiced at the top of the army and kept subordinates completely cut off from any form of meaningful contribution to the planning. In essence, General Ismail and his staff at GHQ became the only ones who during a six-year period practiced this process and derived from it an entire operational-tactical script for the army (Pollack, 1996, p. 198; O'Ballance, 1978, p. 27).

It was this top-level planning that was directed towards the exhaustive study of even the smallest military details so as to create a recipe that the Egyptian officer merely had to execute. For instance, the canal crossings were so exhaustively studied that complete models of the Israeli positions were built on the Egyptian side of the Canal and entire units were intensively trained for a single purpose, such as firing their anti-tank weapons (Palit, 1974, p. 40). The detail of the planning effort went as far as issuing military directives describing the exact task of every soldier and how much military gear he had to carry so as to allow officers to just read the relevant part of the directive and train their subordinates in a repetitive way to achieve its execution (O'Ballance, 1978, p. 27).

The Egyptians thus decided to apply the full scientific analysis power of their senior commanders to anticipate and neutralize the role of uncertainty and chance in the operation (Armstrong, 1983, p. 164). While the Israeli army relied heavily on training the tactical judgment of its soldiers and having them apply it to the challenges brought by uncertainty and chance in war, the Egyptian Army decided to limit this quality to its senior staff. Egyptian senior commanders took it upon themselves to study every possible scenario that could emerge in the operation and anticipate solutions so that their soldiers had to merely execute. Indeed, the Egyptians took pride in this procedure, declaring that they “doggedly adhered to a comprehensive pre-conceived strategic and tactical plan ... (with) no departures from the plan, no improvisations, and no unauthorized initiatives by local commanders” (Sunday Times, 1974, p. 221).

The specific form of the Egyptian adherence to the certainty imperative was not merely a result of its application of Soviet planning methods, however. Though the Soviets were influential in Egyptian military planning and acquisitions in the years preceding Operation Badr, the fact of the matter is that Soviet influence was weaker than Egypt’s own cultural influence in determining the planning and conduct of the army’s operations (Pollack, 1998, p. 645). Furthermore, when the initial implementation of Operation Badr seemed like an unexpected success to the international community, Egypt went out of its way to deny that Soviet involvement had been the cause of their success (Dupuy, 1978, p. 390).

The Egyptian approach to armored warfare seems to corroborate their assertion of independence. Asher has explained that, quite contrary to Soviet combat doctrine, the Egyptians were extremely risk averse and cautious in the way they used their armor in operations, to the point that they invalidated any decisive use of tanks (2009, p. 128). The Egyptians decided to relegate

their tanks to a secondary role, preferring instead to use infantry with powerful anti-tank weapons as their main combat asset, supported by Egyptian artillery on the west bank of the Suez (Rabinovich, 2004, p. 29). This choice seems to have been the result of the Egyptian Army leadership's extreme fear of the unexpected results that maneuver operations could bring. As General Ismail explained, his main priority during the war was to protect his forces (Sunday Times, 1974, p. 222; Palit, 1974, p. 38). Thus, it appears that the certainty imperative was so powerful in the Egyptian Army that it actually led the Egyptians to invert Soviet combat doctrine and make infantry, not armor, the most powerful asset in its arsenal so that it could protect the force's advance from the unknown and potentially dangerous consequences of maneuvering against the IDF. For the certainty-driven Egyptian Army, Soviet combat doctrine was too risk-prone to be acceptable.

Another uniquely Egyptian driver of the Army's adherence to the certainty imperative was the lesson derived from its previous misapplication of mass. Part of the post-1967 operational assessment revealed that Egypt never committed a significant part of its combat forces to operations in that war, with nearly 75% of Egypt's soldiers never seeing battle (McGregor, 2006, p. 22). With this in mind, Ismail committed to designing a plan that exploited this previously untapped force in order to simply overwhelm the IDF by launching assaults all along the Suez Canal (O'Ballance, 1978, p. 24). Egypt was determined to use its material superiority to deny the IDF any chance to surprise its forces. The premise was simple: if Egypt overwhelmed the entirety of the Suez Canal with forces so as to prevent the IDF from even guessing which could be the main Egyptian axis of advance, there was absolutely no way the IDF could surprise the Egyptians. In order to achieve this application of Egyptian material superiority, it was necessary

to have a master plan that determined what the officers in the field should do. Thus, the Egyptian belief that they could extract certainty from the focused application of their material superiority was a strong determinant of their attachment to extreme and detailed planning.

The end result of all of this was the consolidation of the certainty imperative in the Egyptian Army. A long-standing dependence on rigid tactical methods and the influence of the Soviet approach to planning as a scientific enterprise made certainty a necessity (Herzog, 1974, p. 34). Although there is some debate as to the degree to which the Egyptians were a carbon copy of Soviets, the reality is that their preparation for the Yom Kippur War was dominated by the idea that thorough and detailed planning could help them achieve success and avoid being surprised in the battlefield (Pollack, 1996, p. 198; Asher, 2009, p. 128; Dupuy, 1978, p. 390). Hence, the Egyptians remained steadfastly committed to their search for certainty in combat on the eve of their offensive against Israel.

4.2. The Armies' Cultures and Their Expected Performance

Before examining the IDF's crossing of the Suez Canal in detail, I must set my theoretical expectations for the belligerents' performance during the battle. The IDF avoided all three imperatives in its organizational culture, reflecting its commitment to a balanced culture. In concrete terms, since the IDF avoided the obedience imperative, its soldiers should be more likely to find creative solutions to local military problems. Because the control imperative was also avoided, Israeli soldiers should be more empowered by sufficient command decentralization to

make momentous and complex decisions on their own. Finally, since there was no certainty imperative in the IDF, its officers and soldiers should all be able to embrace risk in combat operations while applying their professional military judgment to unexpected and ambiguous events.

The Egyptian Army, by contrast, had a culture of hierarchical independence. It experienced a significant, though limited, change in its beliefs regarding obedience but it still clung to the control and certainty imperatives. As I explained in Chapter 2, the certainty imperative represents the army's beliefs that organizationally endorsed techniques and plans have precedence over customized, contextually driven tactical solutions and the control imperative represents the belief that allowing officers to pressure subordinates to produce pre-established results is superior to devolving command power to subordinates. Thus, there is a hierarchy of beliefs that puts the army's internal environment, which requires order and compliance, over its external environment, which often requires adaptability. Combined, the Egyptian Army's approach to the three imperatives fostered a hierarchical independence organizational culture.

Having a hierarchical independence organizational culture, I expect the Egyptian Army to display lower levels of military effectiveness than the IDF. First, because the obedience imperative was deemphasized significantly, there should be instances of officers acting on their own initiative in the battle. However, because the certainty and control imperatives remained strong, those cases of initiative are likely to coexist with officers being the victim of detailed control efforts by GHQ and officers being unable to change their pre-established plans in response to changing situations. Furthermore, I expect Egyptian troops in general to remain passive

executors of senior officers' plans, with no opportunity to take their own initiative in response to unexpected developments encountered on the battlefield.

In terms of military power, holding all else equal, I expect to see a marked advantage in favor of the IDF. Given its ability to generate higher levels of military effectiveness, the IDF should be able to overcome its Egyptian adversary by being able to act at a higher operational tempo while also being able to inflict more casualties upon its adversary. By contrast, the Egyptian Army should evince a more cumbersome operational tempo while being unable to inflict large numbers of casualties on the IDF in the process.

4.3. The Battle

Strategic Context:

After the 1967 Six Day War, Israel experienced a significant strategic change in its threat environment. Israel's victory in the Six Day War gave it control of the Sinai Peninsula, a large space of territory that separated key Israeli cities from the Egyptian forces. At the same time, in the IDF, there was a complete misinterpretation of the lessons of its victory in 1967. General Israel Tal, who commanded the Armored Corps and was Deputy Chief of Staff during the Yom Kippur War, argued that it was necessary to create all-tank Brigades with no infantry support elements because the latter had not kept up with the former during the 1967 war (Eshel, 1978, p. 88). Tal argued that the force protection, firepower, and mobility offered by tanks when used in mass against Egyptian defenses was a much better investment of the IDF's limited military budget than

expanding infantry forces (Eshel, 1989, p. 88). Despite the opposition of some IDF officers, Tal's argument for pure tank formations won the day, and the IDF went ahead stripping the majority of its armored formations from other combat arms (Pollack, 1998, p. 236).

The IDF also drew overoptimistic assumptions regarding the role of the Israeli Air Force (IAF) in its mobilization scheme. By 1973, the IDF assumed that it was going to be able to use the IAF to "close this gap [between the IDF and enemy soldiers] during the first 24 to 48 hours," which was how long the complete mobilization of IDF reserves would take (Sakal and Tlamin, 2014, p. 29; Cohen, 1999, p. 87). This assumption was especially critical in the case of the Sinai. After Israel occupied the East bank of the Suez Canal in 1967, it was assumed that the canal could be held by a series of water obstacles, forts, and quick reaction forces backed up by an Armored Division. This defensive deployment was called the Bar Lev Line. The plan was for the IAF to be able to provide Close Air Support (CAS) for the Armored Division until the reserves being mobilized from the main Israeli cities, almost 700 Kms to the east, could arrive to the area. Altogether, the IDF was betting much of its defense efforts in the Sinai on two overoptimistic expectations: the tanks alone could penetrate any Egyptian defense and the IAF would help them make up for any shortages in manpower or units.

The Armies

The Egyptian-Israeli military balance was almost even, except in artillery, where the Egyptians held a significant advantage. The Egyptian Army had 2,300 tanks, 2,200 artillery pieces and 400 combat aircraft while the IDF had 2,100 tanks, 867 artillery pieces, and 358 combat aircraft (Sakal and Tlamin, 2014, pp. 76-77). Egypt did enjoy significant technological advantages, though. Egypt's main tank, the T-62, had a 115 mm smoothbore gun and up to 102

mm of frontal armor. The lead Israeli tank during the battle was the Centurion, with a L7 105mm gun and turret armor of 152mm, while most of the armored forces operated older WWII Shermans that had been upgraded (O' Ballance, 1978, p. 54). At the same time, Egypt increased the strength of its infantry by incorporating into the army powerful infantry fighting vehicles (IFV) such as the BDRM-2, which could carry six AT-4 Sagger Anti-Tank Guided Missiles (ATGMs), while Israel significantly neglected the mechanization and firepower of its infantry corps in the years preceding the war in favor of modernizing its Armored Corps (Dupuy, 1978, p. 346; O'Ballance, 1978, p. 24). Egypt had a modest material and marked qualitative advantage in its infantry and armor.

The Egyptians designed their force structure to neutralize its shortfalls and accentuate its strengths. They had two armies in different bridgeheads on the east bank of the Suez Canal. The Second and Third Armies, which were actually the size of a Western Corps, totaled 80,000 soldiers in control of nearly 3,400 different types of recoilless anti-tank weapons like the RPG-7 and the AT-4 Sagger ATGM as well as 1,300 tanks. They were protected from Israeli air attacks by 130 surface-to-air missiles (SA-2s and SA-3s) in addition to other Man-Portable-Air-Defense-Systems (MANPADS) and anti-air artillery (O'Ballance, 1978, pp. 147-155; Asher, 2009, 136; Dupuy, 1978, p. 402). This structure protected the crossing armies with a powerful anti-tank and air defense shield that spared them from having to fend off Israeli air-ground operations, which had nearly destroyed the Egyptian Army in 1967. In addition, the Egyptian force structure accentuated its soldiers' skill at defensive operations by giving them the tools necessary to produce stand-off fires against the Israeli armor attacks that, in some cases, bled white entire IDF Armored Battalions (Dupuy, 1978, p. 429). The structure of these forces can be seen in Figure 15:

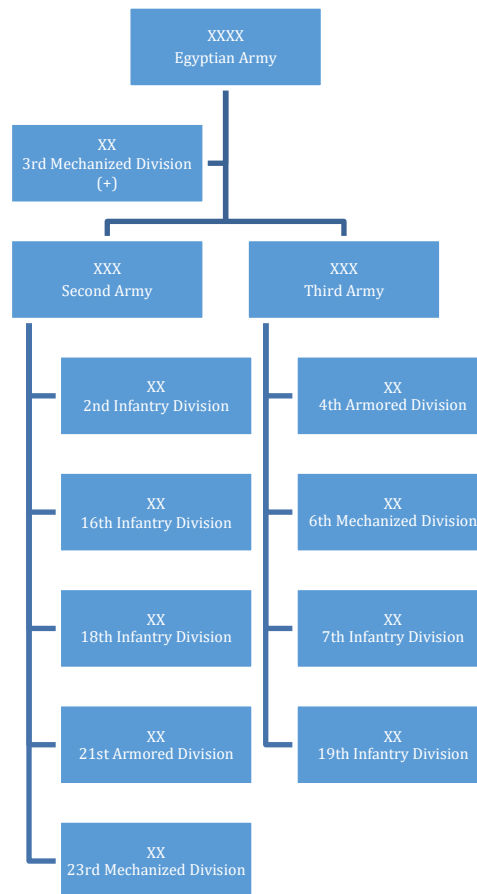


Figure 15

Facing the Egyptian Armies was the IDF's Southern Command. Southern Command had at its disposal the 143rd, 162nd, and the 252nd Armored Divisions (Pollack, 1996, p. 245). At the beginning of the war, the IDF only had 18,000 soldiers, 300 tanks, and 53 artillery pieces in the entire Sinai Peninsula. These numbers increased to 72,000 soldiers, 800 tanks, and 80-100 artillery pieces as the 143rd and 162nd Armored Divisions were mobilized into combat (Pollack, 1998, p. 236; Sakal and Tlamim, 2014, p. 217; Cordesman, 1987, p. 33; Dupuy, 1978, p. 489). The structure of these forces can be seen in Figure 16:

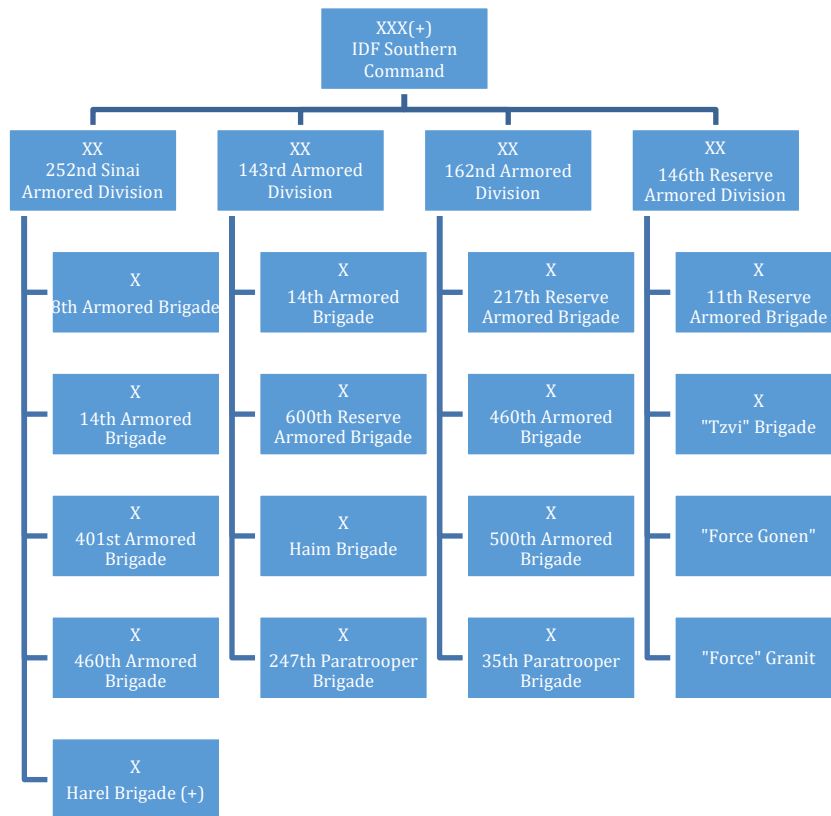


Figure 16

The Egyptians Victorious' Advance

The IDF was both strategically and operationally surprised by the Egyptian Army's attack on Yom Kippur Day (6 October) in 1973. When the Egyptian Army attacked the Bar Lev line, the IDF had barely 10 soldiers per kilometer while Egypt attacked with 300 soldiers per kilometer (Sakal and Tlamim, 2014, p. 77). This was a massive 30:1 advantage in favor of Egypt. In addition, while the IDF had reserve soldiers manning the line, the Egyptians had thoroughly trained soldiers who had rehearsed their attack almost 35 times during the previous six years (Pollack, 1998, p. 232). As a result of the extensive planning that the Egyptian General Staff had conducted, the

army was able to clear the Bar Lev line obstacles and defensive positions very quickly. As the Egyptian Army was consolidating its bridgeheads in the following days, it began deploying its anti-tank layered defenses. These formed a continuous front along which the army deployed lines of infantrymen with their anti-tank weapons to meet the IDF counterattacks (Asher, 2009, pp. 89, 143). Behind them, Egyptian armor was massed and held in reserve for the time that a breakthrough and exploitation could be executed towards the Sinai passes (Ibid, p. 88).

Egyptian infantry inflicted massive casualties on the IDF's counterattacking all-tank formations, especially as the IAF's ground support expectations proved unrealistic. By 7 October, the Israeli 252nd Armored Division reported that it lost a third of its 290 tanks (Herzog, 1975, p. 158). Thanks to the Egyptian communications intelligence capability, the Egyptians also managed to find the precise location of General Madler, CO of the 252nd Armored Division, and kill him during the course of his counterattack (O' Ballance, 1978, p. 157). In another case, General Seedad, commander of the Egyptian 2nd Infantry Division, improvised an ambush with a force of anti-tank weapons that managed to destroy the Israeli 190th Armored Brigade when it tried to counter-attack the Hizayon area (Ibid, p. 189; Dupuy, 1978, p. 429). At Kantara, the Israelis suffered 200 casualties and lost 13 tanks when they attacked the Egyptian defenders (O' Ballance, 1978, p. 156). In the counterattacks led by the Israeli 162nd and the 143rd Armored Divisions in the Central Sinai, the Egyptian forces repulsed the attackers with no significant difficulty and inflicted heavy losses on the 162nd division, eliminating 70 of its 170 tanks (Eshel, 1989, p. 133).

Because Israel failed to penetrate the lines, there was no way for it to eliminate the Egyptian SAM defenses. The Egyptian SAM umbrella inflicted major losses on the Israeli A-4s, which led the IAF to conclude that they could not have any meaningful impact in the Southern front so long

as that protective dome remained in place (Sakal and Tlamin, 2014, p. 337). Facing CAS requests from both Northern and Southern Commands, the IAF was unable to meet most of the demands of the latter until 15 October. It is important to remember that, in the North, the Syrian Army launched a massive Armored offensive against the IDF forces in the Golan Heights at the same time Egypt was advancing into the Sinai. This attack played a key role in the Egyptian campaign because the events in the North would eventually come to demand that more Egyptian pressure be generated in the South to prevent the IDF from concentrating its Brigades in the North.

Despite these seemingly outstanding Egyptian successes, on 14 October, the offensive began to unravel for the Egyptian Army for two reasons. First, Operation Badr's bridgeheads had a significant gap between the Second and Third Armies. This gap effectively separated the forces of the 25th Armored Brigade of the Third Army from the forces of the 21st Infantry Division of the Second Army on the northern bank of the Great Bitter Lake in central Sinai. This gap contained an important set of roads that could be used by the Israelis to hit the Egyptian Armies, pierce through them, and prevent them from executing any meaningful combined action.

Second, the Egyptian plan had as its main goal establishing a military presence on the eastern bank of the Suez Canal, but there was no clarity as to what should happen after the position was secured. General Ismail, the Egyptian War Minister, preferred to both build up superior reserves on the eastern bank and completely secure his bridgeheads before considering any exploitation beyond the existing Egyptian line while others, like General Shazly, argued for a quick advance into the central Sinai or el Arish (El Gamassy, 1993, p. 270; O' Ballance, 1978, p. 147). There was also the possibility that Operation Badr would have to aid the Syrians by advancing deeper into the Sinai faster than the Egyptian planners expected. This would maintain

the pressure that the Syrians needed the Egyptians to exert on the IDF to prevent the latter from reinforcing the North and thwart the Syrian goal of capturing the Golan Heights. In sum, the Egyptian commanders did not know exactly what to do after crossing the Suez Canal.

All of these factors played a role in the botched Egyptian offensive towards the Mitla Pass on 14 October. After the Syrian offensive against the Golan failed, Syria asked Sadat to launch a new offensive in the Sinai to relieve the pressure on their front (Boyne, 2002, p.127). This led Sadat to order an offensive in the Sinai, much to the reluctance of General Ismail (O' Ballance, 1978, p. 155). As a result, the Egyptian Second Army launched an offensive directed against Bir Gifgafa—a move that served to weaken the Egyptian defenses in the bridgeheads (Asher, 2009, p. 104). This attack was the beginning of the end for the Egyptian Army. The action forced the army to come out of its defensive shield, and the Egyptians lost nearly 260 tanks in the biggest armored battle since the Battle of Kursk in 1943 (Herzog, 1975, p. 206; Dupuy, 1978, p. 486). More importantly, after this failed offensive, the IDF developed an operational plan that would pierce through the Egyptian defenses and upset the entire Sinai front.

Operation Stouthearted Men: The IDF's crossing of the Suez Canal

The first days of the war were very dangerous for Southern Command. Major General Gonen, General Officer in Command (GOC) Southern Command, was trying to maintain a defensive line with the reinforced 252nd Armored Division and little to no air support (Van Creveld, 1985, p. 205; Rodman, 2009, p. 225). On 8 October, Gonen received the 143rd and 162nd Armored Divisions and deployed the latter to the northern sector and the former to the central sector. This

reinforcement allowed Gonen to redeploy the 252nd Armored Division to the southern sector of the Sinai (Even and Maoz, 2017, p. 13). Despite the fact that it had only three Israeli Divisions to contain seven Egyptian Divisions, the IDF held the line successfully until it managed to inflict a heavy defeat on the Egyptian offensive of 14 October. But the IDF had not been merely defending the Sinai; it was also looking for a way to counterattack the Egyptian Army and achieve a decisive result that could end the war favorably for Israel.

The origins of the IDF counteroffensive lie in the complete chaos and disorganization in the IDF's command structure. Consider the command structure from the perspective of Gonen. In his relations with his superiors—especially the IDF's Chief of Staff, Lieutenant General Elazar—he had to cope with constant interventions into his operations. For instance, while Gonen planned an attack against the Egyptian Second Army bridgehead on the morning of the 8, Elazar directed the Southern Command Chief's troops to follow a different battle plan without so much as consulting the officer in the field (Ibid, p. 31). Gonen's subordinates were little better—they were extremely independent and influential. General Ariel Sharon had been Gonen's superior a few years previously before he retired from the IDF. Now, Sharon had been recalled to the front as commander of the 143rd Armored Division, making him anything but an ordinary subordinate (Dupuy, 1978, p. 479). Further complicating this particular command relationship was that Sharon was in the process of going into Israeli politics, which gave him access to Israel's top civilian decision makers (Herzog, 1975, p. 192). As an example, on 9 October, Sharon tried to get either Elazar or Dayan to authorize him to cross the Suez Canal since Gonen refused to authorize the move (Dupuy, 1978, p. 475). Thus, the beginning of the IDF's effort to find a way to repel the Egyptian offensive was one of utter chaos in the chain of command.

In the midst of chaos, however, Sharon did offer a clear way for the IDF to turn the Egyptians' plan against itself. Sharon understood that an Israeli crossing of the Suez Canal was important because it would force the Egyptians to deal with unscripted and mobile operations (Van Creveld, 1998, p. 210). Furthermore, he knew that crossing the Suez Canal as fast as possible was the only way to take out the SAM defenses that prevented the IAF from playing any meaningful role in the ground battle (Rodman, 2010, p. 225; Even and Maoz, 2017, p. 63). Sharon accordingly began arguing for an immediate crossing of the Suez as early as 7 October and presented his plans to Gonen and Elazar. Sharon's plans were rejected both on the grounds of a personal aversion towards him and due to their concerns about the IDF's overall capacity to force a crossing of the Suez at that time (Even and Maoz, 2017, p. 15).

Convincing IDF GHQ of the merits of this plan was not easy. Sharon had to deal with Elazar's unrealistic conditions and objectives for the crossing. Elazar set as a prerequisite for any crossing of the Suez to first secure the means necessary to effectively protect a steady flow of forces westward (Van Creveld, 1998, p. 228). Elazar also wanted to use the threat created by the crossing in order to force Egypt into a ceasefire, even if it was not clear that Israeli society would accept the cost of a counteroffensive for anything less than victory (Even and Maoz, 2017, p. 79; Sakal and Tlamim, 2014, 53). Making matters worse was the animosity between the IDF GHQ and Sinai commanders, to the point that General Chaim Bar Lev, the former Chief of the General Staff of the IDF, was called to serve as the effective mediator between Elazar, Gonen, and Sharon and became the de facto Southern Commander (Maoz and Simcha, 2017, p. 168).

From this squabble, the IDF pulled off one of the most daring and successful plans of its campaigns. After Ismail had to launch his unplanned offensive on the 14, Egypt suffered important

losses that the IDF could turn into opportunities. Even and Maoz explain that the defeat of the renewed Egyptian offensive contributed to “exorcising the despondency and defeatism that had enveloped the CoGS since October 8” (2017, p. 81). Now, Elazar pressed to move up the attack on the grounds that the Egyptians were moving slowly and with large amounts of anti-tank weapons in front of them (Van Creveld, 1998, 215). It seems that Elazar realized that, underneath the SAMs and anti-tank weapons, this was the same Egyptian Army of 1967. On the night of 14 October, Dayan and Elazar advised the Israeli cabinet to authorize a crossing of the Suez Canal and the plan was approved (Even and Maoz, 2017, p. 87). Southern Command then launched Operation Stouthearted Men. The goal was setting up a crossing of the Suez Canal at Deversoir, which would allow for the destruction of Egyptian Army forces on the west bank, while simultaneously assembling at least two bridges at Matzmed on the Northeast bank of the Great Bitter Lake (Ibid, p. 88). The 143rd Armored Division would break through, open a corridor at least four kilometers wide, and cross west. The 162nd Armored Division would then follow it to encircle the Egyptian Third Army (Ibid, p. 91).

The Paralysis of the Egyptian Army

Operation Stouthearted Men had a propitious start thanks to the near-insubordination of Ariel Sharon. During the defensive battles against the Egyptians, Gonen ordered Sharon to retreat to the Lateral Road, a track connecting Tasa with Baluza on the Northern Sinai Peninsula forty kilometers away from the Suez Canal. Sharon, however, discovered that it was possible to hold the IDF’s infrastructure on the Artillery Road area (Sakal and Tlamim, 2014, p. 201). This was

important because it allowed the 243rd Armored Division to leave its lead elements closer to the eventual crossing point of the Suez Canal, thus allowing them to make a faster strike once the time of the counteroffensive came. More important, Sharon discovered on 8 October that there was a gap between the Egyptian Second and Third Armies that could be exploited by the IDF in the vicinity of Matzmed (Van Creveld, 1998, p. 234). This gap allowed the IDF in the opening moves of Operation Stouthearted Men to split the Egyptian armies and find the least defended area to install the Israeli bridges over the Suez. Even more surprising is that the Egyptians failed to seal this gap for nearly a week.

The 247th Paratrooper Brigade launched its attack on 15 October and crossed the Suez Canal on 16 October using rafts. It was later followed by a tank battalion crossing on motorized rafts (Van Creveld, 1998, p. 234). The paratroopers' attack was assisted by the 600th Armored Brigade, which made a diversionary attack against the flank of the Egyptian 16th Infantry Division in Televizia (Even and Maoz, 2017, p. 112). The paratrooper's achievement was significant because it provided the IDF an established presence in the west bank of the Suez Canal. More importantly, unlike in earlier Israeli counteroffensives, infantry and armor were now acting in combined arms operations, a drastic turn from the blind faith in the tank.

The Egyptian General Staff could not grasp the real nature of the Paratroopers move and decided to keep its reserves at bay. It seems that the Egyptians did not realize that the paratroopers' attack was part of a major crossing operation which was being mounted (Even and Maoz, 2017, p. 135; Palit, 1974, p. 138). Indeed, General Al Aqqad, Commanding General of the Second Army, reported to Egyptian Army GHQ on the 17 that the Israelis had a negligible number of tanks on the Egyptian side of the Canal (El Gamassy, 1989, p. 287). What is perplexing about this inability

to see that the “negligible” number of tanks meant that a crossing operation was being executed was that the Egyptians had seriously considered the IDF may try to cross the canal in this precise area. The Israelis captured an Egyptian intelligence officer who had an appreciation of how the IDF might attempt to cross the Canal in the Deversoir area, but the Egyptian General Staff rendered no decision on the information (Ibid, p. 139). In short, as Sharon was establishing an armored presence across the Suez Canal, the Egyptian Army’s operational response was complete idleness.

This does not mean that the Egyptians were not doing their best to face down the Israeli counteroffensive at the tactical level, however. An Egyptian Armored Brigade commanded by General Al Urabi met the 143rd Armored Division’s attack with a stubborn and violent, albeit purely local, response (El Gamassy, 1989, p. 284). In addition, Egyptian GHQ decided to close the small corridor opened by the 143rd Armored Division with a pincer move. An Egyptian Armored Brigade of the 21st Armored Division counterattacked towards the southeast while its Third Army sent the 25th Armored Brigade north (Ibid, p. 288). This action failed, as the latter Brigade’s approach was smashed on the flank by the combined attack of the IDF’s 217th and 500th Armored Brigades under Major General Avraham Adan’s command (Even and Maoz, 2017, p. 205).

Though it ultimately failed, the Egyptian move against the Israeli corridor did set back Sharon’s efforts. The IDF’s main bridging equipment was in the process of being moved up when it was damaged north of the Lexicon and Titur Roads junction (O’ Ballance, 1978, pp. 225-226). These were the bridging assets General Elazar deemed necessary to secure the steady flow of forces required for later exploitation of the west bank of the Canal. Without this equipment, Sharon could not cross the tanks necessary for a significant operational effort against the

Egyptians. Characteristically, Sharon did not sit idly by waiting for the equipment. After he withstood Egyptian Special Forces (SF) raids against his forces on the 16, Sharon moved north against the Egyptian bridges and SAM batteries, taking out seven SAM sites (Ibid, p. 228). Still, without his main bridging assets and with the Egyptian attacks against the IDF's 162nd Armored Division, Israel's effort to outflank the Egyptian Third Army was teetering on collapse.

The situation was further complicated for the Israelis when Adan's forces became embroiled in a bitter battle to secure the Lexicon and Titur Roads junction, also called the Chinese Farm. This area was both important and challenging. It was important because the junction led to the connecting road with Matzmed. The challenge lay in the irrigation canals that the Egyptian defenders used as entrenchments to protect their positions from Israeli fire (Even and Maoz, 2017, p. 135; Rabinovich, 2004, p. 375). The Egyptian defense of the Chinese Farm was conducted by an infantry Battalion, supported by an Armored Brigade and a plethora of anti-tank weapons (Even and Maoz, 2017, p. 52; O' Ballance, 1978, p. 230). After Sharon bypassed this position on the 15, Southern Command deployed against it the 162nd Armored Division with poor results. The Division suffered 190 casualties and several tanks lost with no progress made by its 890th Paratrooper and 100th Tank Battalions attacks (Even and Maoz, 2017, p. 169). These repeated failures meant that Sharon's forces were in an increasingly perilous position and the whole Israeli effort could collapse if the Second Army went on a full-scale offensive against this corridor.

Luckily for the Israelis, the Second Army did not launch such an offensive. Despite repeated Israeli attacks against the area, the Egyptian Second Army remained committed to effective, yet local, defenses. These defenses tapped the best elements of an Army that was created for the sole task of putting Egyptian feet on the Sinai Peninsula, but they did not have a decisive

effect on the Israeli effort. Specific units and formations of the Second Army did try to act against Sharon's weak bridge and against the narrow corridor from which his connection to Israel depended, but there was no cohesive effort. For instance, an Egyptian paratrooper Brigade with a frogmen detachment counterattacked Sharon's crossing, but the move was countermanded by Egyptian Army GHQ (O'Ballance, 1978, p. 236). Ultimately, however, the Egyptian Army remained passive despite Sharon's presence on the west bank, even as the latter destroyed SAM sites and attacked the Egyptian bridges.

Under the protection of Egyptian dithering, Israel's Southern Command began to find ways to solve the threat to the corridor. First, Adan's 460th Armored Brigade was reassigned to Sharon, which allow him to keep both the bridge and corridor open (Even and Maoz, 2017, p. 155). Second, Sharon's ongoing attacks against the Egyptians SAMs began to erode the Egyptian Air Force and Army, enabling the IAF to operate in a fifteen-mile area north of the Great Bitter Lake (Aker, p. 1985, p. 113). With more substantial CAS, the IDF's 600th Armored Brigade was able to deploy on marker 51 of the Akavish Road and advance without much damage to the Titur Road, eventually making visual contact with the 88th Battalion of the IDF's 14th Armored Brigade (Even and Maoz, 2017, p. 207). Then, Israel's 14th Armored Brigade launched an attack against the position on an east-west axis, capturing it on October 18 (Herzog, 1975, p. 320). With the position cleared, the Israeli bridgehead on the West bank could be enlarged with more elaborate bridging equipment brought down the roads leading to Matzmed.

At this juncture, the IDF was in position to deal a powerful blow to the Egyptian Army. With a stronger bridgehead that could sustain the transit of more infantry, armored, and logistical assets, the 162nd Armored Division crossed the Canal and began an exploitation maneuver

to the southwest (Even and Maoz, 2017, p. 211). Sharon, meanwhile, was pushing against Egyptian paratroopers towards the north and, on the 19, found himself four kilometers from Ismailah — right in the center of the Egyptian Suez front (O' Ballance, 1978, p. 242). All the while, the Egyptian Army did not move to deal with the IDF on the west bank, which was now in the process of concentrating Sharon and Adan's Divisions. This was true despite the fact that the Egyptians apparently had the capacity to deal with Sharon's irruption onto the west bank. Thus, despite an auspicious beginning, the Egyptian Army's Third Army was now cut off from Egypt while the IDF was advancing into Eastern Egypt. With this result, once again and despite the best intended effort by the best Egyptian Generals, Egypt's armies were defeated by the IDF.

4.4. Organizational Culture and Operation Stouthearted Men

The Israeli crossing of the Suez Canal and Egypt's response can be understood within the context of the different organization cultures of the two militaries. Despite the changes the Egyptian Army made in terms of its understanding of independence and obedience for the ranking generals, its attachment to the control and certainty imperatives limited it to highly scripted operations and prevented it from effectively responding to the unexpected. Pollack explains that, without the detailed plans of the General Staff, the burden of command fell back to field commanders, who demonstrated that they had learned nothing from their previous successes (1996, p. 254). Then, once the Egyptians were ready to deal with the unexpected Israeli exploitation of a gap between its armies, their piecemeal commitment of Second Army forces to

relieve the Third Army doomed their effectiveness (Dupuy, 1978, p. 589). The IDF, despite the initial reign of chaos throughout the chain of command, was able to exploit its culture to harness the latent power of the force and achieve a key military objective.

In the case of the Egyptian Army, there was a definite change in the way that ranking generals behaved when dealing with the Israeli counterattack compared to previous wars. Thanks to the improvements in the army after its collapse in 1967, there was newfound space for ranking officers to independently apply the military resources they controlled in the achievement of a task. The army that Generals Fawzi, Riad, and Ismail rebuilt understood that military judgment alone had to determine military decisions and that this started with using solely military merit to promote officers to command levels. As a result, there were some generals who used their forces to fight back against the IDF. The average Egyptian infantry soldier, within the bounds of the very specific task for which he was drilled for almost six years, was now highly skilled to the point that he no longer bore any resemblance with the soldiers who were routed in 1967. Nevertheless, against the more agile Israeli offense, these changes were not sufficient. The army was not able to instill acceptance of the need for independence across all ranks. Ultimately, while the Egyptian Army invested greatly in scripting and training their crossing operation, they did not invest nearly enough in developing their staff to be tactical and operational leaders who could apply their skills without other higher guidance. Control and certainty ruled the day.

The effects of Egypt's hierarchical independence culture are evident in the battle of the crossing of the Suez Canal. First, the commanders of the 16th Infantry Division and the 21st Armored Division stayed, obeyed directives, and fought back relentlessly, even skillfully. Yet, their obedience was within the bounds of the general framework of Operation Badr, which meant

that Egyptian officers could not independently adapt to a new situation without having detailed instructions from the army General Staff (Pollack, 1996, p. 227). Despite limited examples of local initiative, such as the Egyptian paratroopers, the Army remained committed to a detailed control that made sure every officer continued to serve the extant plan, regardless of how appropriate it was for the new situation.

The Egyptian Army's belief in control, in particular, contributed to its defeat in the battle of the crossing of the Canal. Ismail redesigned the Egyptian Army with the strong conviction that detailed control of the actions of soldiers was necessary to achieve victory (Asher, 2009, p. 76). As a result, despite expressing support for ranking generals to use initiative, a strong operational control system remained in place, rendering GHQ the ultimate decision maker. For instance, the Egyptian offensive of 14 October was devised by General Ismail himself without much input from the Egyptian field commanders, who were aware of the difficulties such an operation would face (Rabinovich, 2004, p. 353). GHQ remained immersed in details that were better left to the field commanders throughout the battle, including the offensives against the IDF's bridgeheads (Sunday Times, 1974, p, 221). It was due to this control system that the few attempts of independent action in the Suez battlefields, such as the Egyptian frogmen and SF attack against the Israeli bridge in Deversoir referenced above, that could have made a difference in the Egyptian effort were delayed or simply cancelled (Palit, 1974, p. 87). This tendency was most devastating when it paralyzed the coordinated offensive by the Second and Third Armies against Sharon's assault. According to Aker, Sharon's bridgehead was saved because, "to mount an operation involving both Egyptian Armies, it was necessary to circulate orders bearing the signatures from four different staff officers" (1985, pp. 109-110). Therefore, the rigid control of the Egyptian Army did not allow its

forces to adapt to the changing threats of the battlefield and contributed to the IDF's successes in the battle.

Finally, the certainty imperative prevented the Egyptian Army from responding effectively. The certainty imperative facilitated the army's task of gaining and controlling the east bank of the Suez Canal, but it undermined the Egyptians' ability to act outside their script. General Ismail's tactical and operational script ensured the Egyptian forces could employ their weaponry effectively, so long as their enemy behaved as anticipated (Asher, 2009, pp. 179-180; Sunday Times, 1974, p. 226). These Egyptian Army's initial successes held until the gap between the Third and Second Armies was breached, and General Ismail was forced to initiate a new offensive towards Mitla Pass.

At that point, all the tactical skill of the Egyptians was not translatable to the new situation that required the army to launch a sudden concentric offensive involving its two lead army divisions in the central and southern Sinai. For instance, during the offensive, Egyptian Divisional commanders failed to perform even basic tactical scouting of Israeli positions, preferring just to go at the positions that the General Staff had identified for them (Pollack, 1996, p. 244). The Egyptian tactical units were no longer integrating their armor, artillery, and infantry assets as they had been able to do in their defensive lines until the 14 (Ibid, p. 245). At the same time, the Egyptian defenses were still doing an impressive job launching counterattacks to retake specific positions taken by the Israelis (Ibid, p. 247). The reason for this is that, as long as the Egyptians were allowed to fight the battle they had rehearsed for nearly six years, they could execute the tactical script they had memorized by heart. But, once they were forced to deal with maneuver, the script was not enough to help them respond to the Israeli attacks. Sharon argued on October 9th

that the “Egyptians must not be allowed the exhilaration of gain, not even psychologically. They had to understand that nothing is stable” (Van Creveld, 1998, p. 210). The IDF was using the Egyptians proclivity to avoid uncertainty against themselves.

The final problem that would unravel the battle for the Egyptian Army also stemmed from the consequences of its effort to script the tactical performance of its soldiers. Ismail’s and the rest of the General Staff’s efforts were concentrated on programming Egyptian soldiers to perform a single task such as firing their anti-tank weapons. This had some important positive implications for the army’s military effectiveness, and even its military power, but it did not solve the Army’s latent tactical problems. Egyptian officers, working with precisely programmed soldiers, had a hard time effecting independent improvisation below the flag officer level. The average Egyptian army officer was unable to improvise on the spot (Pollack, 1998, p. 237; Aker, 1985, p. 108). Old habits remained influential in the Egyptian Army.

The IDF’s culture similarly shaped events during the battle to cross the Suez Canal. The IDF subscribed to the idea that independence came with responsibility. As noted, the IDF did not train mavericks. However, when the Egyptian Army crossed the Suez Canal, the entire chain of command that ran from IDF GHQ down to the Sinai forces exhibited maverick-like tendencies. As noted, Gonen had to contend with Elazar trying to micromanage his command as well as with the nearly insubordinate Sharon. At the same time, Bar Lev was trying to both use the drive of Sharon and also restrain him from disregarding superior orders (Van Creveld, 1985, p. 231; Maoz and Simcha, 2017, p. 186; Rabinovich, 2004, p. 407). The situation grew so acrimonious that Gonen was unofficially replaced by Bar Lev after the first week of Operation Badr and was officially replaced after the ceasefire with the Egyptians (Luttwak and Horowitz, 1975, p. 378).

Amidst the cacophony created by commanders' independence, however, responsibility ultimately drove the IDF toward military effectiveness and victory. Despite the climate of hostility towards Sharon, most of the Southern Command officers acknowledged his consummate ability; that acknowledgment ultimately led to his being given free rein during Operation Stouthearted Men (Maoz and Simcha, 2017, p. 107). In this chaos, Bar Lev's role was to use his standing to moderate the negative aspects of Sharon's initiative while exploiting his positive elements such as relentless creativity and tactical sense. In practice, this led to Bar Lev to twice recommend Sharon's removal from command while still promoting Sharon's crossing plan to the cabinet (Herzog, 1975, p. 198; Dupuy, 1978, p. 481). Sharon's initiative, bordering on insubordination, allowed him to discover the important gap between the Egyptian armies and deploy the necessary units to exploit that opportunity once he gained approval from Gonen and Elazar. The IDF was able to maintain a delicate balance where officers ferociously used their independence while retaining the necessary military discipline to find the pathway through which it could cross the Suez Canal.

In the case of control, despite Elazar's repeated attempts to assign himself duties that were better left for Gonen, the IDF's control of its generals in the Sinai remained flexible. Gonen refrained from dictating tactical details about how and when Sharon and Adan should manage their crossing of the Suez Canal, although Bar Lev did restrain Sharon's call to expedite the crossing of the 162nd Armored Division in order to preserve enough forces to further open the Israeli corridor south of the Chinese Farm (Dupuy, 1978, p. 503). Then, once the crossing was authorized for October 15, Gonen limited himself to evaluating Sharon's and Adan's efforts against the goals he had laid out for Operation Stouthearted Men and making operational decisions necessary to

support the crossings. More importantly, even as Sharon had the daring to cross the Canal without a strong bridge, no one in Southern Command tried to fetch him back to the eastern bank or to stop him from taking out the Egyptian SAMs (Ibid, p. 505). This is a testament of the level of decentralization that the IDF maintained.

Finally, in the case of the certainty imperative, the Israelis avoided this imperative to their benefit. The IDF's ability to accept risks and the presence of uncertainty throughout the operation was only possible thanks to the complete avoidance of the certainty imperative. From accepting the challenge of having two entrenched Egyptian divisions on the right flank of the 143rd Armored Division as it crossed the Canal to Sharon's determination to exploit his feeble west bank bridgehead to the utmost, the operation showed officers who were able to accept enormous risks. While Sharon's paratroopers were maintaining their foothold in Matzmed as he brought his tanks across the Canal without waiting for the IDF's main bridging assets, he faced the significant risk that his force would be cut off by a full thrust of Egypt's 21st Armored Division (Rabinovich, 2004, p. 367). Similarly, when Israel's 143rd and 162nd Armored Divisions proved unable to remove the threat at the Chinese Farm, Southern Command maintained its cool and trusted Adan to maintain the corridor (Ibid p. 373). The IDF showed itself able to operate with significant stakes at play and next to no guarantee of success while it improvised on-the-spot solutions to challenges such as the Egyptian anti-tank weapons. It was this ability that allowed Sharon's 14th Armored Brigade to eventually defeat the Egyptians at the Chinese Farm and bring substantive force across the canal, thus bringing the IDF to the point of encircling an entire Egyptian army.

With these effects in mind, it is possible to assess the validity of my hypotheses regarding military effectiveness and military power. *H_{1me}* states that balanced cultures will display higher

levels of military effectiveness than other organizational cultures. As I have shown, the IDF had a balanced culture that allowed it to generate higher levels of military effectiveness than the Egyptian Army, with its hierarchical independence culture. Indeed, the IDF showed this very clearly, as its attitude regarding obedience allowed it to utilize the military judgment of its officers to penetrate the seemingly unbreakable missile shield of the Egyptian Army. Thanks to the IDF's decentralized control, it had officers who were better able to use the information they had about the Egyptian Army in order to strike the Egyptian's vulnerabilities and erode their seemingly strong position. Finally, because the IDF operated with the idea that uncertainty was the normal state of combat, Israeli officers were able to deal with the high risks of the crossing operation in the face of seemingly impossible odds. The effectiveness of the IDF was consistent with my theory's expectations. Crucially, the IDF was able to evince this high degree of effectiveness even after six years spent drawing the wrong lessons from its victory in 1967 and developing a military strategy based on false assumptions regarding the capability of the IAF to support the active army until reserves could be mobilized.

H_{1me} is also confirmed by the lower level of military effectiveness shown by the Egyptian Army. The Egyptian Army started its offensive on Yom Kippur with significant advantages that were eventually lost due to its beliefs about obedience, control, and certainty. Despite having accepted to some degree that ranking officers should use their initiative within the framework of a pre-approved plan, the Egyptian Army was not able to instill across its ranks the principle that an officer had to use his initiative with independence, even if that meant acting outside existing schemes. Instead, the Egyptian Army's ranking officers remained committed to acting within existing orders and rarely ventured outside of them, even if the situation warranted it. This did not

mean that the commanding generals and officers in the field were being passive, as they had been in previous campaigns; they were indeed fighting very effectively. They were, however, fighting within the bounds of the existing script for the campaign. Without being able to use their military judgment to devise an operation that could exploit the risks that the IDF was taking, the Egyptian commanders in the Sinai were eventually bested by Sharon and Adan.

The effects of obedience were only made worse by the Egyptian beliefs attitude about control and certainty. The Egyptian Army remained wedded to a strong and centralized control that gave Ismail direct influence over the Egyptian efforts on the Canal. Indeed, it was Ismail who directly countermanded a special forces' attack against Sharon's weak bridging assets on the Canal that could have been a decisive Egyptian initiative against the IDF. This was a direct result of the faith Ismail held in the virtues of military planning. Since it was extant and detailed planning that enabled Egypt's initial successful crossing of the Canal, Ismail remained convinced that any reaction against the IDF's threat in Matzmed had to go through the GHQ staff planning machinery. This rigid view ultimately prevented any combined action by the Second and Third Armies until the latter was surrounded. The Egyptian beliefs fostered a culture that eventually eroded the advantages it enjoyed at the beginning of the war.

From a military power standpoint, the results of the battle confirm my expectations regarding the IDF and the Egyptian Army. *H₂mp* holds that, all else being equal, the side with a balanced organizational culture will defeat the side with a different organizational culture. During the battle of the crossing, the IDF managed to both cross the Suez Canal and advance to Suez City and Ismailah—approximately 40 Kms into Egypt—in only five days and against strong Egyptian

resistance (Pollack, 1996, p. 249). By contrast, Egypt was able to penetrate 15 Km into the Sinai in about four days, but only after six years of preparation.

The IDF's ability to penetrate the Egyptian defenses is a telling expression of its military effectiveness and power. Though Egypt managed to inflict significant losses on the IDF during the opening of the offensive, the tables turned once the Egyptian military established its defensive line on the east bank of the Suez Canal. The November 14 offensive was more damaging to the Egyptian Army than to the IDF, as it lost 1,000 soldiers and 265 tanks while the Israelis suffered only minor casualties and had a mere 40 tanks put out of action (Ibid, 245). Later, while defending against the Israeli attempt to cross the Suez Canal, the Egyptian Second Army suffered heavy losses while the IDF's 162nd Division sustained only 190 casualties (Maoz and Simcha, 2017, pp. 140, 169). That a single IDF division was able to inflict such heavy losses on an entire Egyptian Army underscores the military power the IDF derived from its organizational culture.

4.5. Alternative Explanations

This chapter has presented an analysis of the connection between the organizational cultures of the Egyptian and Israeli armies and their military effectiveness and power in the Yom Kippur War of 1973. Though there is strong evidence that the militaries' organizational cultures drove their effectiveness and power, it is possible that other factors offer a better explanation of events observed in the historical record. In this section, I assess alternative explanations of the Egyptian and Israeli performance in the battle to cross the Suez Canal.

In terms of materialist explanations of military effectiveness and military power, Egypt had a clear advantage over Israel. Egypt's population was ten times that of Israel in 1973 and, as such, the former's army was larger than anything Israel could have mobilized at any given time. Egypt had 300,000 men, 2,400 tanks, and 2,300 artillery pieces massed just for the Sinai. On the other side, after mobilization, the entire IDF was comprised of 310,000 soldiers, 1,750 tanks, and an undetermined number of artillery weapons. This force then had to cover both the Golan and Sinai fronts (Pollack, 1998, p. 239; O' Ballance, 1978, p. 53). In terms of economic capacity, despite outstanding GDP growth rates in previous years, 1973 marked the beginning of bad economic cycle for Israel as its growth rate went down from 10% in 1972 to 2% in 1973 (Ahearn, 1997, p. 6).

Some may point to the support Israel enjoyed from Western nations, most significantly the United States, as potential compensation for Israel's material inferiority. However, US aid materialized relatively late in the war – concretely around October 13-14 – by which time the IDF had already absorbed the main blow of the Egyptian offensive and had set the stage for its counteroffensive on the 15th (O'Ballance, 1978, pp. 160-161). Israel, despite being having fewer material resources, reached the outskirts of Damascus on the northern front, and then was able to focus on the Suez Canal and surround an entire Egyptian Army.

In terms of economic development, a glance at the economic indicators reveals an Israeli advantage. Life expectancy in Israel was almost 20 years higher than in Egypt, and Israeli primary school enrollment ratios were above 104, compared to 71 in Egypt. These numbers show an image of a healthier and more educated Israeli society that had the potential to generate more military effectiveness; healthier and more literate individuals can provide a manpower pool with more

potentially competent military administrators (Beckley, 2010, pp. 58-59). However, these Figures also disguise a more complicated reality regarding the role of economic development in the conduct and outcome of the battle. As the World Bank explains, a high ratio of primary school enrollment may reflect an abundance of overage students attending primary school. This is the situation Israel confronted as it absorbed waves of new, often illiterate, Jewish immigrants (Cedeno, 2015, p. 12). As a result, Israel had to allocate social development resources to teaching older immigrants, sometimes from primary school levels. Thus, as apparently developed as Israel was vis-à-vis Egypt, it had to work twice as hard in order to manage the development of its society with less than half of its adversary's resources.

An additional measure of material impact on military effectiveness and power is force-to-force ratio. From this perspective, Egypt should have secured victory over Israel, as it fielded nearly 30 times as many attackers per kilometer of frontage than did the IDF on October 6th. Further, Egypt launched its offensive on 14 October with clear superiority, as nearly 1,000 tanks moved against less than 800 Israeli tanks in the Sinai (Dupuy, 1978, p. 489). Egypt maintained at least 200,000 soldiers in its two field armies, which were arrayed against, at most, 48,000 IDF soldiers employed in Israel's crossing of the Canal. The resulting force-to-force ratio was a 1:4 disadvantage for the Israelis (Ibid, p. 403). Yet, none of these imbalances had their predicted effects during the campaign. The Egyptian offensive on the 14 ran out of steam, costing the Egyptians 400 tanks and allowing Israel to penetrate between the flanks of the Second and Third Armies.

In terms of overall technological superiority, the balance also favored Egypt due to Israel's deliberate emphasis on armor and fighter aircraft. Egyptian anti-tank weapons like the

Sagger ATGM gave infantry soldiers the capacity to take out an Israeli tank at a range of two kilometers. Furthermore, while the IDF was relying on WWII-vintage armored personnel carriers in many cases, the Egyptians had invested heavily in Infantry Fighting Vehicles like the BDRM-2, which incorporated Sagger launchers and gave them a tank-destroying capacity (O'Ballance, 1978, p. 161). Finally, the Egyptians had superior communications intelligence collection capabilities, as they showed when they located and killed an IDF divisional commander. Egypt showed clear technological superiority in the field.

Nevertheless, despite their disadvantaged position, the Israelis were able to achieve a major victory against the Egyptians in crossing the Suez Canal. Despite its severe shortage of infantry and IFVs, the IDF managed to reacquaint itself with combined arms operations, deploying its available infantry, armor, and artillery in flexible ways. Indeed, the capture of Matzmed and the battles against the Egyptians at the Chinese Farm were possible thanks to a renewed cooperation of infantry, armor, and artillery. Furthermore, Egypt's technological advantage did not suffice when it had to launch an unscripted offensive against Israel at the Mitla Pass. In this case, the losses for the Egyptian Army were severe despite their advantages in anti-tank weapons, air defense, and even armor.

In terms of the relative advantage Israel should have derived from its democratic regime, a deeper look at the events that led to the IDF's mistakes during the battle reveals no apparent effects. Democratic military effectiveness theory argues that a democracy should field soldiers with higher levels of initiative and more professional generalship. On the surface, this theory may explain aspects of the IDF's performance during the war. Sharon and Adan showed their high levels of initiative during the battle of the crossing, and their generalship was remarkable,

especially considering the threats and risks involved in the operation. Nevertheless, it seems that, without the modulating influence of the IDF's organizational culture, democratic effectiveness alone could also have fostered negative dynamics. For instance, Sharon undermined Gonen and often simply shut off his receiver while being given orders (Rabinovich, 2004, p. 407). The feud between IDF generals was so problematic that there was very little trust amongst them, and it was said that each one fought the other as much as they fought the Egyptians (Ibid, p. 406; Neff, 1988, pp. 238-239). Israeli generalship squabbling contributed to mistakes that harmed the IDF in the war almost as much as it contributed to its victories.

Organizational culture may have modulated these dynamics by fostering the initiative and independence of Israeli officers. For instance, in terms of obedience, IDF culture ensured its officers knew that consistency with the army's unity and discipline had to coexist with independence. Furthermore, even as Israeli generals could bicker acrimoniously amongst themselves, IDF culture reminded all that the debates were not personal and needed to remain subordinate to the objective of winning the battle. Finally, in terms of certainty, the IDF may have been rescued by its deep-down conviction that, in war, there were no real "methods" which may have helped the force accept and move on quickly from the failure of the all-tank tactics of General Tal. For democratic effectiveness theory to work, organizational culture has to modulate and channel the broader societal potential created so as to positively guide military effectiveness and military power.

The explanation that attributes the IDF's successful Canal crossing to the differences in Israeli and Egyptian national cultures deserves considerable attention. Pollack has shown that, in the case of the Yom Kippur War, the Egyptian Army was undermined by the influence of historic

Arab cultural attitudes on military operations. From this logic, one could argue that Israeli culture had a positive influence on the IDF enabling effective military operations. This is a plausible possibility. However, an examination into some elemental aspects of Israeli culture reveal dynamics that put in question the societal culture claim.

The concept of Israeli culture, at the time of the Yom Kippur War, could be, for the purposes of argument, divided in two big sets of beliefs and values. The first is the set of the secular Zionist movement that arose from the traumatic injustice done to the French army officer Alfred Dreyfus, an army officer unjustly convicted of espionage and treason solely because he was Jewish (Begley, 2009, p. 6). What became known as the Dreyfus Affair had powerful effect on the secular, and even assimilated, European Jews. It indicated that Europe would never be hospitable to Jews, and that it was necessary to organize the mass exodus of European Jewry to an autonomous Jewish homeland (Cohn, 1970, pp. 101-103). These early Zionists became influential in the Haganah to the point that the group was tasked with supporting the efforts of the Jewish Agency on the ground in what is now the State of Israel.³² In the Haganah, the traditional Jewish values of pacifism were exchanged for a firm belief that military power would enable the revolt against the Jewish historic fate of persecution (Bar-Or, 2001, p. 264). In brief, the main cultural contributions from the Zionist enterprise to Israeli society seem to be in line with some of the beliefs that this chapter has

³² Edwards, Richard. "Haganah." *The Encyclopedia of the Arab-Israeli Conflict: A Political, Social, and Military History*, edited by Spencer C. Tucker and Priscilla Roberts, vol. 2, ABC-CLIO, 2008, pp. 412-414. Gale eBooks, link.gale.com/apps/doc/CX2346800297/GVRL?u=upitt_main&sid=bookmark-GVRL&xid=0511d749. Accessed 3 May 2022.

identified in the organizational culture of the IDF: using one's skills to deal with threats instead of waiting for *Moschiach* to bring deliverance and security.³³

The second set of beliefs and values comes from the traditional Jewish religious community. This community, which itself is a conglomeration of different Jewish religious and legal practices, constituted a different type a Zionism. Due to its religious nature, this type of Zionism is intrinsically connected to the belief that ultimate Jewish security does not lay in warfare, but in observance of the Torah's 613 commandments, the reinstatement of the Jewish monarchy, and the reconstruction of the Holy Temple in Jerusalem (Seidler, 2012, p. 179). In very broad terms, in this community there are different groups who have different cultural values. Jews commonly known as *Ultra-Orthodox*, for example, are typically seen as living a life marked by total conformism and aversion to innovation, while more *Modern-Orthodox* Jews incentivize personal responsibility, thought, and initiative in solving modern day issues.³⁴ Generally, in the

³³ *Moschiach* is a Hebrew word that has been appropriated and misapplied by Christianity. *Moschiach* does not mean any form of self-proclaimed divine status. *Moschiach* is strictly the anointed King of Israel who descends from the Tribe of Yehuda in general, and King David specifically. The secular Zionist movement tried to replace the traditional religious hope that Jews could be given security by the fulfilment of the promise that a royal descendant from King David could occupy his throne again and bring world peace. Instead, secular Zionism emphasized using all the available Jewish strength to form a state and solve the persecution of Jews through ages. See Seidler, Meir. "Zionism's Conflicting Founding Designs and Their Ideological Impact." *Israel Studies*, vol. 17, no. 3, Indiana University Press, 2012, pp. 176–90, <https://doi.org/10.2979/israelstudies.17.3.176>, p. 182

³⁴ *Ultra-Orthodox* refers to Jews who, in addition to full observance of the 613 commandments of the Torah, reject aspects of modernity that are deemed to be dangerous for Jewish identity and abidance of the Torah. The term changes definitions depending on if one is referring to Jews in the diaspora or Jews in Israel. At the very least, these Jews reject most of modern media technology such as televisions, smartphones, and the internet. Additionally, they reject secular Zionism and any form of military service. Within this category, there are the *chassidim*, who are characterized by having a central authority that gives them guidance on all aspects of their lives; this authority is called a *Rebbe*. In these communities, conformism is so total that everyone wears the same clothes, hair styles, and hats. The *Modern-Orthodox* have the same level of religious observance as the previous groups with three major differences: there is no rejection of modern technology, Zionism is promoted as a positive Jewish value, and secular education is given as much importance as religious education. See Jewish Agency for Israel. "The Modern Orthodox Movement." The Modern Orthodox Movement, <https://archive.jewishagency.org/israel-your-community/partnership2gether/religious-streams/modern-orthodox-movement>; Weiss, Raysh. "Haredim (Charedim), or Ultra-Orthodox Jews." My Jewish Learning, 25 May 2017, <https://www.myjewishlearning.com/article/haredim-charedim/>.

religious community, the emphasis on religious learning also creates strong societal values that promote the application of Jewish law in combination with its constant teaching and deliberation. In the end, in this set one can see contradictory values such as total conformism and the use of personal initiative within the Jewish legal framework.

These two societal camps' cultural contributions by themselves are too contradictory to explain Israeli military effectiveness without an intervening mechanism like the IDF's organizational culture. The countervailing effects of independence and conformity present in the Israeli societal values could not have self-regulated into balance. If left to their own influences, both of these camps would tend to go their own extremes. For instance, the secular Zionist movement tried to extricate the values connected to Judaism only to realize that this was self-defeating as, without the biblical claim to ownership of Israel, its argument to reclaim the territory lacked legitimacy amongst Jews and non-Jews alike.³⁵ On the other hand, religious Zionism can also delve in extremes. For example, on the eve of the Yom Kippur War, and under the provision of *Pikuach Nefesh*, the Chief Rabbi of the IDF approved soldiers to break the Yom Kippur fast if they were put on battle alert so as to allow them to be well-fed before facing the enemy.³⁶ However, many soldiers were reluctant to break the fast, even with the leniency authorized by the highest military Rabbi of Israel and when they were ordered to do so by their officers due to their

³⁵ See Wazana, Nili. Israel's Declaration of Independence and the Biblical Right to the Land. The Torah. <https://www.thetorah.com/article/israels-declaration-of-independence-and-the-biblical-right-to-the-land> Accessed January 10, 2022

³⁶ The provision of *Pikuach Nefesh* is a Jewish law that requires a Jew, in order to save his life or someone else's, to momentarily stop observing the Shabbos and religious holidays where work is prohibited. See Glustrom, Rabbi Simon. "Saving a Life (Pikuach Nefesh)." My Jewish Learning, My Jewish Learning, 16 May 2017, <https://www.myjewishlearning.com/article/saving-a-life-pikuach-nefesh/>.

concern of breaking the Torah commandment to fast in Yom Kippur (Vayikra 23: 27-29).³⁷ Thus, if both of these societal cultural inputs were left to their own devices, they do not seem likely to self-regulate into some form of balance that would allow them to sustain military effectiveness.

As a final point on national culture, Jewish life was devoid of any military experience or knowledge for nearly two thousand years. Unlike its Arab neighbors, while Jewish life had experience with several organizations in areas such burials and education, for almost two thousand years Jews were completely alien to military affairs thus had no capacity to apply Jewish values to warfare. Indeed, the last time before the 1948 War of Independence that there was a Jewish Army was the Bar Kochba rebellion, which ended with the traumatic expulsion of Jews from Jerusalem by the Roman occupiers.³⁸ This combination of lack of experience and aversion to warfare was a strong element of Jewish life that put up a roadblock in the application of Jewish values in this field of human endeavor. These two reasons seem to undermine the hypothesis that societal values alone could have driven the IDF's military effectiveness.

In terms of force employment, the events on the battle do not indicate that this alone can account for the result, as the winning side's operation did not fully conform to what can be considered as modern force employment. From Biddle's point of view, modern force employment entails the use tactics relying on cover, concealment, dispersion, small-unit independence, suppression, and combined arms integration, in tandem with operations relying on the use of

³⁷ This has been recently brought into light, along with the tensions between the generally less religious Ashkenazim Jews and the generally more religious Sephardim Jews serving in the IDF in HBO's Valley of Tears, a mini-series that relates the first few days of the Syrian offensive against the Golan Heights in the Yom Kippur War. See HBO. "Adon HaSelichot from Valley of Tears." Youtube, 21 Aug. 2021, <https://youtu.be/Je9rXTkelkg>.

³⁸ Schiffman, Lawrence H. "The Bar Kochba Revolt." My Jewish Learning, My Jewish Learning, 24 Apr. 2017, <https://www.myjewishlearning.com/article/the-bar-kochba-revolt/>.

ground, deep positions, reserves, and counterattack (Biddle, 2004, p. 3). The problem with this theory is that Operation Stouthearted Men conforms in some respects and diverges in others. The IDF counterattack demonstrated good, combined arms integration and was successful thanks to Sharon's independence as well as those of the IDF Armored Brigades trying to solve the problem of the Egyptian position in Chinese Farm. However, there was little use of suppression, cover, concealment, and dispersion. The IDF succeeded in spite of its not fully displaying all the elements of modern force employment. At the same time, the Egyptians seemed to excel in effecting elements of the modern system of force employment. With the exception of small-unit independence, Operation Badr reflected most of the traits Biddle singles out. Yet, this did not allow the Egyptians to repel Operation Stouthearted Men.

Finally, regarding command structure, there are striking similarities between the Egyptian Army and the IDF. Grauer argues that using a command structure that provides speed and accuracy to detect and react to battlefield challenges positively influences military power (2017, p. 29). Specifically, he explains that a command structure that shrinks commanders' spans of control and elongates chains of command improves information management and helps commanders better understand the situation (Ibid, p. 23). As seen in Figures 15 and 16, both armies had command structures that seem to fit within Grauer's argument. The Egyptians had two armies each controlling four or five divisions while the Israelis reached a peak of four divisions, each controlling four or five brigades. Although the Israelis decentralized more decision-making authority than did the Egyptians, the two were similar with respect to commanders' spans of control. But command structure alone cannot explain the outcome of the battle. First, throughout the battle, the Egyptian Army commanders were unable to grasp the evolving Israeli crossing

operation and did not seem to understand that this was more than just a local counteroffensive. Second, command structure arrangements were not powerful enough to counter the harmful effect of the Egyptian control imperative. The Egyptian generals did not put into action their counteroffensive plans because they lacked the proper instruction from GHQ in Cairo and, as explained above, four different signatures were required to authorize a general counterattack. These events demonstrate that command structures and organizational culture are symbiotic. Militaries must not only create an effective structure but must also infuse it with the right culture. On the one hand, Egyptian brigade and divisional commanders demonstrated the ability to operate independently within the existing framework of their instructions and operational plans. For instance, one Brigade of the Third Army broke out of its intended line and raced to the Mitla Pass almost 30 kilometers away but was recalled by GHQ (Palit, 1974, p. 87). Another example is the Egyptian 2nd Infantry Division's ability to rapidly set up an ambush that took out an IDF armored battalion with its CO (Dupuy, 1978, p. 87). On the other hand, these examples of independence coexisted with a harmful control imperative, which nullified the benefits brought by the Egyptian command structure.

4.6. Conclusions

This chapter has tested my organizational culture theory of military effectiveness using the case of the IDF's crossing of the Suez Canal during the 1973 Yom Kippur War. Benefitting from massive material advantages as well as the IDF's serious mistakes regarding its lessons from the

Six Day War, Egypt made an outstanding crossing at the outset of the conflict that established a contiguous presence in the east bank of the Canal. The situation changed, however, when the IDF spotted a fatal gap between the Second and Third Egyptian Armies and moved to exploit it. Achieving a very weak crossing at Matzmed, and exploiting the complete standstill of the Egyptians, the IDF proceeded to trap an entire Egyptian Army. The IDF was able to do this because its organizational culture allowed it to act in an innovative and responsive manner and best the Egyptians, despite the wealth of advantages that the Egyptians brought to the war in terms of planning and resources.

5. Chapter 5: The Battle of Goose Green

In this chapter, I assess my theory's explanatory power in the Battle of Goose Green, fought during the Falklands War.³⁹ In 1982, the United Kingdom was surprised by an Argentine amphibious operation that took control of the Falklands Islands from the British garrison stationed there. This triggered the Falklands War, which became the first major conventional war between a South American and a European state since the 1865 Chicha Islands War between Spain and its former Andean colonies of Ecuador, Peru, Bolivia, and Chile. The Falklands War is a useful case on which to test my organizational culture theory of military effectiveness and military power, as most of the classic theories favor the Argentines. In this fight, though, the British Army had a hierarchical culture while the Argentine Army evinced all three imperatives, making up a conformist culture. As a consequence, my theory correctly anticipates the relatively higher levels of British military effectiveness and power. The two sides' organizational cultures and their anticipated levels of effectiveness are depicted in Figure 5.1.

³⁹ In Spanish, the war is known as the *Guerra de las Malvinas*, reflecting the Argentine term for the Falklands Islands as the *Islas Malvinas*.

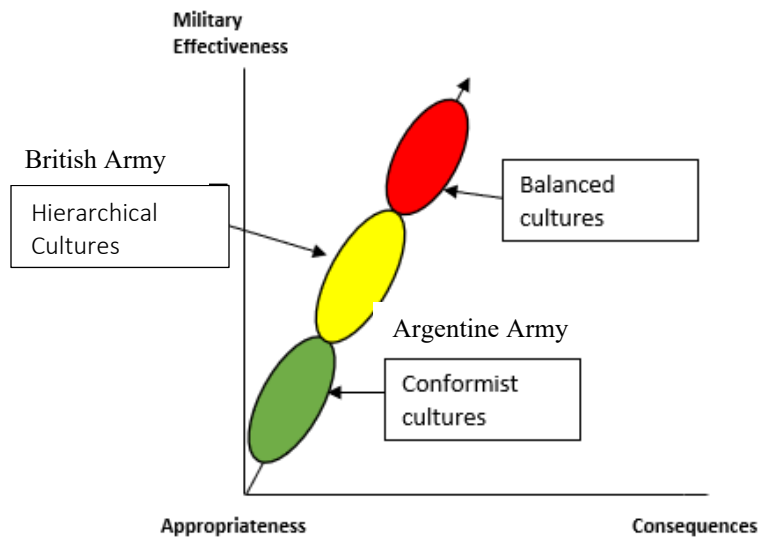


Figure 17

I present this case in four stages. First, I present an analytic description of both armies' organizational cultures, limiting my historical discussion of the armies only to those events that are essential to their cultural evolution. Second, I analyze the extent to which the results of the Battle of Goose Green can be understood as a consequence of the British Army's organizational culture advantage over the Argentine Army's culture. Third, I assess how well alternative military effectiveness and military power theories are able to explain the outcome of the Battle Goose Green. Finally, I provide conclusions regarding this case.

Before proceeding, it is necessary to make a methodological note. In addition to citing military archives in this chapter, I present evidence from semi-structured interviews with British and Argentine veterans of the war. With the Argentine defeat in the Falklands War and the collapse of the Argentine military government, there were several judiciary proceedings against the Argentine soldiers who fought in the war. Many of these proceedings were conducted inside and outside the Argentine Judge Advocate General jurisdiction and triggered important social and

criminal backlashes against the defendants. Given that many of my sources maintain professional, academic, and even military appointments today, it is unwise to identify them publicly. Accordingly, I have decided to implement a safety feature to protect the privacy of my Argentine sources. I identify them solely by their rank and position in the Argentine order of battle during the battle instead of their names. This should prevent any unwanted damage to their professional or personal reputation.

5.1. The Cultures

5.1.1. The Argentine Army

The Obedience Imperative

In 1982, the Argentine Army was committed to the obedience imperative. The main driver was its belief that the total obedience of a soldier to superior orders was a key factor in the successes attained by the army during its nineteenth century campaigns. This interpretation of the army's military history shaped Argentine professional military education (PME) and conditioned the officer corps to be extremely averse to the use of their personal initiative in combat. In this section, I explain how the Argentines' adherence to the obedience imperative remained consistent and withstood even deliberate army efforts to modify procedures and incorporate alternative successful foreign doctrines.

From the beginning of the 19th century, the Argentine Army progressively developed a belief that military effectiveness required total obedience by soldiers to the orders of their

superiors. During this time, many of Argentina's generals achieved their military fame by executing their initial orders while disregarding other valid military considerations. For example, during the 1829 Argentine Civil War, General Juan Lavalle decided to execute his invasion of Santa Fe province, as ordered, without much needed supplies and cavalry, only to be defeated at the Battle of Puente de Marquez that same year (Lettieri, 2013, p. 61). Lavelle's defeat is not why he is remembered, though; it was his dogged effort to fulfill his orders that led to his entry into the hall of fame of Argentine Generals.

The disregard for other military considerations than execution of original orders continued during the Argentine Desert Campaign of 1870. According to a former flag officer, there is an episode of this campaign which has served as a learning tool for many generations of Argentine Army officers:

“General Lavalle says a famous phrase that is repeated and has been repeated to us as an educational way and has its value, its success, and its error [...] What did he say? “We do not have grass, we do not have tobacco, we do not have mackerel, nor possibilities of receiving it, but we have obligations to fulfill, and we will fulfill them.”⁴⁰

The former flag officer understood this quote to mean that other considerations do not matter; what matters is to follow orders even if doing so reduces the chances of success in a military campaign. This belief regarding obedience was enshrined in Argentine PME that same year. In 1870, Argentine President Domingo Sarmiento established the *Colegio Militar de la Nación* (National Military College-CMN) as part of a strategy to use military professionalization to reduce

⁴⁰ Argentine Retired Flag Officer. Personal Interview. February 26, 2019

the infighting between the different political groups inside the Argentine Army (Marzoratti, 2019, p. 184). However, the army was more focused on producing obedience through harsh discipline than educated graduates in the school. According to graduates from the CMN during its first decade, the army's units "were considered by our citizens as correctional corps or punishment facilities" due to the excessively punitive discipline exercised over the Argentine cadets (Ibid, pp. 181-182). In this context, the Argentine Army's officers would command their units into self-defeating and unnecessary attacks against indigenous forces, which led War Minister Alsina to rebuke them, saying that acts of bravery were one thing, but acts of reckless daring that produced useless casualties were another (Ibid, p. 205). Thus, by 1877 the Argentine officer corps had developed and normalized the belief that one had to obey orders regardless of valid tactical or operational considerations. The fact that the army had become an institution in which obedience was instilled in its cadets through excessive discipline made it easy to raise an officer corps in which an officer could lead his troops into suicidal attacks with little or no military value. In this army, absolute obedience trumped an officer's basic military responsibility to apply his professional judgment to attain a military end. This is what was behind Levalle's quote: Argentine officers had a very rigid, and up to a point, counterproductive understanding of obedience.

This is a characteristic that remained until the eve of the Falklands War, as evidenced in part by the fact that Levalle's quote was still used in the army's officer educational materials.⁴¹ This belief became an organizational mantra that would withstand Argentina efforts to change the doctrinal makeup of its army. The first of these efforts began when Argentina hired a German

⁴¹ Ibid

military mission to professionalize its army in 1895. The German mission established courses like those offered in the War Academy in Berlin for Argentine officers in Buenos Aires. The courses introduced the Argentines to an early version of *Auftragstatik*, or the allotment of independence to subordinates in their pursuit of military goals. As explained further below, however, they had only limited effects on the Argentine Army (Grauer, 2015, pp. 290-291). The stickiness of the Argentine belief remained after Germany's defeat in World War II (WWII), when the Argentine Army sought to model itself along the lines of the United States Army (USA). Under American influence, the Argentines made force structure changes, such as replacing Regiments with Battalions and setting up the basic framework for Divisions.⁴² Nevertheless, the same commanders who championed the new American doctrine remained committed to their pre-existing beliefs that obedience trumped personal initiative.⁴³

The Argentine resistance to altering their beliefs regarding obedience is a powerful statement of the strength and influence of those ideas in the army throughout its history. Over the course of nearly a century, the Argentine Army adopted two very different and successful military doctrines hoping that these changes would help it attain the efficiency of the German and United States armies. However, any concepts that were inconsistent with the standing belief of the Argentine Army regarding obedience were discarded. The most powerful example is that the concept of *Auftragstatik* that guided the German mission was seen as a threat to many senior Argentine officers, as they “feared for their position and authority in a reformed, modernized

⁴² Argentine Active Senior Officer. Personal Interview. February 22, 2019

⁴³ Argentine Retired Flag Officer. Personal Interview. February 26, 2019

army” (Ibid, p. 299). From the perspective of the Argentine Army leadership, the ideal Argentine officer was an individual who set as his priority the maintenance of internal order through his blind obedience to orders. Indeed, this is how a Falklands veteran saw himself: as a soldier who follows orders without thinking of their consequences (Kinzer, 1988, p. 76).

Argentine professional military education (PME) remained geared towards achieving high levels of obedience. For instance, a primary purpose of the CMN was to train officers to subordinate every aspect of their personalities to the military profession (Goldwert, 1972, p. 60). This seemingly legitimate goal was given a particular Argentine twist arising from the army’s obedience imperative: there was a saying in Argentine PME institutions that “the superior is always right.”⁴⁴ Non-commissioned officers (NCOs) and rank-and-file soldiers were trained along these lines and were not given any leeway or room to exercise their own personal initiative in tactical situations.⁴⁵

The Argentine Army’s adherence to the obedience imperative was thus able to resist efforts to change while continuing to shape the army’s education and training. Furthermore, new doctrines introduced into Argentine Army training that threatened the commitment to obedience were hijacked and reinterpreted in a manner that reinforced the obedience imperative. A good example of this was the Argentines’ understanding of the American military doctrinal concept of “commander’s intent.” The American concept was similar to the German idea of officer leadership, accentuating the officer’s personal independence (Shamir, 2011, p. 61). The Argentine Army

⁴⁴ Argentine Regimental Officer #2. Personal Interview. February 28, 2019

⁴⁵ Argentine Retired Enlisted. Personal Interview. February 21, 2019

altered the American definition of commander's intent to mean giving a subordinate a mission through an order and controlling its execution by limiting the soldier to the fulfillment of the order.⁴⁶ Thus, the belief that only total obedience could bring the army victory also managed to change a foreign doctrinal concept into an Argentine version.

The end result of this continued adherence to the obedience imperative was a tactical doctrine that was highly regulated. Small-unit assaults were prescribed to minute detail, and every soldier was expected to obey those prescriptions. Only senior officers could use their own judgement in consideration of the combat conditions instead of waiting for a new order (Secretaría de Guerra, 1966, p. 456). Argentine soldiers had been conditioned by their culture to blindly execute what was ordered by an officer corps that had surrendered to the notion that an officer's job was not to think about his tactical options, but to follow superior orders. These soldiers were supposed to be guided by officers who, in theory, did have some leeway to use their initiative in combat decision-making. Argentine officers, however, had such a negative view of initiative that every veteran interviewed for this case said that, in the CMN, they were taught that "Initiative is the mother of all fuck ups." Thus, officers would only act of their own initiative when tactical situations reflected a radical disconnection between the order and the military situation on the ground. These were usually situations that were already dire and extremely challenging, such as having a reinforced company use its heavy mortars to repel an entire British amphibious landing force.⁴⁷ Consequently, at the time of the Falklands War, the majority of army officers were

⁴⁶ Argentine Flag Officer. Personal Interview. February 26, 2019

⁴⁷ Parada, O. (1982). Orden de Operaciones Nro 587/82 1982. Buenos Aires, SHE # No 10, box 1, folder 2, doc. 663

beholden to an organizational culture that rendered them unable to do anything but obey superior orders.⁴⁸

The Control Imperative

The Argentine Army's beliefs about officers' role in battle reflected the control imperative. The army believed that higher command echelons would always be able to steer the action of all their subordinates and make them adapt to the changes of the battlefield. In this section, I explain how this belief shaped the army's tactics and operations.

For the Argentine Army, the key to having forces that could adapt to the situation on the battlefield was having officers who could control them in detail. Of course, armies have a natural propensity to control, given that their unique task consists of killing in an organized manner and in a risky context (Hasseldbladh and Yden, 2020, p 479). But, as noted earlier, the Argentine Army distorted the American military doctrine they were attempting to follow and took it to mean that a subordinate had to be given a specific and clear task, had to be controlled in its execution, and was not to be given any leeway to deviate.⁴⁹ As a result, the Argentine Army took the natural need to control operations to the extreme. COs were supposed to control the soldiers and junior officers under their command by providing highly detailed orders sufficient to direct their behavior in any potential battle situation.

⁴⁸ Argentine Retired Flag Officer. Personal Interview. February 27, 2019

⁴⁹ Argentine Retired Flag Officer. Personal Interview. February 27, 2019; Argentine Army Regimental Officer # 2. Personal Interview. February 28, 2019

This emphasis on control was reinforced by the sense of inferiority with which Argentine officers were instilled during their military education. Argentine junior officers were constantly taught that they were inferior in knowledge and skills to their senior officers, thus generating an ingrained feeling of dependency among junior officers and enlisted personnel.⁵⁰ Thus, the CO's role in the Argentine Army was to be the one leader who told everyone what to do if something in the battle did not go according to plan. So strong was this emphasis on officers focusing on how to control their subordinates' actions in minute detail that a CO was expected to design control mechanisms to make sure that the plan flowed as he and his staff had designed it (EMGE, 1967, p. 93). Most of these mechanisms involved a heavy-handed form of discipline and pushed subordinate officers to request permission from their superiors for whatever action they had to implement.⁵¹ As one Regimental officer put it, "The regimental chief controlled absolutely everything."⁵²

The emphasis on senior officers controlling the actions of subordinates in minute detail at times also generated animosity between officers and non-commissioned officers (NCOs). An Argentine veteran noted that, "*There was a lot of rancor between the officer and non-commissioned officer, and the non-commissioned officer and the soldier.*"⁵³ As a result of this rancor, it was common for NCOs to try to countermand orders of junior officers, leading to soldiers following the order of whoever was closer to them and being ready to excuse any inconsistencies

⁵⁰ Argentine CO # 3. Personal Interview. March 14, 2019

⁵¹ Argentine Regimental Officer # 2. Personal Interview. February 28, 2019

⁵² Ibid

⁵³ Argentine Retired Enlisted. Personal Interview. April 20, 2019

on the grounds that they were only following the orders they were given.⁵⁴ To be sure, based on the control mechanisms that officers designed in the case of written orders, it seems that this was a situation that happened in the case of verbal orders. Also, it seems likely that these cases were countermanded if the officers giving the orders saw their NCOs deviating from them. For instance, the same veteran recalls how a Major woke up his NCOs in the middle of the night to admonish them for having kept their soldiers up, denying them the chance to rest before they were deployed on a mission on the next day.⁵⁵ The point here is that, due to the rancor between NCOs and officers, officers were often engaged in time consuming efforts to control the execution of their orders.

This approach to control led to a constant effort to check and recheck orders, which increased the time it took for Argentine units to execute actions and operations. COs were trained to make sure no one in their unit did anything beyond what they wanted them to do, and to implement the control mechanisms necessary to make sure that subordinates adhered to the plan.⁵⁶ The result was a command process with excessively detailed operational orders (OPORD) that tended to create problems for every officer down the chain of command.

The Certainty Imperative

The Argentine Army that fought in the Falklands displayed the certainty imperative. The army trained its soldiers to seek certainty in battle by blindly trusting the assessments and solutions

⁵⁴ Argentine Retired Enlisted. Personal Interview. April 20, 2019

⁵⁵ Argentine Retired Enlisted. Personal Interview. April 20, 2019

⁵⁶ Argentine Regimental Officer # 2. Personal Interview. February 28, 2019

of their officers, who were deemed infallible. This “infallibility” was a mechanism intended to help soldiers disregard the uncertainty of combat by trusting that their superiors could accurately predict and anticipate the flow of the battle. In this section, I explain how the certainty imperative shaped the Argentine Army’s combat tactics and operations.

Training in the Argentine Army was not focused on educating soldiers to use their judgment, but instead emphasized the certainty of linear tactical formulas endorsed by the army (Kinzer, 1991, p. 48). The weight of scholastic and formulaic command techniques was such that the PME received by officers consisted of memorizing formulas, decision-making aids, and school solutions to battlefield problems. Indeed, a veteran observed that the entire education of army officers, with the exception of the special forces, was based on using data provided in table-top exercises to apply linear solutions to tactical problems, creating the impression that command was just a matter of performing simple arithmetic or mechanics.⁵⁷

Adding to this dependence on linear formulas, the army also reinforced the dependence on senior officers’ assessments to help junior officers avoid uncertainty. In an army that instilled in its officers and soldiers a sense of inferiority, it is logical that there would be a class of leaders who were designated to be inherently superior to their colleagues. These were the senior officers of the Argentine Army. The army educated the Argentine soldier with the belief that only senior officers could effectively determine the correct course of action in ambiguous and uncertain situations (Soldiani, 2012, p. 51). This resulted in junior officers genuinely believing that senior

⁵⁷ Argentine Regimental Officer # 1. Personal Interview. February 20, 2019

officers were their “bibles.”⁵⁸ These “bibles” were the only people who could tell the junior officer and the soldier what lay ahead in a battle. Because of this belief, there was no need for the Argentine soldier to analyze his terrain or his adversaries in battle.

The belief that senior officers possessed infallible abilities prevented junior officers from accepting any form of risk. The officers were trained to believe that “all the premises of the superior level become facts for the subordinate level.”⁵⁹ In short, this meant that, once a superior officer said that a battle would unfold in a certain direction, there was no reason to be uncertain or to challenge the forecast of the senior officers, even if the officer’s assessment was completely unrealistic. Accordingly, even if the battle unfolded in a manner that raised the prospect of uncertainty for junior officers, they were to ignore the facts around them and remain committed to the assessment of their superior officer. This is why, according to a Falklands veteran, the army did not expect tactical commanders to calculate battle risks and decide on a course of action in a sudden combat situation.⁶⁰ Instead, these officers were supposed to wait for their senior officer to explain how the situation will evolve once the troops executed the orders they were given.

The impact of the certainty imperative was significant for the army’s tactics and operations, as it basically expunged critical thinking from the officer’s skillset. Even at the battalion level, where one would expect company COs to present their in-combat assessment, they were

⁵⁸ Argentine Army CO # 3. Personal Interview. March 14, 2019

⁵⁹ Argentine Army CO # 1. Personal Interview. February 27, 2019

⁶⁰ Argentine Army CO # 2. Personal Interview. March 6, 2019

completely excluded.⁶¹ This reinforced the tendency towards the certainty imperative by effectively cutting off the line to reality that junior officers could provide to their headquarters.

The main result of this fixation on having senior officers impose unrealistic battle premises on their forces was that the army was very rigid. No one had the conditioning to accept a minimum of uncertainty by retaining the skepticism necessary to ask themselves what would happen if the enemy failed to comply with the Argentine planning premises.⁶² Indeed, the official postwar assessment acknowledges the tactical rigidity of the army, stating that higher command was characterized by rigidity in not updating the initial mission, even in the face of substantial changes in the situation (Commission Calvi, 1982, p. 2). This was the tactical consequence of a culture that trained its junior officers and soldiers to believe that battles unfold in predictable manners, and that only the senior officers have sufficient insight to anticipate the flow of a battle. As a result, the Argentine Army failed to train its junior staff to analyze the terrain, the adversary, or the tactical risks in a battle.

5.1.2. The British Army

The Obedience Imperative

The obedience beliefs of the British Army in 1982 were markedly different from those it held in 1941, described in Chapter 3. While the British Army after WWII remained formally committed to the obedience imperative, its combat exposure during that war brought the realization

⁶¹ Argentine Army CO # 3. Personal Interview. March 14, 2019

⁶² Argentine Army CO # 1. Personal Interview. February 27, 2019

that personal initiative was at times a benefit in a military operation and would be stifled by rigid adherence to the obedience imperative. In this section, I explain how this transition took place and allowed the British Army to avoid the limitations of the obedience imperative by the time of the Falklands War.

The British Army that emerged from WWII was initially convinced that its adherence to the obedience imperative should remain influential in its force. Structurally, army PME institutions continued to emphasize firm obedience as part of their ethos and shaped their training programs along the lines that nothing, but firm obedience could carry out the battle.⁶³ This was indeed the reality at Warminster, the British Army's School of Infantry. British COs valued drilling as a means to instill fundamental military skills in soldiers.⁶⁴ For the British Army, drilling was a way to program the kind of obedience that guardians of the regimental system wished to ensure. The aim, in short, was automatism under stress (Burke, 2018, p. 44). Counterinsurgency combat deployments of the British Army between 1945 and 1970 loosened the influence of the obedience imperative in the British Army, however. According to a British Lieutenant, "many a soldier, a nuisance in barracks, have risen to considerable heights in Borneo and Aden. It is apparent that the good, well-behaved barrack room soldier may be quite useless in the field while the reverse applies" (Burke, 2018, p. 50). This observation is not an isolated assessment. Some officers felt that the combat experience even gave British soldiers an instinctive understanding of *Auftragstaktik*.⁶⁵ For these officers, the army may not have formally studied the German command concept, but it eventually grasped, through its deployments, that in combat it is more conducive to

⁶³ Benest, D. Personal Interview. January 17, 2019

⁶⁵ Benest, D. Personal Interview. January 17, 2019

victory for the commanding officer to clearly identify the goal to be achieved and then entrust the ground commander with the authority and responsibility to determine how best to achieve that objective.

The combat exposure of thousands of British soldiers after WWII thus created an alternative belief regarding obedience. Although this alternative belief was never formally endorsed, the reality is that the officers whose beliefs were shaped by these counterinsurgency experiences became a resource to the British Army. These combat officers were prepared to assume responsibility and placed in strategic positions within the force so as to be available to lead based on their own initiative if and when a fluid combat situation would arise that required local initiative to move forward.⁶⁶ Shamir has similarly argued that the British Army came to trust that certain individuals would be in the right place at the right time (2012, p. 67). The army was willing to keep a diverse array of officers who, when the need arose, could take control of a situation. The presence of these officers in active command positions within the British Army despite official retention of the obedience doctrine supports the thesis that the obedience imperative was avoided by the British army by the time of the Falklands.

This tolerance of the informal viewpoint bought through combat experience enabled the army to gain important benefits relevant to its tactical command. First, professional judgement, personal experience, and tactical learning were the main tools that soldiers used to confront changing situations in the battlefield. For instance, Brigadier David Chaundler, who commanded the British paratroopers in the last part of the Falklands War, reported that he switched off his radio

⁶⁶ Neame, P. Personal Interview. January 7, 2019

so as not to receive orders from 3 Commando Brigade to stop his advance because he knew that he was expected to use his personal initiative and judgment in order to move as fast as possible against Port Stanley and deny the Argentines time to reorganize their lines.⁶⁷

Second, personal combat experiences fostered the belief that obedience had to be reflective to be truly effective. In the words of an Argyll and Sutherland Highlanders Regiment officer, combat experience distinguished the Regiment giving it access to a “keener sense of professional soldiering” and training methods “not entirely in the book” (Burke, 2018, pp. 50-51). In other words, because of their extensive combat experience, Highlander officers could use their experience in ways that made them adapt to the battlefield. In short, soldiers in the British Army believed that reflection was the key to bridging the twin necessities in the battlefield of internal order and adaptation.

The Control Imperative

The British Army was still firmly committed to the control imperative at the time of the Falklands War. While the army grew past a rigid obedience imperative, the control imperative remained strong due to two key factors. First, the British Army defined the role of an officer in terms of control. Second, tactical centralization promoted the control imperative in the PME institutions of the army. In this section, I explain these two factors and their impact on keeping the control imperative as a strong drive in the British Army.

⁶⁷ Chaundler, D. Personal Interview. January 14, 2019

The first reason for the maintenance of the control imperative is that the army defined officers' basic duty in such terms. While combat deployments brought a nuance to the army's understanding of obedience, the same did not happen with control. For example, when asked how the army expected its officers to coordinate their actions in the field; Colonel Benest, Communications officer of 2 Battalion, Parachute Regiment answered *"it was by the opposite of being in command. It was control: Don't do, don't cross that line until I tell you."*⁶⁸ Indeed, the army believed that, for an officer to be promoted in training courses, he had to demonstrate the ability to stage a battle in which he maintained control of every action of his units in detail.

Consider this comment regarding how the average command post exercise in the British Army ran prior to 1982. According to Lt. Colonel Neame, who commanded the 2 Battalion, Parachute Regiment during the Battle of Goose Green:

*"You had a series of command post exercises and you'd be there "in command" or maybe acting as a brigade major in command of some paper exercise that is going on. And the Directing Staff's question was always "what is that unit doing there?" and "what about that platoon there" and so on."*⁶⁹

This experience speaks directly to the central elements that the training staff directing the exercise looked for when evaluating an officer. A good CO was supposed to know exactly what was going on with every unit facing an enemy. In the end, the British Army evaluated a COs capacity to replicate Montgomery's ability to stage battles by how effectively he controlled the detailed actions of his unit.

⁶⁸ Benest, D. Personal Interview. January 17, 2019

⁶⁹ Neame, P. Personal Interview. January 7, 2019

In addition to the Army's experiences in WWII cementing its belief in the control imperative, the Cold War deployment of the army in the North German plain also provided support for this policy. According to Brigadier David Chandler, "*The whole way in which the British Army in Germany was structured, the whole way in which it operated [...] demanded a great deal of centralized control*"⁷⁰ Chandler's argument is reinforced by the fact that the German commitments during this deployment made it easier to rationalize the British Army's training structure. The memory of Montgomery's successful staging of his battles had a major impact on the British attitude toward including the control imperative in Army training within the British Isles. But, in Germany, control was deemed even more necessary due to the operational complexity of the theater. There, the British Army of the Rhine was part of a multinational military alliance with a clear operational task that was part of a larger operational effort to delay the Soviet advance into Western Germany and Europe. Because that effort also had to deal with escalation control to prevent the Cold War from escalating to nuclear exchange, it was easy to rationalize that field commanders had to be tightly controlled to prevent uses of initiative that might detrimentally affect the British role within the allied operation in West Germany. The end result was a British Army that made detailed control the formal benchmark of a CO.

The second factor cementing the control imperative in the army was the approach to combat in British PME institutions, specifically at the Warminster School of Infantry.⁷¹ Every unit in the British Army went through Warminster for its infantry combat tactical training. Training there

⁷⁰ David Chandler took over command of 2 Battalion, Parachute Regiment after the Battle of Goose Green and commanded them for the rest of the Falklands campaign. Chandler, D. Personal Interview. January 14, 2019

⁷¹ Thompson, J. Personal Interview. January 15, 2019.

was built on an obedience-control loop that constantly reinforced the army's notion that control was of the utmost importance. According to Lt. Colonel Neame, tactical command training in the school was so distorted that there was only one strategy that allowed a soldier to successfully pass this stage of his career: "*there was one way and that was to make sure no one was doing anything! And that way you can beat the DS (the Directing Staff).*"⁷² For other officers like Major General Julian Thompson, this amounted to making British COs think of their subordinates as nothing more than puppets.⁷³

The fact that the only officers who were promoted were those capable of showing themselves at this level of control consolidated the control imperative in the army. In the British Army before 1982, officers made their careers by showing themselves capable of predicting how a tactical engagement would unfold according to their plans (Fitz-Gibbon, 1995, p. 16; Sangho, 2012, p. 53). Although combat experience showed many officers that success in operations required a more flexible approach to control, the fact of the matter was that control could only be exercised with rank. With control so central to the exercise of rank authority, there was no allowance for flexibility. Hence, unless experienced officers could have supportive COs, or they themselves had a rank that afforded them sufficient command authority, attempts to make control more flexible in the army were pointless.

The emphasis that British PME put on detailed control was so strong that it managed to impose itself over the otherwise fractured British force structure, creating a common policy across the regiments of the army. Despite the presence of a variety of military command styles across

⁷² Ibid

⁷³ Thompson, J. Personal Interview. January 15, 2019.

British regiments, the fact that the control imperative managed to gain and maintain its foothold in the army is a testament to how entrenched this belief was at the time of the Falklands War.

The Certainty Imperative

The British Army in WWII attempted to achieve certainty by the exhaustive use of detailed centralized planning and schematized battle plans. The devotion to detailed planning emerged in reaction to traumatic experiences the army went through during WWI. However, with the increase of British combat deployments after WWII, the army was able to escape this imperative by allowing its officers to use their previous combat experience to deal with combat uncertainty. In this section, I explain how this transition took place before the Falklands War.

WWI's battles impressed upon the army that accurate planning was key to avoiding military failures. According to Colonel Benest, the British "saw what happened if things weren't properly thought through and I think that that generation of commanders almost saw it as their duty to [...] know what is going to happen."⁷⁴ The army experienced firsthand the effects that a lack of appropriate preparation had on its operations and began to put an emphasis on planning. This led to a British effort to improve planning in its command processes. However, what began as a healthy awareness of the importance of coordinating military plans to achieve an operational goal evolved into something counterproductive: tactics remained mired in detailed planning of the tiniest details and began to assume that enemy actions would play along with the plan (Fitz-

⁷⁴ Benest. D. Personal Interview. January 17, 2019

Gibbon, 1995, p. 15). Thus, in the staff college in the early 1980s, “the mantra that we had was to be certain and if you are not certain then it is not good.”⁷⁵

But not all COs, especially those with combat experience or close to people with combat experience, agreed with this aversion to uncertainty. During WWII, Brigadier James Hill became famous for saying on the eve of combat “gentlemen, there will be chaos, get used to it.”⁷⁶ The British knew that their certainty imperative was not consistent with the reality of battles they had experienced. Indeed, Field Marshall Nigel Bagnall, Commanding General of the British Army of the Rhine during the 1980s, gained notoriety in 1970 by calling for a more embracing attitude towards uncertainty (Sangho, 1994, p. 34). Also, Major General Thompson, General Officer in Command (GOC) 3 Commando Brigade, was aware of the shortcomings caused by the certainty imperative and tried to modify the training plans of his Brigade in Germany to reflect the randomness and uncertainty of combat (Thompson, 1991, p. 1).⁷⁷ Thus, the British Army allowed its officers to maintain a more embracing attitude towards uncertainty.

In addition to the call by senior officers for more acceptance of uncertainty, the army’s combat deployments post-WWII also helped to make the case for soldiers to embrace uncertainty and risk. The continuous tours of officers through the colonial counterinsurgency campaigns between 1950 and 1970 raised awareness that there is nothing more unnatural to war than attempting to build certainty through massive force superiority, as Montgomery did in WWII. These officers seemed to have instilled this belief in their soldiers by discouraging their

⁷⁵ Ibid

⁷⁶ Ibid

⁷⁷ Benest, D. Personal Interview. January 17, 2019

dependence on the CO as the only source of tactical solutions.⁷⁸ This meant that British soldiers knew that using their own judgment would help achieve a more accurate assessment of the combat environment. Consequently, the army was open to the idea that uncertainty had to drive soldiers to rely more on their own judgment and less on linear formulas and the pervasive drill that comprised much of the training.

In conclusion, a stream of constant combat experiences created at the very least a willingness by officers not to blindly apply formulas and ignore their own military judgment. Different deployments taught soldiers that formulas often failed to address the volatility of combat and war. Therefore, there was, at the very least, an acceptance in the army of the necessity to allow soldiers room to grapple with a volatile situation by applying their own assessment of the risks based on their own past tactical experiences. In contrast to the Argentine Army, it is clear that the British Army by 1982 had moved beyond the proposition that defined military skill as execution of schooled solutions or plans. Rather, military skill was the display of professional knowledge to deal with different risk calculations in chaotic situations.

5.2. The Armies' Cultures and Their Expected Performance

Before presenting the Battle of Goose Green, I must lay out my theoretical expectations for the armies' military effectiveness and power during the battle. In the case of the British Army,

⁷⁸ Nevertheless, the officer acknowledges that other soldiers like those of B company in 2nd Battalion Parachute Regiment were more prone to look to their CO for guidance and definitions in critical moments. Neame, P. Personal Interview. January 7, 2019

since this force managed to avoid the influence of the certainty and obedience imperatives while remaining under the influence of the control imperative, I expect it to display effectiveness levels consistent with that of a hierarchical culture. I expect the British Army to have junior officers who use their initiative to find quick and actionable solutions to battlefield problems and who do not hesitate or shy away from using these solutions in light of the uncertainty of battle. As explained in Chapter 2, the control imperative represents the belief that allowing officers to pressure subordinates to produce pre-established results is superior to devolving command power to subordinates. As an adherent to the control imperative, I expect to see evidence of commanders attempting to exert high levels of control over their subordinates. Nevertheless, the British Army being a hierarchical culture should, in the end, display a higher level of military effectiveness than the Argentine Army.

The Argentine Army, because of its adherence to all three imperatives, had a conformist culture. As a result, the Argentine Army should display quite low levels of military effectiveness. This is because each of the three imperatives takes a toll on the effectiveness of the force. Due to the obedience imperative, I anticipate the Argentine Army to exhibit extremely poor military effectiveness, with their units being unable to adapt to battlefield changes nor make good use their existing advantages. In terms of the control imperative, Argentine units should often be led from command posts that have little to no knowledge of the battlefield conditions and challenges facing the units in the field. Finally, because all Argentine officers were socialized to avoid grappling with uncertainty and to instead wait to receive assessments and solutions from their headquarters, I expect to see Argentine units failing to assert themselves and take sensible and necessary risks in order to effectively defend their positions.

In terms of military power, given the characteristics of the forces involved, I expect to see the marked superiority of the British Army. Having a higher potential to generate military effectiveness, the British field commanders should take initiative as well as calculated risks that enable their units to advance more rapidly in the battlefield, minimize friendly casualties, and maximizing enemy casualties. On the other hand, the Argentine Army will more likely be unable to exploit its tactical and operational advantages in the battle and should therefore fail to generate similarly high levels of military power.

5.3. The Battle

Strategic Context:

Ownership of the Falklands Islands was a matter of dispute between Argentina and the United Kingdom since the 19th century. In 1767, a British settlement was established on the islands and in 1820 Argentina established a short-term colony there (Thompson, 1992, p. 24). In April 1982, the Argentine military government sought to settle this dispute by invading the Falklands, which in turn triggered the deployment of a British Task Force to counterattack the Argentines and recapture the territory (Ibid; Freedman, 2005, p. 14).

The strategic setting for this war was very disadvantageous for the British. Just prior to the war, budget cuts lead the United Kingdom to remove from active service one aircraft carrier and four auxiliary ships, which imposed limitations on its ability to support an amphibious operation

four thousand miles away from the British Isles (HMSO, 1981, p. 10). The British Army was also positioning most of its combat-ready forces on the North German plain and in Northern Ireland. The latter commitment was especially detrimental for the British Army, as its Parachute Regiment lost significant cohesion due to parceling of its units in Northern Ireland (Line of Fire, 2022). In contrast to British force reductions and operational commitments, Argentina had just acquired a range of modern weapon systems that emboldened it to initiate the war in the Falklands, including the Dassault Super Etandard, MM-40 Exocet missiles, and the automatic 7.62mm FN-FAL.

The British Task Force had to cross the Atlantic Ocean in order to engage the Argentines. On 2 May, one month after the Argentine invasion, the British counterattack began with an air-naval campaign on the approach to the Falklands wherein both fleets sustained heavy losses; the Argentines lost the *Belgrano* battleship and the British lost the HMS *Sheffield* destroyer (Freedman, 2005, p. 249, 257). The Royal Navy and the Argentine Air Force remained engaged in a deadly air-naval battle, during which the British landed in San Carlos on 21 May. Among the notable losses of this landing was the British transport ship *Atlantic Conveyor*, which was destroyed by the Argentine Air Force. This eliminated a significant number of helicopters that were necessary for the ground phase of the British campaign to recapture Port Stanley (Freedman 2005, p. 404). This laid the setting for the Battle of Goose Green, which took place on 28 May.

In San Carlos, 3 Commando Brigade, commanded by Brigadier Julian Thompson, landed British forces at a series of points stretching from north to south (Figure 18).

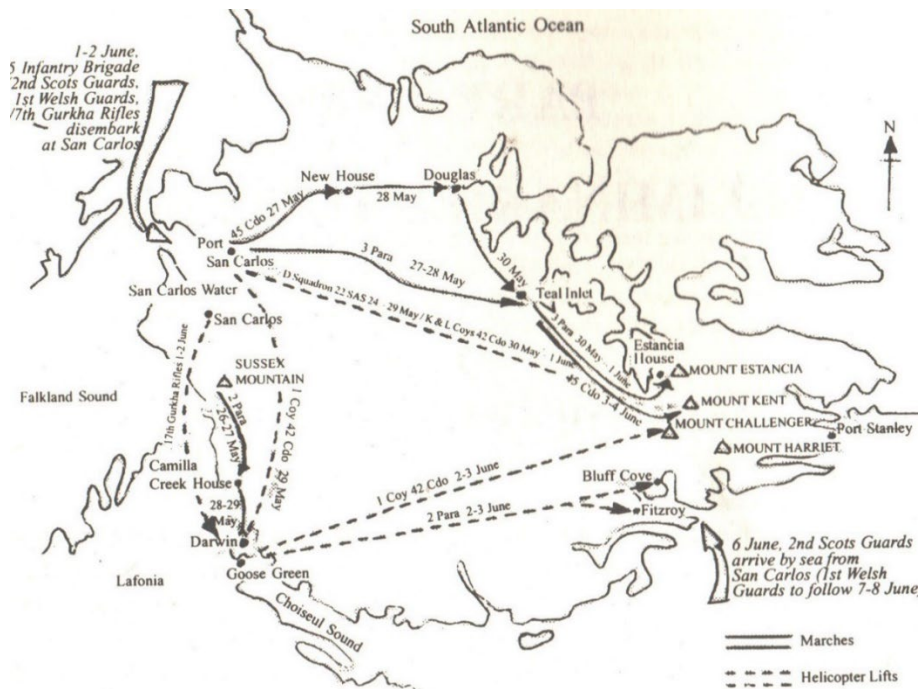


Figure 18⁷⁹

The British Army's 2nd Battalion-Parachute Regiment, also known as 2 Para, was part of those forces and took positions south of San Carlos Bay, on Sussex Mountain. The Battalion was initially commanded by Lt. Colonel Herbert Jones. Lt. Colonel Jones reported to Brigadier Julian Thompson, GOC 3 Commando Brigade, who reported directly to Admiral Fieldhouse, Commander of Task Force 317. The paratroopers consisted of 620 soldiers who, in the Battle of Goose Green, were supported by the HMS *Arrow*, three 105mm guns, and MILAN Anti-Tank Guided Missiles (ATGMs) (Thompson, 1985, pp. 133-135).⁸⁰ The battalion was organized around three rifle Companies (A, B, D), a reconnaissance Company, a support Company (Artillery and Heavy Machine Guns), and a headquarters Company. Subtracting the soldiers assigned to support

⁷⁹ Fitz-Gibbon, S. 1995. *Not Mentioned in Dispatches*. Cambridge: The Lutterworth Press, p. 2

⁸⁰ Abbott, D. "Royal Artillery Falklands Oral History." Interview by Major P.M McComas RA, Royal Artillery Oral History Program, 1982, London, National Army Museum # NAM 9202-59-15. Benest, D. Personal Interview. January 17, 2019

roles, the three rifle companies had 100 soldiers each, making the actual British frontline strength approximately 300 soldiers (Freedman, 2005, p. 486).

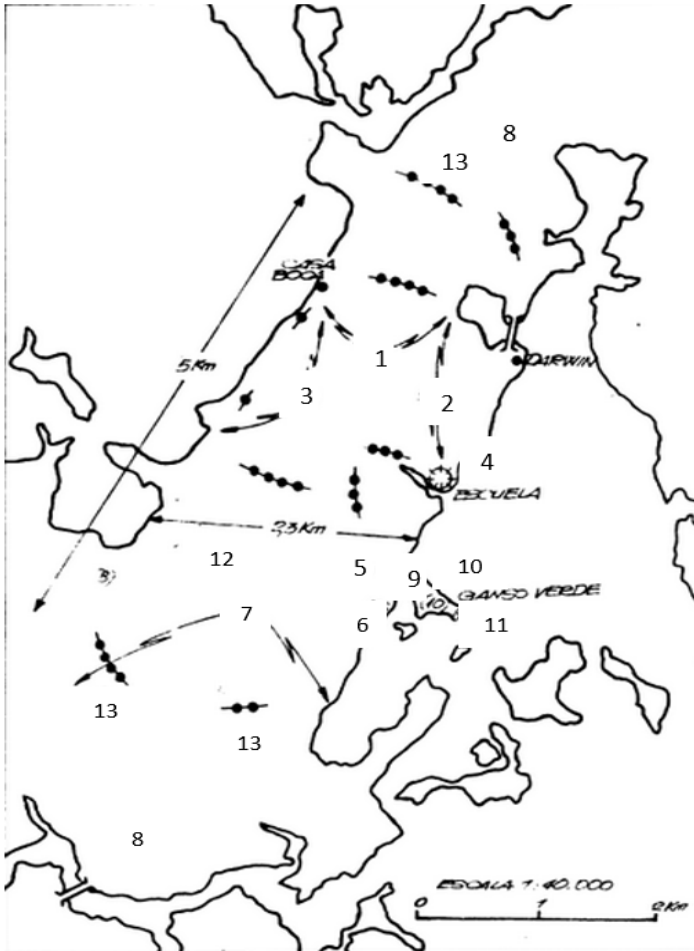
Defending Goose Green was the Argentine Army's Task Force "Mercedes", led by Lt. Colonel Italo Piaggi. The task force was made up of the 12th Infantry Regiment, reinforced by the 3rd Rifle Section -8th Infantry Regiment, C company-25th Infantry Regiment, A Battery-4th Airborne Group, and combat engineers (Piaggi, 1986, p. 66). While the organization of the Regiment mirrored that of the British paratroopers, Argentine companies were 120 soldiers strong.⁸¹ Minus administrative personnel, the Task Force had a total of 684 soldiers; this group would be further reinforced with 106 soldiers from combat team "Guemes" during the battle on the 28, bringing the overall total to 790 soldiers (Ibid, p. 89).

Defending Goose Green: The Passivity of Task Force "Mercedes"

Starting on 9 May, Lt. Colonel Italo Piaggi established a defensive perimeter in his assigned sector, spreading units around the Darwin isthmus. Piaggi had been ordered both to defend the Darwin isthmus and also to become the Brigade's mobile reserve: two very incompatible tasks (García, 2012, p. 26). Some claim that Brigade headquarters actually prioritized the reserve mission over the defense mission, although there was no local air superiority and no tactical lift available to actually make a reserve force deployable (Cervo, 1985, p. 148). The implication here is that Piaggi may have sincerely thought that his force was not going to be

⁸¹ Argentine Army CO # 1. Personal Interview. February 26. 2019.

engaged in the beginning of combat operations and thus went into a stand-by mode, waiting to be airlifted by Brigade headquarters. In the end, Piaggi worked to execute two mutually incompatible orders. As a result, he adopted a very conservative defensive deployment:



References: (1) Combat Support Services, (2) A Company-12th Infantry Regiment, (3) 3rd Section-8th Infantry Regiment, (4) Lt. Estevez's Section, (5) Artillery Assets, (6) Logistical Support, (7) C Company-12th Infantry Regiment, (8) Reconnaissance Patrol, (9) Command Post, (10) C Company-25th Infantry Regiment, (11) AA guns; (12) AAF ground personnel; (13) Minefields.
 Source: Cerro, F. , and F. R Aguiar. 1985. Operaciones Terrestres En Las Islas Malvinas. Buenos Aires: Círculo Militar, p. 199

Figure 19

As seen in Figure 19, the northern entrance of the isthmus was covered by a reconnaissance patrol and minefields; the 3rd Rifle Section-8th Infantry Regiment and A Company held the eastern and western flanks, respectively; C Company covered the south; and C Company-25th Infantry

Regiment was held in reserve in Goose Green.⁸² Piaggi essentially copied the schemes used in the Escuela Superior de Guerra (ESG), without considering the reality or the terrain of the battlefield.⁸³ The lack of specific guidance from the Brigade headquarters only reinforced Piaggi's unimaginative thinking: being told to become a reserve, Piaggi did not know how to prioritize positions and potential targets on the isthmus (Comando del 12^{do} Regimiento de Infantería, 1982, pp. 25-31).

On 21 May, the British 3 Commando Brigade landed in San Carlos Bay, north of Goose Green. With these landings, the original Argentine defensive perimeter was rendered inadequate for three reasons. First, Argentina's Task Force "Mercedes" deployed about a third of the companies to the south of the isthmus where it was possible, but not likely, that a new landing could take place. Second, the deployment did not allow the Task Force to make the best use of the strategic depth that the isthmus offered Piaggi's troops. Third, the deployment reduced the amount of flexibility the Task Force had to conduct a layered defense, which could take advantage of the lack of maneuver room in the isthmus. Piaggi lost what could have been an important tactical reserve in order to cover the southern front, where there was little risk of invasion.

Piaggi failed to transfer units south of the isthmus to reinforce the Argentine northern front. Instead, he hedged against unlikely threats coming from Lafonia, south of the Darwin isthmus, and the Brenton Lock (Fitz-Gibbon, 1991, p.7). For almost a month, and despite British landings in the north and multiple indicators that the threats would only come from the north, Piaggi never

⁸² Ibid

⁸³ The ESG is the Argentine General Staff Academy where Argentine Army officers received their Staff training. Argentine Army CO # 3. Personal Interview. March 14, 2019

adapted his original ambiguous orders and dealt with the uncertainty of his situation. In addition, Piaggi failed to effectively deal with the detailed control coming from his Brigade's headquarters. On 26 May, 3rd Infantry Brigade headquarters ordered the expansion of Piaggi's defense perimeter to block the entrance to the Darwin isthmus (Comando del 12^{do} Regimiento de Infantería, 1982, p. 59). Under this order, all prepared positions shown in Map 5.2 had to be left behind to occupy new positions to the north. Most importantly, the new positions to be occupied by Task Force would be dictated by the Brigade, not by Piaggi. On the eve of the battle, "Mercedes" was ordered to enlarge its defense perimeter, expanding its depth by 3 km and its width by 1.2 km, as shown in Figure 20.

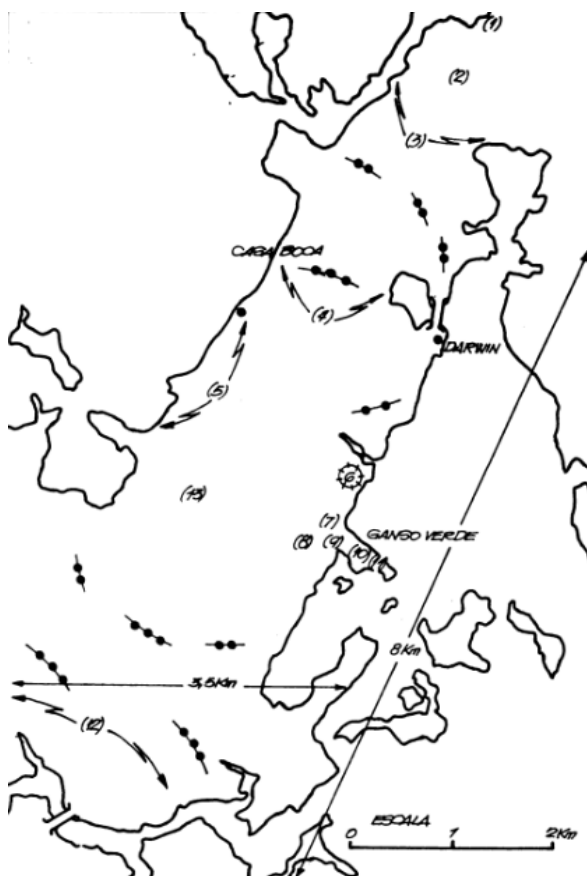


Figure 20

References: (1) Reconnaissance Section, (2) A Company patrols-12th Infantry Regiment, (3) A Company-12th Infantry Regiment, (4) Combat Support Services, (5) 3rd Section-8th Infantry Regiment, (6) Lt. Estevez's Section, (7) Reserve, (8), Artillery Assets, (9) Logistical Support, (10) Command Post, (11) AA guns; (12) C Company-12th Infantry Regiment; (13) AAF ground personnel.

Source: Cervo, F. , and F. R Aguiar. 1985. Operaciones Terrestres En Las Islas Malvinas. Buenos Aires: Círculo Militar, p. 199

A Company was taken out of its elevated positions and placed in a small valley — a situation not dissimilar to the French at Dien Bien Phu.⁸⁴ Problematically, A Company's own minefields were now behind them. The reconnaissance section, 45 men strong, now defended a 6 km front in the north. Having been ordered to send C Company-25th Infantry Regiment to San Carlos, Piaggi now had C Company-12th Infantry Regiment as reserve covering a 3.5 km front (Parada, 1982). Like A Company, C Company-12th Infantry Regiment had its own minefields in

⁸⁴ Argentine Army CO # 2. Personal Interview. March 6. 2019

its rear. As the terrain was extremely difficult to prepare, this expansion order further undermined Argentina's already inadequate preparations.⁸⁵

Attacking Goose Green: The Control that Almost Lost the Battle

On the British side, the main body of the assault force was the 2nd Battalion, Parachute Regiment (2 Para). When ordered by Admiral Fieldhouse to capture Goose Green, Brigadier Thompson turned to Lt. Colonel Jones, who presented his battle plan to his troops on 27 May, initiated the assault later that night, and was killed in the battle the next morning. As I note below, Lt. Colonel Jones kept a tight rein on his units at the cost of significant tactical opportunities.

The genesis of the attack on Goose Green is directly tied to the air and naval setbacks the British experienced before their landings in San Carlos. Brigadier Thompson did not think that attacking Goose Green was a worthwhile endeavor after having lost a number of his helicopters with the sinking of the *Atlantic Conveyor*. Indeed, Thompson's intelligence staff referred to Goose Green as a "self-administering POW (prisoner of war) camp."⁸⁶ This was also the intelligence that was given to Lt. Colonel Jones. Prior to the assault, the British Special Air Service (SAS) gave him an overoptimistic view of the Argentine defenses that made Goose Green seem a very weak target.⁸⁷ This meant that all the intelligence seemed to present Goose Green as a position so weak and irrelevant that it was probably not worth the British effort.

⁸⁵ Ibid

⁸⁶ Ibid.

⁸⁷ Benest, D. Personal Interview. January 17, 2019; Neame, P. Personal Interview. January 7, 2019

As he set off from Sussex Mountain to the Darwin Isthmus, as shown in Map 5.1, Lt. Colonel Jones was expecting a relatively easy encounter with Task Force “Mercedes”. As his Battalion marching down to the Darwin Isthmus, it seems that most of the COs had been told the operation was a raid.⁸⁸ Such a raid may well have been seen by the officers as a largely secondary operation. For instance, Colonel Benest said that it made sense to raid Goose Green in order to cover the advance of the British 5th Infantry Brigade forces from Port San Carlos to Douglas and Tel Inlet seen in Figure 18.⁸⁹

However, Admiral Fieldhouse redefined the mission while the Battalion was on its way to the isthmus and ordered Thompson to capture Goose Green. It is likely that the change in the mission was driven by a desire to make up for the significant naval setbacks suffered by the British.⁹⁰ This was a major change that set up the Battalion for a potential disaster. Instead of raiding an entrenched Argentine Task Force in a narrow isthmus, it now had to capture Goose Green. To make matters worse, Thompson denied Lt. Colonel Lt. Colonel Jones the vital armor needed to defeat an entrenched battalion in a narrow isthmus.⁹¹ Despite these obvious concerns, the capture order went unchallenged in the field.⁹² As a result, the COs did not have an opportunity to contribute to Lt. Colonel Lt. Colonel Jones’ tactical thinking about the assault. By all accounts, the plan was the singular vision of Lt. Colonel Lt. Colonel Jones regarding how to capture Goose Green and it did not incorporate available reconnaissance data from A Company. The plan can be seen in Figure 21:

⁸⁸ Neame, P. Personal Interview. January 7, 2019

⁸⁹ Benest. D. Personal Interview. January 17, 2019

⁹⁰ Thompson, J. Personal Interview. January 15, 2019.

⁹¹ Ibid

⁹² Benest. D. Personal Interview. January 17, 2019

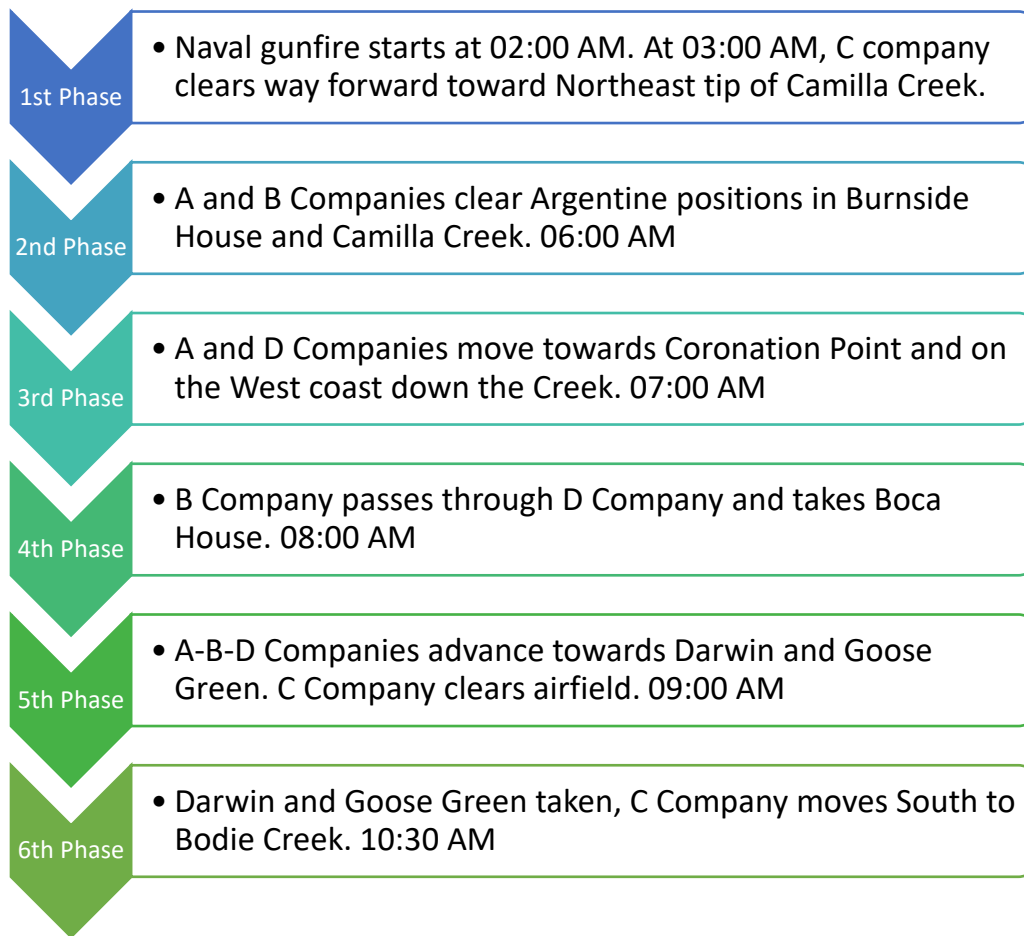


Figure 21⁹³

In this plan, the 300 paratroopers had seven hours to advance seven kilometers on an isthmus that, at its widest, was around 3 ½ km and defended by Argentine forces. Lt. Colonel Jones created very tight timings and maneuver instructions that served to provide him with clear and undisputed control of the battle. Lt. Colonel Jones wanted everyone was to play a part on the stage he had designed, no questions asked, even if that meant that they really did not understand the plan (Fitz-Gibbon, 1995, p. 16). The plan was unrealistic, however, in that it failed to identify

⁹³ Freedman, L. 2005. *The Official History of the Falklands Campaign. Volume 2.* London: Routledge, p. 486.

several fortifications that paratroopers would only discover during combat (Kinzer, 1991, p. 72).⁹⁴ For example, Lt. Colonel Jones' original map identified eight defensive positions while, during combat, the paratroopers encountered eleven scattered positions (Fitz-Gibbon, 1995, pp. 18-19). In short, the paratroopers were launching a frontal night assault against entrenched, although scattered, enemy positions that they were unaware of and would only discover once they took fire.

The British attack began on 28 May at 02:00 AM. The HMS Arrow's gun, which opened the attack by firing at 02:00 AM, malfunctioned at 04:00 AM and forced the 105mm guns to take over fire support two hours earlier than planned.⁹⁵ A Company's attack on Burnside House led to the Argentine withdrawal from the position, but was not further exploited as the Company sat and waited for the next phase of the plan to begin (Thompson, 1992, pp. 136-137). The combination of a lack of intelligence, unexpected contact, and the complexities of a night attack began to derail Lt. Colonel Jones' plan within the first two hours. Colonel Benest described some of the mess into which the methodical plan devolved. A Company ran into an unidentified Argentine company in the hills before Darwin, while B and D Companies' soldiers became so lost in the darkness that some soldiers moved to using blowtorches to locate each other in the night.⁹⁶ The plan did not last three hours before the negative effects of delay became apparent.

⁹⁴ Benest, D. Personal Interview. January 17, 2019; Neame, P. Personal Interview. January 7, 2019; Chaundler, D. Personal Interview. January 14, 2019

⁹⁵ Abbott, D. "Royal Artillery Falklands Oral History." Interview by Major P.M McComas RA, Royal Artillery Oral History Program, 1982, London, National Army Museum # NAM 9202-59-15., p. 7. Here, I must note that there seems to be an inconsistency with Freedman's official history, as he makes no reference either to the gun defect or the artillery pieces taking over earlier than planned; see Freedman, L. 2005. *The Official History of the Falklands Campaign*. Volume 2. London: Routledge, p. 486

⁹⁶ Benest, D. Personal Interview. January 17, 2019

The use of blowtorches speaks volumes about the unrealistic nature of the battle plan. British forces were taking too long to regroup after each stage, in part because of the darkness of the battlefield, a factor apparently not accounted for in Lt. Colonel Jones's plan (Fitz-Gibbon, 1995, p. 27). With no realistic specific training for night actions, the soldiers had only their prior combat experiences to rely upon when facing the confusion, danger, and uncertainty. Delay created additional risks for the attacking forces. The compressed timeline of the original plan required them to be on the verge of taking Darwin and Goose Green by 09:30 AM. Failure to meet this timeline meant that the paratroopers were on their own without much help or reinforcement from 3rd Commando Brigade. Most importantly, regrouping in the dark while in a combat setting led the paratroopers to take casualties without moving forward. In the words of Lt. Colonel Neame, after each engagement where D and B Companies attacked an Argentine Company's position, they took machine gun fire that inflicted casualties, disorganized the platoons, and sent them in different directions.⁹⁷

It was in this context that a new set of deteriorating circumstances developed. B Company was stuck in Middle Hill, C and D Companies were at Coronation Point with no enemy to engage, and support assets were moving forward while the whole advance was being detained by the Argentines (Ibid, p. 88). Lt. Colonel Jones decided to personally join A company, as its subunits were pinned down by Argentine forces on Coronation Ridge, west of the Isthmus (Thompson, 1992, p. 138). By the time the Company was pinned, it was 9:30 AM and the Battalion was a full two hours behind its own timeline.⁹⁸

⁹⁷ Neame, P. Personal Interview. January 7, 2019

⁹⁸ Benest. D. Personal Interview. January 17, 2019

“Don’t tell me how to run my battle”- Lt. Colonel Jones

It is at this juncture that important events took place that allowed the paratroopers to win the battle. Lt. Colonel Jones decided to double down on A Company’s advance by exercising a flanking move on the Argentine right flank. He felt that this move would unlock the battle, but it did not achieve the goal and further disrupted contact with B and D companies on the Argentine left flank.⁹⁹

An important aspect of the Argentine defense at this point in the battle is the particular position of its 3rd Rifle section-8th Infantry Regiment on its left flank. Defending a position known as Boca Hill and looking towards Brenton Lock, they were largely neglected until the very end of the battle, earning the sad title of “the forgotten section” amongst modern Argentine military authors (Scarpinelli, 2019, p. 27). The reason for this nickname is that Task Force “Mercedes” literally forgot that it deployed this section to defend Boca House. When it was deployed the Rifle section was not part of any formal front, had not coordination with other Argentine units, and was not even part of the Task Force’s fire plan for the isthmus (Ibid, p. 28). This was left largely unchanged until the assault of the British paratroopers.

At this point, the Argentine’s 3rd Rifle Section-8th Infantry Regiment performed an unauthorized redeployment of its line to be more capable of supporting the efforts of other Argentine units. When its CO realized the approach of the paratroopers on the 28, he redeployed part of his line, without authorization and risking insubordination charges, to make it contiguous with the other Argentine forces in the area, knowing that the action went against headquarters’

⁹⁹ Benest, D. Personal Interview. January 17, 2019

orders.¹⁰⁰ He was able to pull this off because “Mercedes” headquarters had actually forgotten him. It is worth noting that even this mild display of willingness to adjust in the face of events unfolded in a very reserved manner. The CO of the section admitted that, ideally, he would have redeployed the entire section but, just in case headquarters caught wind of this unauthorized maneuver, he decided to keep some forces facing Brenton Lock.¹⁰¹ As a result, when the British D Company engaged the Argentines, it was not the flank, but part of the unauthorized redeployment to the north.

¹⁰⁰ Argentine Army CO # 3. Personal Interview. March 14, 2019

¹⁰¹ Ibid

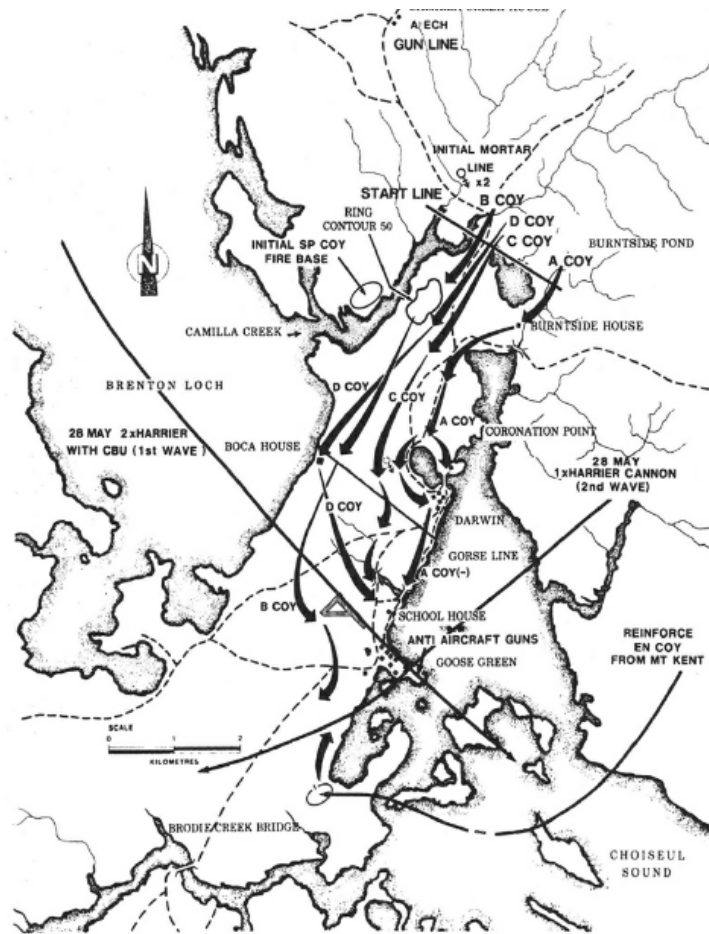


Figure 22¹⁰²

As Figure 22 shows, this small redeployment stopped D Company when it reached Boca Hill. While B Company was engaged on the Argentine Section's left flank as shown on the map, Lt. Colonel Neame noticed something at the end of the Argentine left flank in Boca Hill: enemy soldiers using a path on the shoreline. He proposed to Lt. Colonel Jones that he could exploit it for a flanking maneuver to break through Boca House and unlock the battle. Lt. Colonel Jones response was simply, "Don't tell me how to run my battle."¹⁰³

¹⁰² Thompson, J. 1992. No Picnic: 3 Commando Brigade in the South Atlantic. London: Leo Cooper, p. 134.

¹⁰³ Benest, D. Personal Interview. January 17, 2019

To be sure, Neame was not the only paratrooper trying to offer new solutions to unlock the battle for the British. Colonel John Crosland, CO of British B Company, suggested bringing in the MILAN ATGMs to simply blow up the Argentines in Boca House, a plan endorsed by the Support Company CO, but Lt. Colonel Jones simply ignored him. C Company offered its dozen machine guns to strafe the defenders, but Lt. Colonel Jones told them to stay where they were (Ibid, pp. 89-94). Lt. Colonel Jones was committed to making a breakthrough with A Company and he tried to do this by leading an assault on Darwin Hill, where he was killed by an Argentine soldier at 10:30 AM.

Lt. Colonel Jones' death was a blow that was followed by a significant threat to the British offensive. 106 Argentine soldiers from GUEMES combat team arrived as reinforcement from 3rd Infantry Brigade (Scarpinelli, 2019, p. 80). Time and numbers were not improving the paratrooper's chances, and Piaggi felt confident enough to report that the attack had been successfully halted (Freedman, 2005, p. 487). If the paratroopers did not do something drastic, their attack could have easily become stalled, thus yielding another failure at a time when Adm. Fieldhouse needed a military success to justify the significant British losses suffered thus far in the campaign.

The death of Lt. Colonel Jones had a single positive effect, however: it created space for the paratroopers to deviate from his plans. Indeed, some have even said that Lt. Colonel Jones' death had the effect of unlocking the battle for the paratroopers.¹⁰⁴ This is because, when he assumed command of the Battalion, Major Chris Keeble decided to delegate command to John

¹⁰⁴ Thompson, J. Personal Interview. January 15, 2019.

Crosland, CO of B Company, who was closest to the line of fire (Fitz-Gibbon, 1995, p. 136). Crosland and Neame then proceeded to execute a combined version of their previous suggestions to Lt. Colonel Jones; D Company was allowed to move to flank the Argentine 3rd Rifle Section while B Company used the MILAN ATGMs to attack its defenders.¹⁰⁵ Given that 3rd Rifle Section was unable to effectively muster its entire force against Neame, D Company was successful. Having been forgotten in the Task Force's planning, this Argentine Section could not use artillery support at a time when the paratroopers were concentrating their force against them. The concentration proved overwhelming for 3rd Rifle Section despite its increased use of heavy machine gun fire.¹⁰⁶

With the defeat of the Argentine 3rd Rifle Section, D Company was able to effectively outflank Task Force "Mercedes". As map 22 shows, B Company's efforts with the ATGMs proved successful once D Company moved through Boca House and veered east towards Goose Green. In this process, the last Argentine forces retreated, converging on Goose Green. This is where Task Force Mercedes made its last stand through the day thanks to the AAF's air support, though with decreasing chances of success. The British 2nd Battalion Parachute Regiment issued an ultimatum demanding Task Force to lay down its arms by 08:30 on 29 May. Piaggi accepted and the first ground battle of the Falklands War came to an end.

¹⁰⁵ Neame, P. Personal Interview. January 7, 2019

¹⁰⁶ Argentine Army CO # 3. Personal Interview. March 14, 2019

5.4. Organizational Culture and the Battle of Goose Green

The unfolding of the battle shows the strength of the organizational culture theory. Consider first the performance of the Argentine Army, which trained its officers to obey superior orders without reflection, to avoid uncertainty at all costs, and to exercise stifling levels of control. A prime example of this is the combination of Parada's control and Piaggi's passivity in response to the orders to expand the "Mercedes" defensive perimeter and to attack the incoming British forces, which led to disaster for the Argentine defense.

Bearing in mind that the General controlled several maneuver units with their corresponding layers of command, it is important to observe the degree of detail Argentine officers used to control the actions of their subordinates. General Parada not only issued general orders to units commanded by Piaggi but told those units where to go without even knowing the area. This reveals a very clear and strong top-down dynamic wherein officers were prone to invalidate the very presence of their subordinates in order to retain for themselves control of events unfolding on the ground. Managing military forces includes elements of control as well as command, and it is evident from this battle that the Argentine Army valued controlling rather than commanding.

Piaggi's inability, or unwillingness, to modulate what was unnecessary interference in his command is strong evidence of the influence of the obedience imperative. Piaggi's actions were consistent with his training, which was centered around blindly doing what one's superiors

ordered you to do.¹⁰⁷ Such was the level of obedience that it seems Piaggi never thought that, as a CO, he had both the duty and responsibility to modulate his superior's orders and assess the tactical situation on his own.¹⁰⁸ Not even when Piaggi could have told his Brigade that the orders he was being given were operationally inconsistent did he use his professional judgment and knowledge of the conditions in Goose Green to modulate his Brigade's orders. This means that, if Piaggi really wanted to fulfill the previously issued expansion order, he had the responsibility to, at least, inform the Brigade that the newly issued attack order would not allow him to complete the expansion order. Piaggi did not even ask for clarifications as to where exactly to attack, and he dismissed officers who asked too many, if obvious, questions.¹⁰⁹

The consequences of Piaggi's behavior cannot be overstated. Fitz-Gibbon describes the Argentine tactical culture as being based on "positionalism, meaning that it relied on holding on to terrain in order to conduct defense" (1995, p. 6). Piaggi's inability to modulate the order from General Parada, Commander of the Argentine 3rd Infantry Brigade, effectively robbed his force of core elements upon which its tactics were built. Such was the level of Piaggi's obedience. It seems that he never considered that, as a CO, he had both the duty and competence to modulate his superior's orders and assess the tactical situation on his own.¹¹⁰ Instead, Piaggi did what the army's culture programmed him to do: obey at the expense of any consideration of the consequences.

Thus, the Argentine defeat at Goose Green was directly connected to the obedience imperative in the army (Comisión Especial de Malvinas, 1989, p. 5). First, there was the problem

¹⁰⁷ Argentine Army CO # 2. Personal Interview. March 6. 2019

¹⁰⁸ Argentine Army Regimental Officer # 2. Personal Interview. February 28. 2019

¹⁰⁹ Ibid

¹¹⁰ Argentine Army Regimental Officer # 2. Personal Interview. February 28. 2019

of unlimited obedience to orders that were completely inconsistent with the realities of the combat situation. Second, this culture did not give Piaggi any alternative to literal and unreflective obedience to his senior's orders. Although there were sound tactical reasons to work with 3rd Brigade's staff that would have made headquarters more aware of the reality on the ground, Piaggi's behavior evinces a belief system that did not allow for such independent thought. It was either the obedience imperative or insubordination.

The training that Argentine officers received made them unable to consider alternative solutions. Piaggi's perimetral defense effectively wasted 160 soldiers between 3rd Rifle Section-8th Infantry Regiment, and C Company-12th Infantry Regiment. These units were deployed to hedge against a very remote possibility that did not justify that expense of force. Piaggi's own 12th Infantry Regiment assessed, between 21 and 23 May, that the main British effort against Goose Green was the paratrooper force approaching from the North (Comando del 12^{do} Regimiento de Infantería, 1982, pp. 48-49). According to one of the Argentine COs of the battle, the reason Piaggi did not follow this assessment to relocate his C Company was that he preferred to just follow the orders of the Brigade.¹¹¹ Another Argentine Army officer explained that Piaggi's failure to redeploy the 3rd Rifle Section away from Brenton Lock was a grave mistake, as the area was too shallow for any British landing vessel.¹¹² Nevertheless, the issue here was the organizational culture of which Piaggi was a part.

Consider an instance in which an Argentine unit took initiative during the battle. Having occupied positions overlooking Darwin Harbor from 1 May until the British landed their forces in

¹¹¹ Argentine Army CO # 3. Personal Interview. March 14, 2019

¹¹² Argentine Army Active Senior Officer. Personal Interview. February 22, 2019

San Carlos on 21 May, A Company-12th Infantry Regiment redeployed its forces to occupy heights next to Darwin without authorization because the CO considered that his original position became senseless.¹¹³ This was only possible because Mercedes headquarters lost track of the situation and was simply presented with this action as a *fait accompli*. As noted earlier, Argentine's 3rd Rifle Section-8th Infantry Regiment also took initiative when headquarters lost track of the unit. The common denominator of these two instances was the initiative taken by lower-level commanders only when the higher-level commanders at headquarters had lost track, supporting the thesis that, in general, the conformist culture of the Argentine Army dominated its decision making to the detriment of its defense.

Interacting with the shortfalls of the Argentine culture, the British Army's hierarchical independence culture leveraged important advantages. Even if this culture had a stifling level of control, the fact of the matter is that it allowed the British Army to accommodate experienced soldiers who entertained beliefs of balanced obedience and embraced uncertainty. That these officers were at Goose Green gave the army the insurance it needed. Of course, this insurance was only effective when Lt. Colonel Jones' unrealistic battle plan and controlling command style were no longer in the picture.

D Company's flanking move was the most important action on the British side, as it swayed the battle into a British victory. The salient aspect of this flanking move was that it came from the experience that Lt. Colonel Neame gained in previous combat tours, which showed him that tactical problems were not solved by prefabricated drills. Indeed, this is precisely the same attitude

¹¹³ Argentine Army Co # 2. Personal Interview. March 6. 2019

that got Neame in trouble with Lt. Colonel Jones in a previous exercise in Kenya, when Lt. Colonel Jones reprimanded Neame for using a novel tactic he learned from a prior combat experience to beat the directing staff overseeing a combat training exercise.¹¹⁴ This reaction against deviation to orders had a broader cultural context. In the army, there was also a long-standing awareness that its beliefs regarding obedience and certainty were problematic. Thus, although the official position of the British army favored strong obedience, avoidance of uncertainty, and centralized control, there was organizational leeway for alternative approaches to obedience and uncertainty so long as rank and boundaries were respected.

These alternative viewpoints were precisely the ones that helped some of the paratrooper COs to deal with the challenges of Goose Green. Officers like Neame and Crosland knew when it was necessary to “work inside the plan” to find a way to modify a senseless order. Furthermore, these officers knew the key to effective performance in combat was officers with tactical skills and who were able to use their initiative. According to Fitz-Gibbon, Crosland stressed individual responsibility and the need use initiative to his subordinate’s by telling them, “You know where you are going, just get there the best way you can” (1995, p. 33). In Neame’s case, he acknowledged that his approach was to get a rough grasp of what each platoon did without exercising much control over how they did it (Ibid, p. 50). These were the beliefs that ultimately allowed two COs to find an alternative tactical solution that could be used when they could get enough support from the Battalion CO.

¹¹⁴ Neame, P. Personal Interview. January 7, 2019

Perhaps the most important aspect of the role that the army's organizational culture played in the battle at Goose Green was that, with all its flaws, it still allowed for lateral coordination amongst COs. This was of the utmost importance because, once control was relaxed, the Company commanders were able to assume responsibility for their decisions and guide those decisions based on key principles obtained from their combat experience. Thus, what allowed British soldiers to laterally coordinate their actions was the awareness that there was no blind execution of predesigned solutions – solutions change. The absence of the obedience imperative was an important reason of why the British were able to exercise lateral coordination and show greater tactical adaptation. Another salient principle was that, as a benefit of prior combat experience, British soldiers should embrace uncertainty as part of their profession. This allowed them to avoid scholastic and impractical decision-making techniques and to focus, instead, on dealing with risk. Hence, the absence of the certainty imperative allowed soldiers to be aware that their peers would make calculated risks instead of mindlessly applying a decision technique.

Considering my military effectiveness hypothesis (*H2me*) that hierarchical cultures would facilitate higher levels of effectiveness than conformist cultures, Goose Green provides support for the claim. While the whole British operation was supposed to be done at 10:30 AM, at that point in time the battalion was still being held up by the Argentine defenders. However, by 11:10 AM, once Keeble delegated control to Crosland, the whole Argentine position in Boca House was cleared and it was soon followed by the clearing of Condor Airbase (Freedman, 2005, p. 490; Thompson, 1992, p. 130). Figure 23 shows the marked time differences between the pace of paratrooper operations before and after Keeble delegated control to Colonel Crosland.

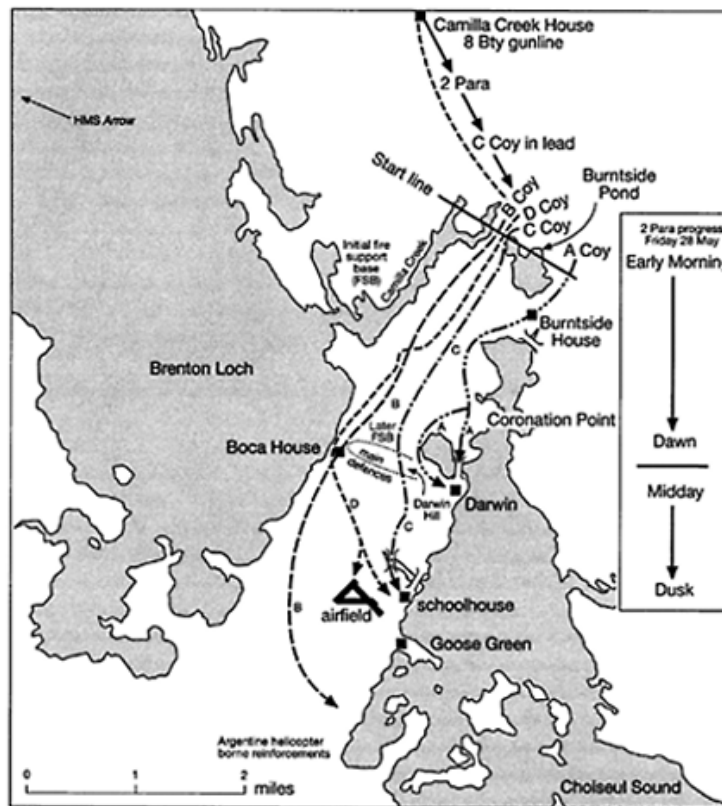


Figure 23¹¹⁵

As the figure shows, the British paratroopers took less time to get from Boca House to the outskirts of Goose Green than they did to get from Burnside Pond to Coronation Point. This, despite the distance between Burnside Pond and Coronation Point being more than double the distance between Boca House and Goose Green. Between Boca House and Goose Green, the paratroopers were in range of the Argentine 20mm Oerlikons at Condor airbase as well as the Argentine 105mm artillery in Goose Green. While the distance was shorter, it was a more dangerous and well defended part of the Isthmus. Once the style of control changed into one that allowed the Company COs to do what they could do based on their own personal assessment, the temporal dimension of army's military power increased dramatically. The timelines shown on

¹¹⁵ Freedman, L. 2005. *The Official History of the Falklands Campaign. Volume 2.* London: Routledge, p. 485

Figure 23 further support the notion that Argentine defenses on this part of the isthmus had lost their positions and, in many cases, become porous because of Piaggi's total obedience to General Parada's orders and refusal to adjust to the realities of the battlefield.

Following Lt. Colonel Jones' death, the British Army was better able to use the information it had at hand, form a more accurate combat assessment, and display better tactical flexibility than their Argentine counterparts. Some may dispute this conclusion on the grounds that Keeble may well have decided to maintain restrictive control. But, with Lt. Colonel Jones' death and 2nd Battalion Parachute Regiment's delay, it is more likely that Keeble concluded that restrictive control had its chance and had failed. From a military effectiveness point of view, the British Army was able to generate much greater capabilities than the Argentine Army, which was ruled by a strong culture of conformism.

Regarding my military power hypothesis (*H2mp*), the results show how the British Army's hierarchical independence culture proved more powerful than the Argentine's conformist culture. Officially, the paratroopers fought at slightly more than a 2:1 disadvantage.¹¹⁶ The British paratroopers were outnumbered in every conceivable way and under no mathematical model should they have won the battle (Brice, 2016, pp. 30-31). Nevertheless, the casualty ratio of the battle reveals how much the culture of hierarchical independence offset the strong material disadvantage of the British paratroopers: six Argentine casualties for every British casualty, or

¹¹⁶ Other accounts make this ratio even more disadvantageous to the paratroopers. According to Colonel John Crossland they walk into the battle with a 4:1 disadvantage. Crossland, John. Interview by Conrad Wood. Oral History Imperial War Museum. September 7, 1995. <https://www.iwm.org.uk/collections/item/object/80016725> 23:40-23:49. Accessed May 19, 2020

6:1.¹¹⁷ In other words, the British Army was six times more deadly than the Argentine Army, with half the material strength.

5.5. Alternative Explanations

This chapter has proposed an organizational culture explanation for the levels of military effectiveness and military power displayed in the Battle of Goose Green, and the evidence of the historical record supports such an interpretation. It remains necessary to assess how well other theories might explain the belligerents' effectiveness and the battle outcome. I now proceed to do this, focusing on the alternative theories presented in Chapter 1.

Material theories, as noted, hold that a state with more and better material resources will generate higher levels of military effectiveness and power. The events and outcome at Goose Green fail to conform with those predicted by these theories. An exploration of the predictions of each of these theories and how they should have materialized during the battle make this point clear.

First, there is the classic material resources theory that argues that military power in war depends on economic power. Economically, in 1982 the United Kingdom had a GDP per capita 12,954 USD while Argentina's was 7,245 USD, measured in 1990s international dollars.¹¹⁸

¹¹⁷ To calculate this ratio, I have used Middlebrook's *The Falklands War* for the British casualties and Piaggi. I. 1989. *Ganso Verde*. Buenos Aires: Sudamericana

¹¹⁸ Our World in Data. GDP per capita. 2015. <https://ourworldindata.org/grapher/gdp-per-capita-clio-infra?tab=table> Accessed January 17, 2022

According to this theory, the British should have won the Battle of Goose Green, and this is ultimately what happened. However, there is a significant problem with this explanation. Until 10:30 AM on 28 May, the British were far from winning the battle and the Argentine Task Force “Mercedes” was succeeding in its defense against the British 3rd Infantry Brigade. From the beginning of the assault until 10:30 AM, the British forces were going from one tactical blunder to the other and it was not until Lt. Colonel Jones’ death that this changed into victory. When Lt. Colonel Jones died, there was no increase in GDP per capital levels. What did change was that the control imperative was lessened by the fast-paced events reducing its influence on British operations. In terms of causal proximity, the effects brought by an alteration of the organizational culture dynamic had a more significant impact on military power than did the two sides’ relative economic capacity.

Second, the economic development theory posits that a better quality of life brought about by economic development allows an army to show higher levels of military effectiveness because it increases the quality of its soldiers. In 1980, Argentina had a 93.9% literacy rate in ages 15 and above, compared to the Europe’s 97.3%.¹¹⁹ If the European percentage holds the same for the United Kingdom, the two countries were almost at the same level and therefore we should have seen almost the same level of quality of military effectiveness in its operations. However, this was not the case. British soldiers, although restrained by the detailed and strong influence of the control imperative and the need to seek approval from senior staff for major changes in the battle plan, were able to show better tactical adaptation and also to find local solutions to move past stubborn

¹¹⁹ Ibid

defenses by maneuver and lateral coordination of efforts without having to recourse to a higher echelon. Argentine soldiers, on the other hand, could not have been more different. They were unable to adapt to tactical changes because they had been conditioned to blind obedience, uncertainty aversion, and to centralize authority in the hands of senior officers.

To be sure, there were a few examples of more tactically skilled behavior on the Argentine side, as for instance by the COs of 3rd Rifle Section-8th Infantry Regiment and A Company-12th Infantry Regiment. These were isolated examples, though, that did not indicate a different overall assessment of the quality of Argentine soldiers. The only meaningful difference here seems to be that these two armies had drastically different organizational cultures that generated different levels of military effectiveness and military power.

Third, the technological superiority theory suggests the technological edge that the British Army held over the Argentine defenders—specifically its naval support fires, ATGMs, superior artillery—should have made the attack easier and more successful. From a technological standpoint, although the British Army enjoyed clear advantages in terms of fire and close air support, Argentina also had some technological advantage in terms of good small and light weapons, such as the Argentine FAL, which had semi-automatic and automatic configurations while the British light weapons were single shot. There were other factors that reduced the British advantage along this dimension. For example, environmental circumstances tended to negate some of the salient British capabilities such as radar and image intelligence, so that 3 Commando Brigade was never able to fully ascertain how many Argentines there were in the Darwin-Goose Green

area.¹²⁰ Weather also negated the British advantage in significant close air support on the day of the battle. Weapons malfunction prevented a significant part of the support that the British Frigate on Brenton Lock was able to provide to the assault. In addition, simple tactical mistakes such as placing the artillery guns on the other side of the Brenton Lock, too far for them to provide continuous fire support for the British advance, eroded much of their contribution to the battle. In short, not only did the British technological superiority not play the expected role proposed by this theory, but its influence also seems to have been irrelevant, at best. The only moment when British technological superiority had a positive effect came as a result of the events that unlocked the battle from the stifling control of Lt. Colonel Jones, whose passing allowed B and D Companies to outflank the Argentines.

Fourth, theories that highlight the relative balance of forces also cannot account for the military effectiveness and power observed in the battle. Force-to-force ratio theory fails to explain the British victory. The British Army had, at best, a 2:1 disadvantage with the added difficulty that Argentine defenders were in control of the battlefield where maneuver was naturally difficult, and the attackers did not have any armor to compensate for the direct and indirect fire Argentine defenders could pour on them. If this theory were true, then the combination of a lack of maneuvering ground for the British and their numerical disadvantage should have assured success for the Argentine defense. Furthermore, as Epstein explained in his criticism of this theory, the lack of sufficient roads and other transportation assets should have made it very difficult for the

¹²⁰ Thompson, J. Personal Interview. January 15, 2019.

British forces to concentrate enough force at the right point on the battlefield when the need arose (1988, p.162). These things did not happen, though.

The Argentine manpower superiority, once the British Companies were allowed to implement tactical situations outside of Lt. Colonel Jones' preconceived plan, quickly collapsed and the defenders proved unable to relocate their defensive positions to prevent D and B Companies' breakthrough at Boca House. Furthermore, the Argentines were never able to exploit their superiority by concentrating appropriately due to the conformist nature of the Argentine Army culture. In the case of the British forces, they were able to use their available forces to concentrate enough troops to outflank the Argentines and use the movement to collapse the Argentine position.

Regarding non-material theories, there are important inaccuracies that highlight the weakness of these theories in explaining the Battle of Goose Green.

First, political regime-based theories such as the democratic effectiveness theory do not explain the events of the battle. The British Army did not derive any advantages from its democratic political regime during this battle, although the predicted effects of the democratic effectiveness theory do align with 2 Para's performance. The British battalion was unable to act upon the advice of its company COs because of the stifling effect of the control imperative in its military culture. This inhibited initiative and creativity in the British Army and provides clear evidence that the advantages that democratic effectiveness theory foresees on the battlefield can be limited by intra-army dynamics. The important element in the Battle of Goose Green is that despite being fielded by a rich democracy, which indeed was able to support an army where there was a level of initiative and independent thinking, the British Army knocked its head against a

wall for almost eight hours in Goose Green, ignoring available alternatives. Although the British did win in the end, thus contributing to the claim of success by this theory, the problem is that the battle was almost lost by the same army.

All the initiative that officers like Crosland and Neame showed during the battle was being stopped by the Army's culture that, although open to officers taking initiative, stressed that the officers had to maintain full control of their subordinates. As Burke says, the army is a total institution and, as such, it replaces the values of its members with those of the army (2018, p. 42). Given this line of reasoning, it is possible that this totality limits any direct influence of domestic level variables in its performance. The fact that this initiative only came to fore once Lt. Colonel Jones died shows that regime-type causes do not directly impact army-level dynamics. As if it were something akin to the blood-brain barrier, domestic level variables could not directly overcome the influence that army culture had on its own soldiers.

Second, theories that emphasize cohesion as the main explanation of military effectiveness in operations are also unable to explain the battle. In the case of cohesion theories such as that of Shils and Janowitz, the argument would expect that the British Army would have had primary groups that were better at meeting their soldiers' needs, providing a sense of power, and regulating their relations with authorities, and that these factors consequently allowed the army to generate higher levels of effectiveness. However, the fact that the British Army, which satisfied these needs in a better way, started the battle in such an adroit and haphazard manner seems to indicate that it was not enough to follow Shils and Janowitz's prescriptions. As long as Lt. Colonel Jones remained in command, trying to control in detail the actions of his Companies to make his plan work, the paratroopers were a cohesive force that was largely stalled in the Darwin isthmus.

Third, societal theories argue that there is a relationship between societal conflict with military effectiveness: the more united a society is, the more effective its army should be. Although there was division in Argentine society due to the internal rebellion of leftist guerrillas, British society was also facing significant internal tension at the time as a result of the conflict in Northern Ireland. British society had not recovered from the IRA terrorist attack that had killed Lord Mountbatten in Mullaghmore in 1979 and had its army deployed in counterinsurgent operations in Northern Ireland. Furthermore, the British were facing considerable domestic division as a result of the Thatcher economic reforms that led to significant distress in the lower-income segments of their population. In addition, both countries had active interstate war concerns, with the British concerned about war in Central Europe and Argentina watching for a potential war with Chile. None of these issues seems to have had a more influential effect on the results of the battle than organizational culture. Both armies were able to isolate themselves from the social cleavages of their societies and both were actively preparing for interstate war. The British, due to the absence of two of the three imperatives, were able to generate higher levels of military effectiveness and military power than the Argentines.

Fourth, theories that emphasize the influence of societal culture on military effectiveness argue that forces fielded by states possessing particular cultures will be more capable than others. This argument, championed by Pollack, emphasizes that certain patterns of behavior of a culture can be the most important factor in its military effectiveness (1996, p. 759). During my interviews, one officer on the Argentine side explained their defeat as due to the superiority of British

culture.¹²¹ Nevertheless, the problem with this line of argument is that, depending on how one characterizes these two cultures, the British also had societal culture traits that impaired their operations.

As described in Chapter 3, the British Army was built on a series of quasi-privatized forces that eventually became the line regiments of the army. Furthermore, the system that was created to administer these regiments was designed to compel maximum discipline by developing each regiment in its own circumscribed jurisdiction, hoping that a soldier would obey due to the social shame he would experience in his community if he failed to do so. This is all to show that, from a societal culture standpoint, British culture may not have been very different than Argentine culture, at least insofar as it would be expected to affect the two militaries' performance. Furthermore, the flow of operations during the battle show that, whatever larger cultural issues the Argentines may have had, until 10:30 AM the influence of the control imperative in the British paratrooper's assault interacted with the resistance of the Argentine defenders to grant them success in preventing the capture of Goose Green. At 10:30 AM, what brought a change to this situation was not a British societal culture advantage, but an internal event in the chain of command of 2 Para that helped its Company commanders act on their initiative despite the effect of the control imperative. In terms of causal precedence, the organizational culture dynamic had closer proximity to the military effectiveness of the respective armies than the larger societal culture dynamics.

Fifth, force employment theories such as those highlighting the modern system would try to explain the battle in terms of the relative application of modern tactical and operational concepts.

¹²¹ Argentine Army Regimental Officer # 2. Personal Interview. February 28. 2019

However, both forces understood tactics through the prism of their cultural glasses. In theory, both had regulations stipulating weapons had to be combined to fight on the modern battlefield. Both understood, with varying levels of sophistication, that initiative and junior-level creativity play an important part in allowing an army to adapt to a fast-changing battlefield where time and danger do not allow command structures to process information fast enough. Nevertheless, despite these regulations and understandings, organizational culture shaped how command structures were employed. For the Argentine Army, even if it had a theoretically flexible command structure built around the template of a Task Force combat organization, the culture was so stifling that this flexibility was not only underutilized, but completely disregarded. The emphasis on the three imperatives was so clear and present that the Argentine Task Force commander lost track of significant units because he was so invested in controlling every detailed aspect of troop movements that he simply did not have the necessary attention span to keep track of them all.

For the British Army, the penchant for detailed planning and control led to a rigid combination of its weapons and tactics that could only work on paper. Furthermore, even if there was collective information sharing and decision-making, for example having COs meet the Battalion CO to be appraised of his orders, the strength of the culture turned what was supposed to be a collegial space into a platform for unilateral decision-making. This led to a complete waste of effort on schematized tactics that ignored the rich experience that the battalion's company COs had gained from past combat experiences in combined tactics. The best examples of this are all the recommendations that Lt. Colonel Jones' officers gave him at the height of the battle when the British were stalled in the isthmus. Lt. Colonel Jones rejected tactically sound alternatives from officers like Crosland and Neame, who had seen significant action in British campaigns in places

like Oman. In the words of Colonel Benest, these deployments made these officers independent soldiers capable tackling highly risky challenges.¹²² Thus, the penchant for detailed planning and control led to the complete waste of the rich experience of the Battalion's officers.

Existing non-material theories by themselves are not enough to explain military effectiveness and military power. This is because armies are unitary organizations that can isolate themselves to such a degree that they can create their own cultural universe, which can be completely inconsistent with their partner societies. This creates a situation in which the interactions between domestic and social influences and an army's organizational culture does not always directly convey the influence of the former at the expense of the latter. Indeed, as the Battle of Goose Green shows, in some instances, army organizational culture may be strong enough to significantly reduce the influence of domestic and social forces.

Finally, organizational culture can determine how force employment approaches and command structures perform. This is the case with command structure theory. This theory predicts that the more an army distributes its command authority to enable commanders to perceive and react to the battlefield, the more likely an army will generate military effectiveness and military power. The headquarters of both forces controlled three or four Companies. Both had similar distribution of authority in this structure. Both the Paras and Task Force Mercedes had highly centralized command structures, where Lt. Colonel Jones and Lt. Colonel Piaggi centralized decision-making around themselves (Fitz-Gibbon, 1995, p. 16).¹²³ The CO of the unit controlled the actions on the ground in a tight way and subordinates had very little chance to influence any

¹²² Benest, D. Personal Interview. January 17, 2019

¹²³ Argentine Regimental Officer #2. Personal Interview. February 28, 2019

change in the plans, even when they were no longer consistent with the tactical reality. Finally, both armies had access to communications networks with a slight advantage going to the British, based on the problems some Argentine units experienced with their radios due to the availability of batteries.¹²⁴

What the organizational culture theory brings to the particular case of command structure theory is a deeper explanation of the interactions between mid-range and soft technologies. In the case of the British paratroopers, my theory explains that their command structure's effect was eroded by the impact that culture had on the attitudes required from the officer corps to be able to react to the feedback provided by the structure. Lt. Colonel Jones, as CO of the British battalion, received feedback that his plan, assessment, and tactics were not working to facilitate the capture of Goose Green. On multiple occasions, his units relayed data to him showing that the assault was not working, that there were other tactical options worthy of consideration, and that it was necessary to allow more room for the Companies to find alternative ways to meet the goals of the offensive. But, because of the hierarchical nature of the British Army's culture, Lt. Colonel Jones' attitude was one of closed-mindedness and inability to make use of the feedback he received. This only improved upon his death, when the Battalion's second-in-command was forced to allow Company COs to find their own way to capture Goose Green. In the case of the Argentines, even if they had a command structure that was very similar to the British, the structure was incompatible with the operating system of their army, which did not allow for feedback to be provided to the CO. In this case, the hardware to provide the feedback was there, but the operating system was

¹²⁴ Benest, D. Personal Interview. January 17, 2019; Argentine Regimental Officer #1. Personal Interview. February 27, 2019

designed for a unilateral channel of communication that was at odds with what the hardware was meant to do. Therefore, thinking about command structure theory, organizational culture allows military scholars and planners to understand that a deep change in their systems of beliefs needs to take place concomitant with changes in the command structure.

It is not just about flattening the command channels, rearranging authority relations and increasing the connectivity of soldiers. Without creating an organizational set of beliefs that enable these components to transmit their data in such a way that it is mutually useful to all levels of the structure, structural changes will only have a limited impact on the battlefield. To use an analogy, the command structure is the highway, and the organizational culture are the rules regarding how to transit it in the safest and fastest way possible.

5.6. Conclusions

Organizational culture influences military effectiveness and power by shaping the command-and-control processes that armies employ. The Battle of Goose Green supports my claim. The British Army, with its hierarchical independence culture, bested the Argentine Army, with its conformist culture. The reason why the British Army defeated its Argentine adversary is rooted in that the culture of the army at the time created conditions that allowed its COs to find solutions to significant challenges that arose in the battle and, once they were free to do so, those COs implemented them with significant success. In the case of the Argentine Army, its conformist culture led its Task Force CO to be too compliant with the 3rd Infantry Brigade's requests that

made no tactical sense. Furthermore, the strong culture conformism led the Task Force to make mistakes in the deployment of the forces protecting its far-left flank and its reserve. These mistakes were the ones that were exploited by the British Army to a high degree of success.

6. Chapter 6: Conclusions

At the time that I started writing the conclusions of this dissertation, around 24 February, 2022, Russian President Vladimir Putin made the historic decision to launch a general offensive against Ukraine in what seemed to be a veiled attempt to annex it to the Russian Federation (Reuters, 2022). The Russian offensive of February 2022 has opened a new chapter in international relations and military studies that brings my theory into a spotlight of relevance. Under this spotlight, I will discuss my conclusions as well as what they imply for current policymakers, military leaders, and scholars. First, I summarize my theory as well as my findings. Second, I discuss how these findings inform the current events in Eastern Ukraine. Finally, I lay out some considerations for scholars as well as policy makers.

6.1. The Theory

I have worked to show that an army's organizational culture is often a critical element of military effectiveness and, all other things held equal, of military power. An army's organizational culture is developed based on the beliefs it adopts during its combat experiences. Armies undertake different missions, campaigns, operations, or deployments, where they witness different ways of approaching combat that have helped or hindered each side in its efforts to achieve military successes. After these deployments, armies turn their experiences into different beliefs about how they should do their job in the next campaign. The essence of these beliefs, I argue, is the balance

struck two distinct logics that govern how the army should operate: the logic of appropriateness and the logic of consequences. These beliefs emphasize, to a greater or lesser degree, rules and outcomes when choosing how to operate are the army's organizational culture. They constitute the core of soft organizational technologies that shape how all other organizational technologies are employed.

Armies' organizational cultures have especially salient impacts on the specific command and control procedures employed by the officer corps, a key mid-range technology. Different types of organizational cultures give rise to different types of command-and-control procedures. In general terms, my theory argues that some armies will turn their natural organizational needs for obedience, control, and certainty into what I call imperatives. As I explain in Chapter 2, this means that some armies will superimpose the logic of appropriateness over that of consequences in their beliefs regarding how to fight effectively in war. But other armies can balance the two logics and thus avoid making them imperatives. Finally, some armies may well avoid making some these needs imperatives while turning others into such. I call the first group of cultures conformist, the second balanced, and the third hierarchical.

Conformist cultures are those marked by rigid adherence to all three of these imperatives and tend to produce command-and-control procedures that inhibit effective information management, skew combat assessments, and undermine flexibility in operations. Balanced cultures reflect armies that avoid all three imperatives and give rise to command-and-control procedures that facilitate effective information management, promote accurate combat assessments, and ensure flexibility in operations. Hierarchical cultures are those that view only one or two of these three issues as imperative and tend to result in command-and-control

procedures that facilitate middling performance in information management, combat assessments, and operational flexibility. Figure 24 replicates Figure 3 and depicts this relationship graphically.

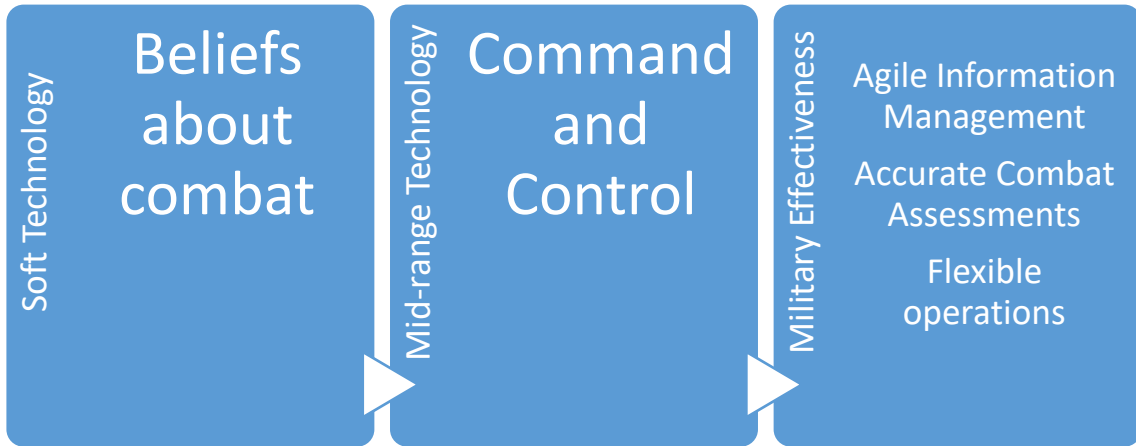


Figure 24

The cases that I have examined support this causal claim. They do so by demonstrating the power of organizational culture to account for militaries' performance in and the results of the battles examined. These battles involve different levels of army formations, from the Rifle Company up to the Army level. They also feature combat dynamics in different geographic and operational environments. Finally, they involve combat operations during different periods of the second half of the twentieth century. Thus, the battles are representative of the manifold situations in which armies operate conventionally. Accordingly, my findings are suggestive of generalizable conclusions for scholars and policy makers. The following table summarizes the findings in each of the cases:

Table 3

		First Battle of Sidi Rezegh 1941			Operation Stouthearted Men 1973			Battle of Goose Green 1982		
		Predictions		<u>Explains German victory?</u>	Predictions		<u>Explains Israeli victory?</u>	Predictions		<u>Explains British victory?</u>
		Outcome	Mechanism		Outcome	Mechanism		Outcome	Mechanism	
Material Theories	National Wealth	British military victory	More resources translate into more military power	No	Egypt military victory	More resources translate into more military power	No	British military victory	More resources translate into more military power	No, British material advantage did not help the execution of their plan
	Economic Development	Higher British military effectiveness and victory	Economic development leads to better human capital for armies	No, the Germans showed military effectiveness	Higher Israeli military effectiveness and victory	Economic development leads to better human capital for armies	No, Israeli military effectiveness was low in the beginning of the war	Higher British military effectiveness and victory	Economic development leads to better human capital for armies	No, British forces showed no initiative during most of the battle
	Technological Advantage	British victory due to superior technology	Superior military technology leads to advantages for the attacking army	No, the Germans achieved victory with older weapons' systems	Egyptian victory due to the technological superiority of its tanks and ATGMs	Superior military technology leads to advantages for the attacking army	No, Israeli victory happened with lower numbers of modern weapons	British military victory due to superior firepower	Superior military technology leads to advantages for the attacking army	No, British technological played a minor role in their victory
	Force-to-Force Ratios	British victory due to superior manpower	A ratio of 3:1 soldiers leads to victory	No, Germans won with numerical disadvantage	Egyptian victory due to their manpower superiority	A ratio of 3:1 soldiers leads to victory	No, Israelis won with numerical disadvantage	Argentine victory due to its manpower advantage	A ratio of 3:1 soldiers leads to victory	No
Non-material Theories	Regime Type	British higher military effectiveness due to its democracy	Democracy leads to more initiative and better generalship	No, the German Army achieved more initiative and better generalship	Israeli higher military effectiveness due to its democracy	Democracy leads to more initiative and better generalship	No, Israel's commanders at times bumbled without a clear idea of what to do	British higher military effectiveness due to its democracy	Democracy leads to more initiative and better generalship	No, the British had severe initiative and command problems during the battle

Societal Culture	British higher military effectiveness due to liberal society	Cultures enable armies to better pursue military operations	No, the Germans had higher effectiveness with an illiberal and Nazi society	Israeli higher military effectiveness due to its culture	Cultures enable armies to better pursue military operations	No, Israeli culture had contradictory implications for military effectiveness	British higher military effectiveness due to its liberal society	Cultures enable armies to better pursue military operations	No
Force Employment	British victory due to use of modern system of tactics and operations	Using a corps to fix German armor while the other raced towards the German line of communications	No, the Germans maneuvered in unorthodox ways throughout the battle	Israeli victory due to use of the modern system of tactics and operations	IDF was performing a defense in depth based on armored reserves	No, the initial IDF defense collapsed and the winning IDF counteroffensive did not abide by the modern system	Argentine victory due to the depth of its position in Goose Green	Modern tactics and operations allow armies to defeat their adversaries	No, the Argentines failed to exploit their defensive advantage due to cultural problems
Command Structure	German victory due to use of a taller and decentralized command structure	These command structures will have officers that are empowered to make suitable choices in the battlefield	Yes, but my theory explains why German decentralization was more functional than that of the British	Israeli victory due to a taller and decentralized command structure	The IDF's more decentralized and tall command structure gives its officers more power to make suitable battle decisions	Yes, but my theory explains why the IDF's command structure was more effective than the decentralized Egyptian structure.	British victory due to a taller and relatively more decentralized command structure	These command structures will have officers that are empowered to make suitable choices in the battlefield	Yes, but my theory explains why the British were able to improve their command structure
Organizational Culture	Higher levels of military effectiveness and victory for the Germans	Balanced cultures avoid all three imperatives that come in the way of effectiveness and victory	Yes	Higher levels of military effectiveness and victory for the IDF	Balanced cultures avoid all three imperatives that come in the way of effectiveness and victory	Yes	Higher levels of military effectiveness and victory for the British	Balanced cultures avoid all three imperatives that come in the way of effectiveness and victory	Yes

Reflection on the summaries of the cases examined in this dissertation as presented in Table 3 reveals several important points about the mechanics and validity of my theory. First, in each of the three cases, there was a clear and distinct set of organizational culture beliefs underpinning the army's tactical and operational preferences. In the North African case, the German Army's balanced culture created an army in which each soldier could use their initiative without centralized control and could embrace the risks of war. This manifested in the army's preference for very fast, decentralized, and combined arms tactics and operations. The British Army, by contrast, was a conformist force in multiple senses. It was committed to the obedience imperative, which made it impossible for soldiers to use their initiative. Officers practiced centralized control to an extreme degree, and the army trained officers to believe that uncertainty could be neutralized in war. The British culture led to very methodical, rigid, and centralized operations that could not withstand even the smallest change in plans or conditions.

In the Yom Kippur War case, the Israeli Defense Force's balanced culture created an army in which initiative could substitute for the lack of a common language, extensive uncertainty was accepted, and soldiers did not have to report back to their COs for tactical instructions. This facilitated the very adaptable, fast, and combined tactics and operations of the Israeli army, even as the IDF severely misread the lessons from the Six Day War. In the Egyptian Army, attempts to change its military culture and have its soldiers use their own initiative met with only partial success. It retained its centralized and uncertainty-averse officer corps. As a result, the Egyptian army had a hierarchical culture and fought in an unwieldy manner, focused on standoff anti-tank fires, and entrenched defensive lines.

After WWII, the British Army evolved from its conformist culture. The British managed to accommodate the idea that their soldiers could use their initiative and that planning was not the antidote to uncertainty. Nevertheless, they were unable to change the centralized command structure that their tactics required. The result was that the British, with a hierarchical culture, experienced bottlenecks in their tactical and operational command decisions, reducing their tactical and operational speed. The Argentine Army had a conformist culture, similar to the British in World War II, which caused their tactics and operations to be very rigid, with low levels of effectiveness.

A second point that can be seen in Table 3 is that the hypotheses laid out in Chapter 2 are well-supported by the historical record. Consider the military effectiveness of the various armies presented. Balanced cultures, like those possessed by the German Army and IDF, evinced the highest levels of military effectiveness. Hierarchical cultures, like those possessed by the Egyptian Army and the British Army in the Falklands, did not fare nearly as well as the balanced cultures, even when the forces in question had significant advantages on their side. The Egyptian Army, as noted in Table 3, had massive material, technological, and even manpower advantages over the IDF. These advantages did not, however, prevent the Israelis from breaking through the solid Egyptian defenses on the Suez Canal and encircling an entire Egyptian Army.

The military power hypotheses laid out in Chapter 2 are also supported by the findings summarized in Table 3. In part, as a function of the higher levels of military effectiveness that balanced cultures can achieve, the Germans in North Africa and the Israelis in the Yom Kippur War, both generated higher levels of military power than did their non-balanced-culture adversaries. The Germans were able to rapidly defeat a British force that was at least twice the

size of their Africa Korps. The IDF performed a similar feat, albeit with a much less pronounced inferiority, when it defeated the two Egyptian Armies that occupied the eastern bank of the Suez Canal in a matter of 2-3 days. As anticipated by the hypotheses of Chapter 2, hierarchical cultures only managed to achieve military power when confronting a conformist culture. A very clear example here is the British Army in the 1982 Battle of Goose Green. In this battle, despite an initial failure to adhere to suggestions from its Company commanders, the British 2 Para Battalion was able to outflank and quickly collapse the Argentine defenders in Darwin Hill. In the course of about three hours, two Para Companies, B and D, penetrated the Argentine defenses in Boca House and then raced quickly to attack the Argentine Task Force in Darwin Hill, which eventually ended in the surrounding of Goose Green. As shown in this example, a hierarchical culture can generate higher levels of military power, but only in the face of a conformist culture.

A third point in evidence in Table 3 pertains to the internal validity of my theory's explanatory power. As can be seen, alternative theories fail to explain the results of the cases; there was always an inconsistency between their predictions, their causal mechanisms, and the results of the case. Accordingly, even when some theories' predictions seem to align with the overall battle outcome, they still struggle to explain why the fight turned out as it did. For instance, in the Yom Kippur War case, the economic development theory of military effectiveness expects the IDF to generate a higher level of military effectiveness than the Egyptian Army. The problem with this prediction, which is accurate in a superficial sense, is that economic development levels did not obviously drive the IDF's in-battle variation in military effectiveness. As reported in Chapter 4, at the beginning of the Yom Kippur War on the Sinai front, the effectiveness of the IDF was dismal. Stripped of complementing infantry and artillery, the IDF kept launching wave after

wave of armored assaults against the Egyptian lines, only to have its forces mauled by the Egyptian anti-tank defenses. Thus, unless there was an exponential growth of economic development in the middle of the war, the stipulated causal mechanism is inconsistent with the results. Similar stories can be told about the other armies and other theories of military effectiveness and power summarized in Table 3.

Another important point to note in Table 3 pertains to the similarities among the armies that possessed balanced cultures. Given that I argue such an organizational culture is “ideal,” it is important to highlight some common denominators detected in the forces that balanced the logics of appropriateness and consequences. The German Army and the IDF were both well aware of their material inferiority compared to their adversaries. Both, albeit for different reasons, rejected the idea of what von Clausewitz called a “positive doctrine of war,” or the construction of a “model of the art of war that can serve as a scaffolding on which the commander can rely for support at any time (1984, p. 140). For the Germans, this possibility did not align with their understanding of combat trends in the post-Napoleonic era, and their perspective was further reinforced during the wars that led to their defeat in World War I. For the IDF, its rejection of a model of war came from the differing combat experiences of the fighting forces from which it was assembled, coupled with language barriers and pervasive emphasis on practical experience. In essence, both forces joined Clausewitz in rejecting the positive doctrine of war and instead operated in line with his argument that war is too volatile to be condensed to preestablished combat methods, procedures, and tactics.

Additionally, both armies had withstood significant previous efforts at destruction, which was an important factor in the emphasis they placed on decentralized command. In the case of the

Germans, their armies were destroyed twice: first by Napoleon at Jena and then in their defeat in World War I. Due to these experiences, the German Army underwent major shifts in the beliefs under which it operated, and specifically about how to decentralize authority in order to maintain effective operations in the face of withering assaults. In the case of the IDF, the force was assembled from underground forces that were pursued by the British Army in Palestine and had to withstand continuous disruptions in their operations. Belief in the virtues of decentralization in the IDF are thus rooted in a need similar to that experienced by the German Army – the need to survive in an uncertain environment.

I am not arguing that these conditions are the only ones that can lead to a balanced culture. These common factors are merely elements that stand out due to their common presence in two radically different armies, fielded by radically different societies and states. Perhaps their real significance is best understood in relation to some of the alternative theories of military effectiveness and military power, which stress the causal power of political regimes, economics, societal cultures, and societal conflict as determinants of martial capabilities. If the IDF and the German Army each managed to achieve a balanced culture in their own way under different political, cultural, economic, and societal conditions, then such factors may not be either necessary or sufficient for an army to achieve a balanced culture. Thus, the idea that a nation is either too poor, too politically weak, too culturally unsuitable, or too fragmented to fight efficiently and effectively on the battlefield is not compelling on its face. Nothing about the German and Israeli experiences suggests that achieving a militarily effective and powerful balanced organizational culture is easy. Rather, the German and IDF experiences suggest that doing so is not necessarily correlated with commonly identified drivers of military effectiveness or power.

It is also important to consider the commonalities across armies with other types of organizational cultures. Starting with the hierarchical cultures, the British Army in the Falklands and the Egyptian Army in 1973 share a few important common features. Both armies had experienced a marked change between their last major wars and the conflicts examined in this study. The British, who had adopted a conformist culture in World War II, managed to avoid the obedience and certainty imperatives thanks to their combat experiences during that war, and the Egyptians made a real effort to avoid the obedience imperative after the Six Day War. These efforts, however, came up against strongly entrenched preexisting beliefs that survived for different reasons. In the case of the British Army, the weight of its success in WWII managed to preserve its belief that adherence to the tested methods of officers like Field Marshall Montgomery was the best course of action in combat. Indeed, the British only managed to informally accommodate alternative beliefs regarding obedience and certainty in the Falklands War, but the informality was enough to shift their organizational culture from conformist to hierarchical. In the case of the Egyptian Army, key leaders formally tried very hard to remake the force after its collapse in 1967. Nevertheless, the army did not, or could not, change its cultural beliefs. Although I was unable to uncover in my research the precise reason for the stickiness of old beliefs, it is crucial that, after 1967, the Egyptians only achieved a theoretical understanding of the importance of initiative in the battlefield. They did try to find tactics and operations that worked more naturally with their army, which made a difference. Thus, in the case of these two hierarchical cultures, there is an important similarity. Efforts to achieve a more balanced organizational culture were stymied by an unwillingness, or inability, to fundamentally change their beliefs.

This commonality across the British and Egyptian armies raises an important question regarding how much cultural dissonance an army can tolerate in its effort to increase its military effectiveness and military power. This open question requires an answer, as it seems that tolerance of limited dissonance can have positive effects while tolerance of too much dissonance can harm military effectiveness and power. The British Army, for example, did not formally change many of its beliefs between World War II and the Falklands War. It struggled to let go of beliefs that the British Army leadership thought were essential to their victory against the German Army. Yet, significant elements of the British Army were able to take stock of the constant feedback acquired from frequent combat experiences after WWII and realized that some space was needed for servicemen with beliefs inconsistent with the obedience and certainty imperatives. Such actors could then be called upon to serve in a role that Shamir detected: as the right person at the right time (2012, p. 67). This informal tolerance paid off for the British Army when its Company commanders were able to use their initiative once their CO died at Goose Green.

However, tolerance of even moderate dissonance may also have a negative effect. Informal beliefs may provide shelter to tendencies that are not conducive to military effectiveness, which the army is deliberately trying to neutralize. This appears to be what happened in the Egyptian Army during its attempts to instill in its officers and soldiers a greater willingness to use initiative in combat. Egyptian officers had problems reconciling the notion of allowing more initiative amongst their soldiers with the assumptions they held about their troops. Indeed, high ranking Egyptian generals tried very hard to provide their soldiers with more opportunities to use their judgment in operations. At the same time, however, the army they led did not change its beliefs regarding the acceptability of poor living conditions and harsh discipline for soldiers coming from

lower classes, such as the *fellaheen*. This inconsistency among formal and informal beliefs likely prevented further cultural improvement for the Egyptians.

Turning, finally, to conformist cultures, there are also similarities across the militaries that possessed them. In the case of the Argentine Army, the development of its conformist culture is a striking example of how powerful and influential organizational beliefs can be, even in the face of deliberate attempts to change them. The Argentines, in less than a century, worked to change their army twice and put a lot of effort into making alterations to their soft and middle-range technologies. The Argentines first modified their officer education curriculum to be consistent with the ideas and efforts of the German mission they hired, and then modified their force structure to align with the American doctrine they wanted emulate. Yet, old beliefs regarding obedience, control, and certainty remained influential, hijacking the German and American concepts the Argentines were trying to implement.

The Argentine experience is reminiscent of how Pollack described the relations between the Syrian Arab Army and the Russian Army in the 1960s. According to Pollack, the Syrians thought that reforming their army was as simple as telling the Russians, “We hear that you have this thing call doctrine, we want three of those.”¹²⁵ Far from flippant, Pollack’s portrayal of the Syrian’s understanding of military reform captures the relevance of organizational culture influence to questions of martial capability. To become militarily effective, an army has to be fully committed to changing its beliefs; if it is not, it is likely to fail, even when adopting proven foreign tactical and operational concepts.

¹²⁵ Lecture at Georgetown University, Warfare in the Middle East course of the Master of Security Studies Program, Spring 2015.

In the case of the British Army during World War II, the adoption of a conformist culture was different. While the Argentine Army was unaware of its inability to detach from its preexistent beliefs, the British Army knew that it was committed to the beliefs that shaped it throughout the Cardwell Reforms and into the interwar years. The British never seriously attempted reform, not even after the disastrous experience of WWI. This unwillingness to reform is all the more remarkable because the British Army knew it would not likely succeed if it continued to fight the same way it did in WWI; the findings of the Kirke Committee made that fact plain. For the British Army, the weight of the legacy of the Regimental system simply made concepts like soldier initiative and command decentralization too difficult to experiment with. As a result, the British Army consciously remained committed to the obedience, control, and certainty imperatives, which proved its undoing during the First Battle of Sidi Rezegh.

These cases reveal an important commonality among militaries with conformist cultures: it is very difficult for armies to identify the importance of updating their organizational beliefs. The Argentines seemed to have been unaware that their deeply entrenched beliefs were effectively undermining their reform efforts, and the British stubbornly clung to the presumed importance of their entrenched beliefs rather than changing them. This tendency also appears to be in evidence today. As I discuss in the next section, the tendency to cling to entrenched beliefs is an important element that has shaped the events since Russia launched its general offensive against Ukraine in February 2022.

6.2. The Russian Offensive and the Organizational Culture Theory of Military

Effectiveness

The Russian Offensive against Ukraine initiated one of the most dangerous episodes in modern international relations. Since the beginning of the offensive, the world has been forced to confront the prospect of a general war with Russia, with Ukrainian politicians and activists doing their utmost to drag NATO into the war. At first, the Ukrainians were actively pushing the West to launch an air campaign against Russia to set up a No-Fly-Zone (NFZ) over Ukraine. US Congressmen, like Senators Roger Wicker (R-MS) and Adam Kinzinger (R-IL), and former US NATO Supreme Commander General Philip Breedlove have gone on record stating that they support establishing a NFZ, even if it leads to nuclear war with Russia. So far, these calls have been ignored in favor of supplying Ukraine with primarily defensive weapons. These weapons have proven deadly against the Russian forces and have created something like an indirect war between NATO and Russia.

As a result, today, we have the most dangerous climate in international security since the Cuban missile crisis of the Cold War. The US and its allies have imposed a package of severe economic and financial sanctions that comes close to serving as a blockade of the Russian Federation. French Finance Minister Le Maire has gone on record saying that the West is waging “economic and financial war on Russia”—a point to which former Russian President Medvedev responded, “Watch what you say, gentlemen! And don't forget that in the history of mankind, economic wars have often turned into real wars.” Le Maire was using incendiary language, as the current situation is not yet one of war between NATO and Russia that would endanger humanity’s

survival. Nevertheless, today the world is facing the possibility of a nuclear confrontation that seems to have been taken from the pages of a 1980s Tom Clancy novel.

Military power is today driving international politics. Crucially, it is not the military power of rogue states or the use of military power in small wars. A major power in the international system is actively using its military power to shape the political conditions on which it can redraw the borders of an adversary state. This may seem to some in Washington, DC, as “19th century politics.” The reality, however, is that 19th century politics is the same old politics of human history. Russia did not achieve its national interests vis-à-vis Ukraine through diplomacy or by leveraging its economic capital. Accordingly, it decided to gamble with a conventional war. Whether the bet will pay off is currently unknown, but Russia’s choice provides a strong warning regarding the use of military force in the international system—one that the world would be well-served to remember given current tensions in places like Taiwan, the Korean Peninsula, the South and East China Seas, Kashmir, and Judea and Samaria (the West Bank). War and military power matter more than what 21st century politicians have been willing to admit.

Despite this dangerous state of affairs, the events that unfolded on the ground in Ukraine merit the attention of anyone who aspires to understand how military power shapes international relations. The facts, if not the interpretation, of Russia’s use of force are relatively straightforward. On 24 February, Russian Airborne troops launched an operation to take Hostomel Airport, only 15 miles Northwest of Kiev, and stage a *coup d’main* against the Ukrainian government to force a decision early in the campaign (BBC News, 2022). At the same time, the equivalent of four Russian Army Corps launched six simultaneous thrusts in eastern Ukraine (Freedman, 2022). For all intents and purposes, Russia launched a massive *Blitzkrieg*-like campaign that appeared to have

the potential to collapse Ukraine in 72 hours. The initial operation was not successful, however, and the Russian Army switched tack, adopting a different operational style as its advance was met with strong local defenses, operational security problems, and logistical problems. The army began to roll out its significant firepower assets in order to begin leveling and besieging centers of resistance like Kharkov, Sumy, Chernhiv, and Mariupol (Kofman, 2022). The Russians were not successful in this endeavor, either. Eventually, the Russian Army withdrew from those areas and concentrated its efforts on its gains in Kherson Oblast and the separatist republics in Luhansk and Donetsk.

The argument laid out in this thesis sheds new light on the Russian campaign in Ukraine. The Russian Army tried to implement what are commonly known as the “Serdyukov Reforms” around the year 2008 in an effort to improve its readiness for local and regional conflicts. However, as some analysts have noted, the process blended new approaches with the “old army and its manifold problems,” making the outcome of the reforms incomplete at best (Pynnoniemi, 2013, p. 3). As a result, characteristics of the “old army” persist, including the Russians’ significant problems delegating authority, tendency to micro-manage combat operations, and belief that discipline must be maintained through fear and violence (Herspring, 2008). Put differently, despite some efforts to move away from it, the Russians appear to have retained a conformist organizational culture to the present day. If my theory is right, we should expect to see that conformist organizational culture constraining Russia’s military effectiveness and power.

At present there does seem to be a correlation between its organizational culture and performance on the battlefield. Consider the first month of the Russian Army’s campaign in eastern Ukraine. In an army culture in which, due to a lack of delegation and an excess of

micromanagement, no one is used to making their own decisions, it is more difficult for forces to operate at the tempo required to outflank local defenders, surround them, and neutralize them before they become too strong. This appears to be in evidence in Ukraine. It seems that the Russians took a long time to realize that their ground commanders had to act outside the plan they were given to move as fast as possible into enemy localities and secure the main roads that each of the Russian Corps would require in order to reach Kiev and other high value targets like Kherson. This dynamic is most easily observed in the Russian Army's almost complete lack of off-road maneuvering during the opening weeks of the campaign, before the weather and mud would have prevented such action (Blackburn & Shykov, 2022). Additionally, in a culture in which rank allows its holder to exert discipline through fear and violence, it is more difficult for commanding officers in the field to give realistic feedback to their senior officers about the disconnect between their operational aims and the tactical challenges on the ground. This also seems to be in evidence in Ukraine. A case in point here is that, while the Russian Airborne forces were launching a daring assault to take Hostomel and then Western Kiev's approaches, two Russian Corps in eastern Ukraine proved utterly unable to overcome strong Ukrainian defenses in Sumy, which was supposed to be taken in no more than four days (Lacey, 2022). Without a successful Eastern advance, Russia's Airborne forces' light armor and infantry suffered the bulk of Kiev's counterattacks and were unable to breakthrough in a highly dense urban environment that proved amenable to the Ukrainian use of ATGMs.

The Russian performance thus far aligns with my theory's general expectations. The Russians have not been able to generate high levels of military effectiveness, which is anticipated by my hypotheses about such capabilities. There is also reason to think that the Russian army's

incapacity to generate high levels of military power aligns with my theoretical expectations. Based on some early evidence, it seems that the Ukrainian Army has undertaken great efforts since 2014 to change its organizational culture in order to empower its junior officers by introducing elements of decentralization in their operations and allowing them to use their initiative (Herszerhorn and McCleary, 2022). In addition, it seems that the Ukrainian Army officers and soldiers have been better able to embrace the uncertainty of their operating conditions. For example, many Ukrainian Army units and militia forces have made the decision to operate behind Russian lines, setting up ambushes and night attacks that disrupt Russian advances like the assault on Kiev (Dettmer, 2022). Though it is too early to be entirely sure, it seems that the Ukrainian Army possesses something like a balanced culture and, as a result, has been better able to generate not only higher levels of military effectiveness than its Russian adversary, but also higher levels of military power. This is the essence of my organizational culture theory: more balanced cultural beliefs lead to higher levels of military effectiveness and military power.

6.3. Theoretical and Policy Implications

Consideration of how my theory informs the Russian invasion in Ukraine underscores the fact that my argument and findings have implications relevant to study and practice of military effectiveness and military power. Starting with the theoretical implications, the first point to note is that my findings do not necessarily invalidate any alternative theories of military effectiveness and military power. As depicted in Table 3, some of the alternative theories make predictions about

the cases that come close to explaining them. Where the most explanatory value is likely to be found is in joining these claims with the organizational culture dynamics my theory identifies. As I mentioned in the introduction and Chapter 2, organizational culture has the potential to act as an intervening variable in tandem with alternative theories that explain war and military effectiveness at the state or systemic levels. For instance, materialist theories failed in explaining cases such as the First Battle of Sidi Rezegh and Operation Stouthearted Men; using organizational culture as an intervening variable, however, may well help materialist theories give important insights in these cases. Materialist scholars and others could find out how army organizational cultures modify the expected output in national military effectiveness they anticipate based on a nation's material resources. In both these cases, to use a clear example, organizational culture could help materialist theories understand how the Germans and the Israelis were able to multiply their scant national resources into superior military effectiveness than their larger adversaries. Put differently, most of these alternative theories can be significantly aided by adding to them the organizational considerations that my theory highlights. Further academic research efforts could look at the concatenations that organizational level theories of military effectiveness and military power can have with state and systemic level-alternative theories.

Second, my findings raise an important question regarding the interaction between material and nonmaterial theories of military effectiveness and military power. Namely, one can question the way in which material and non-material resources interact in an army and how that interplay comes to influence military effectiveness. In the case of organizational culture, this means that armies with certain organizational cultures may have a distinctively higher or lower capacity to extract military effectiveness from national resources. This is particularly relevant at the current

moment. During the Donald J. Trump administration, one issue dividing the United States and its NATO allies was each partner's level of defense spending. President Trump used his position to harangue Europe to increase its defense spending (BBC News, 2021). Separate from the political question regarding whether President Trump should have forced this issue, it is an open question whether affixing defense spending as a percentage of GDP is wise if not all armies can extract the same capabilities from their national resources. For example, 1% GDP defense spending for a balanced culture army may be the same as 2% or 3% GDP defense spending for a state with a conformist culture army. This is an important question that should be pursued in future academic research.

A third theoretical implication of my findings pertains to the interaction between societal culture and military organizational culture. My findings do not invalidate the notion that societal culture can have an influence on military effectiveness. They do, however, raise questions about how these two streams of cultural influence interact inside armies. What are the conditions that determine how these streams interact with each other inside the army? What are the results of the different ways in which societal and organizational cultures can influence an army? What are the implications for military effectiveness and military power? Here, research can provide significant answers by looking into the ways in which societal and organizational cultures are balanced in military academies, and in recruitment processes for the enlisted and officer corps. Another potential avenue for research is the way in which armies explain their society and their organization to students at their military academies. Civil-military relations may moderate and mediate the effect of social culture on military effectiveness and power. It is especially important to understand this interaction, as it is repeatedly presented to officers at different levels of their education.

In terms of policy implications, my findings suggest significant lessons for political and military leaders. First, army beliefs are an important indicator of an enemy's real capabilities and potential. Military intelligence collection and analysis efforts must look beyond traditional numeric and visual indicators, such as those that can be acquired through image intelligence and focus on how armies define their understandings of obedience, control, and certainty. Focusing on the presence or absence of these imperatives can give military analysts a window into how the force will actually fight in combat. Their inclusion alongside traditional numeric and visual indicators can help military and intelligence analysts determine the level of friction the enemy is likely to face in the course of its operations, and how likely it is that the enemy will overcome that friction. All of this means that military intelligence collection efforts must put more effort into human intelligence, to uncover the organizational dynamics that lie behind highly stylized peacetime army drills and war games.

Here again, the current war in Ukraine provides an example of how important these implications are for politicians and military leaders. While the West used image and signals intelligence to track the possibility of a Russian offensive against Ukraine, there was very little discussion of the real organizational state of the Russian Army. Indeed, most of the intelligence presented to the public painted a picture of a massive, combined arms force that was poised to overwhelm Ukraine from north, east, and south. This picture clearly misstated the internal state of the Russian Army after the Serdyukov Reforms and the degree to which the "old army" had hampered the impact of the reforms. The massive Russian force has proved difficult to concentrate; it has failed to wage fast and decisive operations and has instead resorted to the old Russian Army tactics of the Chechen Wars. An organizational culture approach could have helped

political and military leaders as well as intelligence experts bring nuance to our understandings of the Russian Army. It could also help make sense of what we are seeing on the ground in Ukraine at the time of this writing.

Second, organizational culture matters as much as the latest tank or artillery system. This means that military leaders must pay attention to setting the proper budget levels to fund all the necessary operational activities to help their armies achieve balanced cultures. Military leaders must make sure that their armies have sophisticated and realistic training that emphasizes the development of tactical and operational judgment across its soldiers. Training must provide soldiers with opportunities to make and learn from their mistakes. This can normalize the notion that mistakes that lead to important military learning are opportunities for the army. This understanding of training has important follow-on implications for the curriculum of military academies. Training that incentivizes tactical judgment and the opportunities for mistakes during peacetime must be increased.

The importance of allocating sufficient funding and attention to the development of the army's culture has a corollary implication for defense policy leaders. In 2021, the United States pulled its forces out from Afghanistan after 20 years of war and nearly \$ 5.8 trillion spent, only to see the Afghan National Army collapse and the Taliban take back control of the country in a matter of days (Gaouette, 2021; Shesgreen, 2021). Of the \$5.8 trillion, nearly \$83 billion was used to fund the Afghan National Army over the course of two decades, granting the Afghan force access to US training and modern weapons systems (Burns, 2021). This constitutes a historical failure in military assistance and highlights the importance of working to develop an army's culture. Furthermore, it speaks volumes about the limits of military and security assistance. Defense and

military leaders must understand that organizational culture serves as a very strong barrier that limits what efforts to bolster the capabilities of a foreign army can achieve. Military and security assistance can be extremely helpful in overcoming strong financial, logistic, and institutional barriers that inhibit military cooperation. But military and security assistance cannot fill the hollowing of an army or make up for its cultural and organizational deficiencies. These kinds of deficiencies can only be overcome through the reform of internal dynamics that drive an army's cultural development. As the Argentine case clearly shows, foreign assistance is limited in this domain. Thus, another clear implication for defense and military leaders is to be more realistic regarding the effects that military and security assistance can have in bolstering foreign allied armies.

Finally, my findings provide a warning and highlight an opportunity for US political and military leaders. Regardless of the ultimate outcome of the Russian offensive against Ukraine, it is evident that Europe will demand a substantial US military commitment the likes of which has not been seen since the days of the Cold War. At the time of this writing, the US military maintains around 75,000 personnel in Europe, 35,000 of whom are deployed in Germany (Statista, 2022). This is miniscule compared to the 323,000 US military personnel who were present in Europe in 1989, at the end of the Cold War (Allen et Al, 2022). The threat of a Russian move against the Baltic republics may well necessitate a return to these earlier levels of manpower deployment. Crucially, these demands will be made at a time when the People's Republic of China is presenting an equally significant challenge in the Pacific, increasing strain on the force and pressure on the US defense budget.

The warning to the US political and military leaders is thus to beware of falling for the illusion that the only military response at hand is one that leverages technological and manpower superiority. Such an approach is very costly and may be infeasible given the current political climate in the US, where polls indicate that a large number of Americans want to reduce the American military footprint around the world (Kupchan, 2020; Gunzinger, 2022). Instead, recognize that the US military has another choice. It can leverage the organizational culture advantages of the US military over its Chinese and Russian adversaries, so as to be able to fund both military commitments. This means that, instead of solving the problems with more manpower and more advanced weapons systems, the US military can tap into the cultural advantages it has. The US military almost certainly has a greater ability to accommodate personal initiative, acceptance of risk, and decentralized command than the Russian and Chinese militaries. As my research has shown, even in the face of a larger adversary, armies that have cultures that allow these characteristics can overcome their numerical and material inferiority. This is precisely the opportunity the US military has in the context of a larger commitment of forces to the European theater. Instead of fighting for constrained budgetary resources, the military can bet on developing the right culture that allows its officers and soldiers to develop higher levels of military effectiveness and military power with the tools it already has.

7. Bibliography

PRIMARY SOURCES

- Abbott, D. "Royal Artillery Falklands Oral History." Interview by Major P.M McComas RA, Royal Artillery Oral History Program, 1982, London, National Army Museum # NAM 9202-59-15.
- Armstrong, P. (1982). Royal Artillery Falklands Oral History. Royal Artillery Oral History Program. London, National Army Museum # NAM 9202-59-26.
- Bartholomew Committee. (1940~). Interim Report. London, Kings College London Liddell Hart Centre for Military Archives # Bartholomew 3/10.
- Bartholomew Committee. Criticism by Members of the Committee, London, Kings College London Liddell Hart Centre for Military Archives # Bartholomew 3/30.
- Beauvoir de Lisle, H. British Cavalry, Kings College London Liddell Hart Centre for Military Archives.
- Beauvoir de Lisle, S. (1902). British Cavalry: Its System of Peace Training and the Probable Requirements it will have to Fulfill in the Future. London, Kings College London Liddell Hart Centre for Military Archives # De Lisle 4/2.
- Bond, L. "The Tactical Theories of Captain Liddell Hart." Institution of Royal Engineers: 153-163.
- Brigade Major. (1927). 10th Infantry Brigade Training Circular. Kings College London Liddell Hart Centre for Military Archives # 7/1920/18

- British Military Mission in Paris. Situation Reports from British military attache in Paris. London, War Office. The National Archives of the United Kingdom # WO 106/5416.
- Brooke, A. (1919). FSR Operations Extracts from Military History and Remarks on Recent War, Kings College London Liddell Hart Centre for Military Archives.
- Brooke, A. (1919). Senior Staff Course, Kings College London Liddell Hart Centre for Military Archives # Alanbrooke 3/6
- Brooke, A. (1925). Artillery Lectures Junior Division, Kings College London Liddell Hart Center for Military Archives.
- Brooke, A. (1935). Nery and the Battle of the Aisne, Kings College London Liddell Hart Centre for Military Archives.
- Cavalry Committee. (1926?). Interim Report of the Cavalry Committee. London, War Office.
- Chaundler, D. (1995). National Army Museum Oral History Archive Falklands. London, National Army Museum # 1991-12-19.
- Comando 7ma Brigada de Infantería. Área Operaciones: 4. Buenos Aires, SHE # No. 26, caja 4, carpeta 2, folio 15-18.
- Comando 7ma Brigada de Infantería. Área Personal: 5. Buenos Aires, SHE # No. 26, caja 4, carpeta 2, folio 2-6.
- Comando de la 3ra Brigada de Infantería. (1982). Actividades y Acontecimientos (Diario de Guerra): 29. Buenos Aires, SHE # No. 1, Box 1, Folder 1, folio 3-71.

- Comando de la 3ra Brigada de Infantería. (1982). Apreciación de Situación Realizada por el Cdo Br I III el 241700 May. G-3. Puerto Argentino: 2. Buenos Aires, SHE # No 43, Box 5, Folder 2, pag 1-2.
- Comando de la 3ra Brigada de Infantería. (1982). Informe Comando de la IIIra Brigada de infantería: 9. Buenos Aires, SHE # Nro. 6, caja 2, carpeta 1, folio 47-46.
- Comando de la 3ra Brigada de Infantería. Informe producido por la Br. I III en cumplimiento de la OECJE n. 762/82 (Para el Estudio y Explotación de Experiencias relacionado con el conflicto MALVINAS): 316. Buenos Aires, SHE # No. 46, Caja 8, carpeta 1, folios 1-316.
- Comando de la 7ma Brigada de Infantería. (1982). Cdo Br i VII-Div III-Op Nro 32/6/82. ORDEN ESPECIAL Nro 12/82 del Cte Br i VII (Caso Malvinas Argentinas). Operaciones: 3. Buenos Aires, SHE # Nro 48, Caja 13, carpeta 1, doc 2.
- Comando de la 7ma Brigada de Infantería. (1982). Orden Especial del Cte BR i VII Nro 11/82 (Caso Malvinas Argentinas): 2. Buenos Aires, SHE # Nro 48, Caja 13, carpeta 1, doc 2.
- Comando del 12do Regimiento de Infantería. (1982). Diario de Guerra: 96. Buenos Aires, SHE # No 5, box 1, folder 5, folios 1-96.
- Comando del 12do Regimiento de Infantería. (1982). Informe Regimiento de Infantería 12: 4. Buenos Aires, SHE # Nro. 6, caja 2, carpeta 1, folio 59-62.
- Comando Subzona 26. (1982). Orden Especial del CTE CPO EJ II Nro 12/2 (Malvinas Argentinas). Buenos Aires, Servicio Histórico del Ejercito (SHE) No 26, box 8, folder 1, doc 23-24.

- Comisión CALVI. (1982). Desarrollo del Conflicto "Malvinas" Reseña Histórica de las Operaciones Militares en Conflicto Atlántico Sur. Buenos Aires: SHE # No. 2, box 1, folder 2.
- Comisión Especial de Malvinas. (?). Fotocopias de los Informes de operaciones para los Juicios de la Cámara Federal. Buenos Aires, SHE # No 31, caja 8, carpeta 3.
- Comisión Especial de Malvinas. (1989). Informe de Situación del Tncl (R) D Italo Angel Piaggi. Buenos Aires, SHE # no 42, box 5, folder 1.
- Daher, D. Informe Ex Comandante de la Brigada de Infanteria IX General de Brigada D Américo Daher: 4. Buenos Aires, SHE # Nro. 6, caja 2, carpeta 1, folio 96-100.
- Directorate of Military Training. (1940). Notes of a Committee set up to consider the lessons to be learned from the operations in Flanders. London, War Office.
- Domínguez, R. (1982). Apreciación de Situación. Buenos Aires, SHE # OPERACIONES, Nro 49, caja 13, carpeta 2, doc 41.
- Drennan, S. (1991). Falklands. National Army Museum Oral History Archive. London, National Army Museum # 1991-07-246.
- Ejército Argentino. (1955). Reglamento de Conducción. Buenos Aires, Instituto Geográfico Militar.
- Ejército Argentino. (1962). Reestructuración Orgánica del Ejército, Buenos Aires, SHE # EMGE 183.
- Ejército Argentino. (1964). Conducción de Grandes Unidades de Batalla. Buenos Aires, Instituto Geográfico Militar.

- Ejército Argentino. (1964-1965). Reestructuración del Ejército, Comando en Jefe del Ejército. Buenos Aires, SHE # EMGE 203
- Ejército Argentino. (1968). Ejercicio del Mando. Buenos Aires, Instituto Geográfico Militar.
- Ejército Argentino. (1969). Terminología Castrense de Uso en las Fuerzas Terrestres. Buenos Aires, Instituto Geográfico Militar.
- Ejército Argentino. (1970). Instrucción de Combate Individual. Buenos Aires, Instituto Geográfico Militar.
- Ejército Argentino. (1971). Apéndice al Reglamento de terminología Castrense en Uso en las Fuerzas Terrestres. Buenos Aires, Instituto Geográfico Militar.
- Ejército Argentino. (1981). Elaboración de Doctrina. Buenos Aires, Instituto Geográfico Militar.
- Ejército Argentino. (1982). Transcripción del MMC del CDO CPO EJE II NRO 01450/82 (DEPTO III-OP NRO 0166/82) solo para Conocimiento y para una Eventual aplicación a Orden. Buenos Aires, SHE.
- Faux, N. (1991). National Army Museum Oral History Archive. London, National Army Museum # 1991-12-111.
- Hacker, B. The Military and The Machine. Personal Papers of Basil Liddell Hart, Kings College Liddell Hart Military Archive Centre # LH 15/3/9.
- Harper., G. (1919). B. H. Capt. Lidell-Hart. Kings College Liddell Hart Military Archive Centre # 7/1919/7.

- Her Majesty's Stationary Office. (1981). The United Kingdom Defence Programme: The Way Forward. London: HMSO.
- Hobart, P. (1936). Tank Brigade-Unpreparedness for War. s. T. Brigade. Kings College London Liddell Hart Centre for Military Archives.
- Hobart, P. (1937). Organization of Units and Formations in the Regular Field Force Using Armoured Fighting Vehicles, Kings College London Liddell Hart Centre for Military Archives.
- Hobart, P. (1939). The Armoured Division, Egypt Training Report, Kings College London Liddell Hart Centre for Military Archives.
- Imperial General Staff. (1922). Important papers written by General Staff. W. Office. London, War Office.
- Juniper. (1928). The Army of the Future. Kings College London Liddell Hart Centre for Military Archives
- Kibble, R. "Royal Artillery Falklands Oral History." Interview by Major P.M McComas RA, Royal Artillery Oral History Program, 1982, p. 5. London, National Army Museum # NAM 9202-59-29.
- Kimberley, R. (1976). Know Your Comrades. Tiger Rag. Ballykelly, The Royal Hampshires Tiger Rag.
- Liddell Hart, B. (1920). A New Theory of Infantry Tactics. The National Review July, 2020: 473-484
- Liddell Hart, B. (1948). The German Generals Talk. New York, William Morrow & Co.

- Lidell-Hart, B. "The British and French Doctrines on Infantry in Attack." Kings College London Liddell Hart Centre for Military Archives.
- Lidell-Hart, B. (1917). *Battle Drill or Attack Formations Simplified*, Kings College London Liddell Hart Centre for Military Archives # LH 7/1917/19.
- Lidell-Hart, B. (1917). *Platoon Attack Exercise*, Kings College London Liddell Hart Centre for Military Archives # LH 7/1917/11b.
- Lidell-Hart, B. (1917). *The Somme and its Sequels*. Kings College London Liddell Hart Centre for Military Archives.
- Lidell-Hart, B. (1920). "The Essential Principles of War and their Application to the Offensive Infantry Tactics of To-Day." *Royal United Service Institute* 1097 (April 1920): 30-44.
- Lidell-Hart, B. (1922). "Colonel Bond's Criticisms: A Reply." Kings College London Liddell Hart Centre for Military Archives # LH 7/1922/12.
- Lidell-Hart, B. (1942). *Some More Salient Points in the Tank History*. Kings College London Liddell Hart Centre for Military Archives # LH 15/11/15.
- Lidell-Hart, B. (1942). *The Problem of Quickened Manoeuvre*. Kings College London Liddell Hart Centre for Military Archives # LH 15/11/15.
- Lidell-Hart, B. (1943). *Main Impressions of the "Spartan" Exercise*, Kings College London Liddell Hart Centre for Military Archives # LH 15/11/15.
- Lidell-Hart, B. (1991). *Strategy*. New York, Penguin Books.
- Lidell-Hart, B. H. (1932). "Contrast of 1931." *Army Quarterly* 1(II): 235-251.

- Lidell-Hart, B. Points of Discipline for Volunteers. Kings College London Liddell Hart Centre for Military Archives.
- Lidell-Hart, B. The Framework of the Science of Infantry Tactics. Kings College London Liddell Hart Centre for Military Archives.
- McNamara, J. (1937). "The Army To-Day." Kings College London Liddell Hart Centre for Military Archives # LH 15/13/1.
- McQueenie, B. (1982). Royal Artillery Falklands Oral History. Royal Artillery Oral History Program. London, National Army Museum # NAM 9202-59-27.
- Menéndez, M. (1982). Orden de Operaciones /82 (Reestructuración parcial del dispositivo y organización para el combate del Comando Conjunto Malvinas). C. C. Malvinas. Puerto Argentino: 4. Buenos Aires, SHE # No 2, box 1, folder 2.
- Menéndez, M. (1983). Observaciones Formuladas por el Señor General de Brigada D Mario Benjamin Menéndez a la Segunda Presentación al Señor JEMGE del Informe Oficial del Ejercito sobre el Conflicto Malvinas. Buenos Aires, SHE # No 2, box 1, folder 2.
- Montgomery-Massingberd, A. (1913). Minor Tactics. Quetta, Staff College, Quetta.
- Montgomery-Massingberd, A. (1930). Tours of the Battlefield of the Aisne, September 1914. S. Command. London, Her Majesty's Stationary Office.
- Ottino, J. Informe sobre el Libro "Informe Rattenbach-El Drama de Malvinas", Comisión Especial Malvinas: 4. Buenos Aires, SHE # No 31, box 3, folder 13, folios 1-4.
- Parada, O. (1982). Orden de Operaciones Nro 587/82 1982. Buenos Aires, SHE # No 10, box 1, folder 2, doc. 663

- Parada, O. (1982). Orden de Operaciones Nro. 1/82 (Movimiento de la Br i III desde sus asientos de paz al TOS). B. d. I. 3. Curuzu Cuatia: 5. Buenos Aires, SHE # No 10, box 1, folder 2, doc 56.
- Parada, O. (1982). Orden de Operaciones Nro. 507/82 (Ataque de desarticulación). Puerto Argentino: 2. Buenos Aires, SHE # No 10, box 1, folder 2, doc 668.
- Parada, O. (1982). Plan de Empleo de la Br i III (-)(+) a partir del 220800 May 82. Puerto Argentino: 5. Buenos Aires, SHE # No 10, box 1, folder 2, doc 665.
- Parada, O. Informe Comando de III Brigada de Infantería: 14. Buenos Aires, SHE # No. 8, caja 2, carpeta 4, folios 27-38.
- Piaggi, D. (1986). Elevar solicitud de revisión. Señor presidente de la Nación. Argentina. Buenos Aires: 8. Buenos Aires, SHE # No 45, box 5, folder 4.
- Piaggi, D. Informe del J RI 12 "Grl Arenales" Tcnl D Italo A Piaggi. Buenos Aires, SHE # No 46, box 5, folder 5, pg 1-8.
- Piotti, M. (1982). Request Reply. R. Colonel Miranda: 1. Buenos Aires, SHE # No. 3, Box 1, Folder 3, Doc 76.
- Pugh, M. (1991). National Army Museum Oral History Archive Falklands. London, National Army Museum # 1991-12-10
- Ruiz, D. (1989). Memorandum. Presidente de la Comisión Especial Malvinas. Malvinas. Buenos Aires, SHE # No 44, box 5, folder 3.
- Second Battalion-The Scots Guards. (1982). The Battle for Mount Tumbledown. London, National Army Museum # NAM 9102-141

- Secretaria de Guerra. (1963). El Escuadrón de Caballería. Buenos Aires, Instituto Geográfico Militar.
- Secretaria de Guerra. (1965). Brigada Independiente de Infantería de Montaña. Buenos Aires, Instituto Geográfico Militar.
- Secretaria de Guerra. (1966). Organización y Funcionamiento de los Estados Mayores. Buenos Aires, Instituto Geográfico Militar.
- Settel, C. (1990). Al presidente de la Comisión Especial Malvinas. Presidente de la Comisión Especial Malvinas General de Brigada (R) D Enrique Juan Ottino. Buenos Aires: 1. Buenos Aires, SHE # No 31, box 3, folder 13.
- Thompson, J. (1991). National Army Museum Oral History Archive Falklands. London, National Army Museum # 1991-11-24.
- War Office (1912). Soldiers' Character. London, War Office.
- War Office (1936). Third Interim Report on the Field Force Committee. London, War Office.
- War Office. (1899). Reports of Committee on Garrison Artillery Instruction and Training. London, War office.
- War Office. (1901). Conference on the Terms and Conditions of the Service in the Yeomanry. London, War Office.
- War Office. (1904). Memorandum from the Adjutant-General to the Forces on part I of the Secretary of State's memorandum relating to some defects in the existing system of infantry organization and recruiting. London, War Office.
- War Office. (1912). Staff College Students. London, War Office.

- War Office. (1914). Regulations Governing the Formation, Organization and Administration of Cadet Corps. London, War Office.
- War Office. (1918). British Army in France; Organization of Staff Branch. London, War Office.
- War Office. (1918). British Force: Reports by Lt. Colonel Williams. London, War Office.
- War Office. (1918). Weekly Tank Notes (Description applies for all tank notes). London, War Office.
- War Office. (1919). Infantry Training. London, Her Majesty's Stationary Office.
- War Office. (1920). Report of committee on the establishments for headquarters of commands and formations in the United Kingdom. London, War Office.
- War Office. (1921). Report of the Committee on the provision and organization of a militia force required to supplement the Regular Army. London, War Office.
- War Office. (1921). Report of the Committee on the provision and organization of a militia force required to supplement the Regular Army. London, War Office.
- War Office. (1922). Infantry Training. London, War Office.
- War Office. (1923). Staff Visit to the Battlefields in Northern Italy: Report. London, War Office.
- War Office. (1924). Memorandum on Training Carried out during the collective training period. Chief of the Imperial General Staff. London, War Office.
- War Office. (1925). Army Manoeuvres 1925. London, War Office.
- War Office. (1925). Memorandum on Training Carried out during the collective training period 1925. Chief of the Imperial General Staff. Staff. London, War Office.

- War Office. (1926). Memorandum on Army Training Collective Training Period 1926. Chief of the Imperial General Staff. Staff. London, War Office.
- War Office. (1926). Memorandum on Army Training Collective Training Period 1926. Chief of the Imperial General Staff. Staff. London, War Office.
- War Office. (1928). Artillery Training-War. London, Her Majesty's Stationary Office.
- War Office. (1928). Report on the Staff Conference. Chief of the Imperial General Staff. Camberley, Imperial General Staff.
- War Office. (1928). Report on War Office Exercise No. 5. London, War Office.
- War Office. (1929). Field Service Regulations-Operations. G. Staff. London, Her Majesty's Stationary Office.
- War Office. (1929). War Office Exercise 4. London, War Office.
- War Office. (1932). Committee on the lessons of the Great War: Report. London, War Office.
- War Office. (1933). Report on the Staff Conference. Chief of the Imperial General Staff. Camberley, Imperial General Staff.
- War Office. (1934). Notes on Imperial Policing. Army Council. London, War Office.
- War Office. (1934). Report on the Staff Conference. Chief of the Imperial General Staff. Camberley, Imperial General Staff.
- War Office. (1939). Conversations with Gen. Gamelin. London, War Office.
- War Office. (1939). Memorandum by General Montgomery on the general situation in the 8th Division Area, 8th Division Division, London, War Office.

- War Office. (1939). The Royal Artillery Training Memorandum (Field Branch and Anti-Tank). Army Council. London, War Office.
- War Office. Anglo-French Liaison. London. War Office. The National Archives of the United Kingdom # WO 106/5414
- War Office. Conversations held in London between the Allied General Staffs. W. Office, War Office.

SECONDARY SOURCES

- Aboul-Einein, Y. (2005). "Lt. Gen. Saad Eddine-El Shazly." *Infantry* 94(1): 20-24.
- Aboul-Einein, Y., Ed. (2014). *Reconstructing a shattered Egyptian Army: War Minister Gen. Mohamed Fawzi's Memoirs, 1967-1971* Annapolis, Naval Institute Press.
- Aboul-Enein, Y. (2004). "Egyptian General Abdel-Moneim Riad." *Infantry* 93: 12-15.
- Addington, L. (1962). *General Franz Halder and the German General Staff, 1938-1941*. Department of History. North Carolina, Duke University. Doctor of Philosophy: 361.
- Addington, L. (1971). *The Blitzkrieg Era and the German General Staff 1865-1941*. New Brunswick, Rutgers University Press.
- Aguiar, F et Al. (1985). *Operaciones Terrestres En Las Islas Malvinas*. Buenos Aires, Circulo Militar.
- Aker, F. (1985). *October 1973: the Arab-Israeli War*. Hamden, Archon Books.
- Allison, G. and P. Zelikow. (1999). *The Essence of Decision*. New York, Addison-Wesley.
- Allon, Y. (1970). *The Making of Israel's Army*. London, Valentine Mitchel.
- Anstey, E. (1939). "Common Sense Applied to War." *Army Quarterly* 07 (VI): 270-287.

- Applegate, R. and J. Moore. (1990). "The Nature of Military Culture." *Defense Analysis* 6(3): 302-305.
- Argyris, C. (1960). *Understanding Organizational Behavior*. Homewood, The Dorsey Press.
- Argyris, C. (1967). *Some Causes of Organizational Ineffectiveness within the Department of State*. Washington DC, Center for International Systems Research.
- Argyris, C. (1972). *The Applicability of Organizational Sociology*. Cambridge, Cambridge University Press.
- Argyris, C. (1982). *Reasoning, Learning, and Action*. San Francisco, Jossey-Bass.
- Armstrong, G. (1983). *Egypt. Fighting Armies*. R. Gabriel. Westport, Greenwood Press.
- Asher, D. (2009). *The Egyptian Strategy for the Yom Kippur War*. London, McFarland & Company.
- Avant, D. (1994). *Political Institutions and Military Change*. Ithaca, Cornell University Press.
- Bacevich, A. *The New American Militarism*. New York, Oxford University Press, 2005.
- Badaro, M. (2009). *Militares o Ciudadanos*. Buenos Aires, Prometeo Libros.
- Badolato., E. (1984). "A Clash of Cultures: The Expulsion of Soviet Military Advisors from Egypt." *Naval War College Review* 37(2): 69-81.
- Balza, M., Ed. (1999). *así Peleamos Malvinas*. Buenos Aires, Fundación Soldados.
- Bandmann, Y. (1990). *The Egyptian Armed Forces during the Kadesh Campaign. The Suez-Sinai Crisis 1956*. Exeter, Frank Cass and Company Limited.
- Barnett, C. (1982). *The Desert Generals*. Bloomington, Indiana University Press.

- Barnett, M. (1992). *Confronting the Costs of War*. Oxford, Princeton University Press.
- Bar-On, M. (2012). *Moshe Dayan*. London, Yale University Press.
- Barrow, G. (1932). "The Soldierly Spirit." *Army Quarterly* 10 (X): 95-105.
- Baumel, J. (2005). *The "Bergson Boys" and the Origins of Contemporary Zionist Militancy*. Syracuse, Syracuse University Press.
- Beeri, E. (1969). *Arab Officers in Arab Politics and Society*. Jerusalem, Israel University Press.
- Begin, M. (2002). *The Revolt*. Bnei Brak, Twelfth Printing.
- Begley, L. (2009). *Why the Dreyfuss Affair Matters*. New Haven, Yale University Press.
- Ben-Ari, E. (1998). *Mastering Soldiers*. Oxford, Berghahn Books.
- Ben-Shaul, M. (1968). *Generals of Israel*. Tel Aviv, Hadar Publishing House Ltd.
- Beuman, A. (1921). "The Tactical Training of the Junior Officer." *Army Quarterly* 10(XII): 383-390.
- Beuman, A. (1930). "The Organization of the Modern Infantry Battalion." *Army Quarterly* 4(X): 94-99.
- Beverelli, L. (2019). "The Importance of the Tactical Level: The Arab-Israeli War of 1973." 19 November 2019. <https://thestrategybridge.org/the-bridge/2019/11/19/the-importance-of-the-tactical-level-the-arab-israeli-war-of-1973>. Accessed 24 October 2021.
- Biddle, S. (2004). *Military Power*. Princeton, Princeton University Press.
- Biddle, S. and S. Long. (2004). "Democracy and Military Effectiveness: A Deeper Look." *Journal of Conflict Resolution* 48(4): 525-546.

- Blackburn, T., & Shykov, A. Assessing the Russian Army performance after one week of War. Real Clear Defense. 10 March 2022, from https://www.realcleardefense.com/articles/2022/03/10/assessing_the_russian_army_performance_after_one_week_of_war_821037.html#. Accessed 24 April 2022.
- Bond, B. (1994). "The Army and the Challenge of War 1914-1918". The Oxford Illustrated History of the British Army. Edited by D. Chandler. New York, Oxford University Press.
- Bond, B. (2014). Britain's Two World Wars against Germany. Cambridge, Cambridge University Press.
- Bonham-Carter, C. (1931). "Recent Developments in Education in the Army." Army Quarterly 1(III): 258-275.
- Botticini, M. and Z. Eckstein. (2007). "From Farmers to Merchants: A Human Capital Interpretation of Jewish Economic History." Journal of the European Economic Association 5(5): 885-926.
- Bowden, T. (1976). Army in the Service of the State. Tel Aviv, University Publishing Projects.
- Bowman, T. and M. Conelly. (2012). The Edwardian Army. Oxford, Oxford University Press.
- Bowyer Bell, J. (1975). "National Character and Military Strategy: The Egyptian Experience, October 1973." Parameters 5(1): 6-16.
- Boyne, W. (2002). The Two O'Clock War. New York, Thomas Dunne Books.
- Brooke, G. (1934). "How To Train Non-Commissioned Officers to Become Leaders." Army Quarterly 10 (VIII): 82-99.

- Brooks, R. (2007). "Civil-Military Relations and Military Effectiveness: Egypt in the 1967 and 1973 Wars". In *Creating Military Power: The Sources for Military Effectiveness*. Edited by E. Stanley and R. Brooks. Stanford, Stanford University Press.
- Brooks, R. (2007). "Introduction: The Impact of Culture, Society, Institutions, and International Forces on Military Effectiveness". In *Creating Military Power: The Sources for Military Effectiveness*. Edited by E. Stanley and R. Brooks. Stanford, Stanford University Press.
- Brooks, W. Infantry, and all. London, National Army Museum # NAM 9402-196-9.
- Builder, C. (1989). *The Masks of War*. Baltimore, The Johns Hopkins University Press.
- Burke, E. (2018). *An Army of Tribes: British Army Cohesion, Deviancy and Murder in Northern Ireland*. Liverpool, Liverpool University Press.
- Burnett, J. "The Infantry Soldier in the Making." *British Army Review*.
- Burroughs, P. (1994). "An Unreformed Army? 1815-1868". *The Oxford Illustrated History of the British Army*. Edited by D. Chandler. New York, Oxford University Press.
- Byman, D. and K. Pollack. "Let Us Now Praise Great Men." *International Security* 25(4): 107-146.
- Campbell, D. (1975). "'Degrees of Freedom" and the Case Study." *Comparative Political Studies* 8(2): 178-193.
- Cantwell, J. (1993). *The Second World War*. London, Her Majesty's Stationary Office.
- Carver, M. 1986. *Dilemmas of the Desert War*. London, BT Basford.
- Castillo, J. (2014). *Endurance and War: The National Sources of Military Cohesion*. Stanford, Stanford University Press.

- Citino, R. (1999). *The Path to Blitzkrieg: Doctrine and Training in the German Army, 1920-1939*. Boulder, Lynne Rienner Publishers.
- Citino, R. (2002). *Quest for Decisive Victory: From Stalemate to Blitzkrieg in Europe, 1899-1940*. Lawrence, University Press of Kansas.
- Citino, R. (2005). *The German Way of War*. Lawrence, University Press of Kansas.
- Cohen, H. (1970). "Theodor Herzl's Conversion to Zionism." *Jewish Social Studies* 32(2): 101-110.
- Cohen, M., March, J., and J. Olsen (1979). "People, Problems, Solutions, and the Ambiguity of Relevance". *Ambiguity and Choice in Organizations*. Edited by J. March and J. Olsen. Bergen, Universitetsforlaget.
- Cohen, S. (2008). *Israel and its Army*. Oxon, Routledge.
- Colin E., Gerring, J., and J. Mahoney (2016). "Case Study Research: Putting the Quant into the Qual." *Sociological Methods & Research* 45(3): 375-391.
- Conant, R. (1939). "Training the Leaders in the New (1938) Battalion." *Army Quarterly* 10(XIII): 149-154.
- Condell, B. and D. Zabecki., Eds. (2001). *On the German Art of War: Truppenfuhrung*. Mechanicsburg, Stackpole Books.
- Cooper, M. (1978). *The German Army 1933-1945*. New York, Stein and Day.
- Corum, J. (1992). *The Roots of Blitzkrieg: Hans von Seeckt and German Military Reform*. Lawrence, University Press of Kansas.
- Creswell, J. (2013). *Qualitative Inquiry and Research Design*. Los Angeles, Sage Publications.

- Cyert, R. and J. March. (1963). *A Behavioral Theory of the Firm*. Englewood Cliffs, Prentice-Hall, Inc.
- Dayan, M. (1976). *Moshe Dayan: Story of my Life*. New York, William Morrow and Company, Inc.
- Dayan, M. (2004). *Story of my Life*. London, Widenfeld & Nicolson.
- Demeter, K. (1965). *The German Officer-Corps in Society and State 1650-1945*. New York, Frederick A. Praeger.
- Desch, M. (1999). *Civilian Control of the Military*. Baltimore, The Johns Hopkins University Press.
- Detert, J. Schroeder, R; and Mauriel, J. (2000). "A Framework for Linking Culture and Improvement Initiatives in Organizations." *Academy of Management Review* 25(4): 850-863.
- Deverell, C. (2005). "Haig versus Rawlinson – Manoeuvre versus Attrition: The British Army on the Somme, 1916." *Defence Studies* 5(1): 124–137.
- DeVore, M. (2013). "Institutions, Organizational Culture, and Counterinsurgency Operations: Why Do States Fight Similar Insurgencies Differently?" *Comparative Strategy* 32(3): 169-191.
- Doughty, R. *The Seeds of Disaster*. Mechanicsburg, Stackpole Books, 1985.
- Dunn, W. and A. Ginsberg. (1986). "A Sociocognitive Network Approach to Organizational Culture." *Human Relations* 40(11): 955-976.
- Dupuy, T. (1977). *A Genius for War*. Englewood Cliffs, Prentice-Hall, Inc.

- Dupuy, T. (1978). *Elusive Victory: the Arab-Israeli wars, 1947-1974*. London, Macdonald and Jane's.
- Dupuy, T. (1987). *Understanding War*. New York, Paragon House.
- Eady, H. (1924). "Some Aspects of Moral and Command." *Army Quarterly* 10(IV): 37-51.
- Echeverria III, A. (2000). *After Clausewitz: German Military Thinkers before the Great War*. Lawrence, University Press of Kentucky.
- Edwards, R. (2008) "Haganah." *The Encyclopedia of the Arab-Israeli Conflict: A Political, Social, and Military History*, vol (2). Edited by Spencer C et Al. Santa Barbara, ABC-CLIO, Inc: 412.
- El-Gamassy Ghani, M. A. (1989). *The October War*. Cairo, The American University in Cairo Press.
- English, J. (1981). *On Infantry*. New York, Praeger.
- Epstein, J. (1985). *The Calculus of Conventional War: Dynamic Analysis without Lanchester Theory*. B. Institution. Washington, DC, Brookings Institution.
- Eshel, D. (1978). *Israel's Armor in Action! Massada*, Eshel Dramit Ltd.
- Eshel, D. (1989). *Chariots of the Desert*. London, Brassey Defence Publishers Ltd.
- Even, J. and S. Maoz. (2017). *At the Decisive Point in the Sinai: Generalship in the Yom Kippur War*. Lexington, University Press of Kentucky.
- Fahmi, K. (1997). *All the Pasha's men*. New York, Cambridge University Press.
- Farrell, T. (2005). *The Norms of War*. London, Lynne Rienner Publishers.
- Fitz-Gibbon, S. (1995). *Not Mentioned in Dispatches*. Cambridge, The LutterWorth Press.
- Fligstein, N. and D. McAdam. *A Theory of Fields*. Oxford University Press, 2012.

- Foertsch, H. (1940). *The Art of Modern Warfare*. New York, Veritas Press.
- Foley, R. (2014). "Dumb Donkeys or Cunning foxes? Learning in the British and German armies." *International Affairs* 90 (2): 279-298.
- Fraiman, K., Long, A. and C. Talmadge (2014). "Why the Iraqi army collapsed (and what can be done about it)." *Monkey Cage*. 213 June 2014
https://www.washingtonpost.com/news/monkey-cage/wp/2014/06/13/why-the-iraqi-army-collapsed-and-what-can-be-done-about-it/?utm_term=.259c1a5b1953 , Accessed 12 December 2019.
- French, D. (1996). "Colonel Blimp and the British Army: British divisional commanders in the war against Germany, 1939-1945." *The English Historical Review* 111(444).
- French, D. (2000). *Raising Churchill's Army*. Oxford, Oxford University Press.
- French, D. (2001). "Doctrine and Organization in the British Army, 1919 -1932." *The Historical Journal* 44(2): 497-515.
- French, D. (2006). "Big wars and small wars between the wars, 1919-39". *Big Wars and Small Wars: The British Army and the Lessons of War in the 20th Century*. Edited by H. Strachan. Abingdon, Routledge.
- Friedrich, C. J. (1960). "The Dilemma of Administrative Responsibility." *Responsibility*. Edited by C. J. Friedrich. New York, The Liberal Arts Press.
- Fuller, J. (1929). "One Hundred Problems of Mechanization (Part I)." *Army Quarterly* 10(II): 14-26.
- Fuller, J. (1930). "One Hundred Problems of Mechanization (Part II)." *Army Quarterly* (IV): 256-270.

- Gal, R. (2001). "The Israeli Defense Forces (IDF): A Conservative or an Adaptive Organization?" *Military, State, and Society in Israel*. Edited by E. Ben-Ari et Al. London, Transaction Publishers.
- García, N. (2012). *Análisis del sistema defensivo de Puerto Argentino en la Guerra de Malvinas desde la Táctica Superior*. Instituto de Enseñanza Superior del Ejército. Buenos Aires, Escuela Superior de Guerra "Tte Gr1 Luis María Campos". Licenciado en Estrategia y Organización: 98.
- Gaub, F. (2013). "The Libyan Armed Forces between Coup-Proofing and Repression." *Journal of Strategic Studies* 36(2): 221-244.
- Gawrych, G. (1990). *Key to the Sinai: the battles for Abu Agelia in the 1956 and 1967 Arab Israeli Wars*. Ft. Leavenworth, U.S. Army Command and General Staff College: 150.
- Gawrych, G. W. (1987). "The Egyptian High Command In the 1973 War." *Armed forces and society* 13(4): 535–559.
- Gawrych, G. W. (1991). "The Egyptian Military Defeat of 1967." *Journal of contemporary history* 26(2): 277-305.
- Geertz, C. (1973). *The Interpretation of Cultures*. New York, Basic Books.
- George, A. and A. Bennet. (2005). *Case Studies and Theory Development in the Social Sciences*. Cambridge, Belfer Center for Science and International Affairs.
- Gerring, J. (2007). *Case Study Research*. New York, Cambridge University Press.
- Gerring, J. (2009). *Causal Mechanisms*. Boston, Boston College.

- Geyer, M. (1990). "The Past as Future: The German Officer Corps as Profession." *German Professions, 1800-1950*. Edited by G. Cocks and K. Jarausch. New York, Oxford University Press.
- Glustrom, Rabbi S. "Saving a Life (Pikuach Nefesh)." *My Jewish Learning, My Jewish Learning*, 16 May 2017, <https://www.myjewishlearning.com/article/saving-a-life-pikuach-nefesh/>. Accessed 12 December 2021.
- Goker, H. (2020). *Military Culture in Egyptian Army and its Effects for On The Civil-Military Relations*. 5th International Middle East Symposium: Reconsidering History and Identity in the Middle East.
- Golan, A. (1968). "Israel Tal". *Generals of Israel*. Edited by M. Ben-Shaul. Tel-Aviv, Hadar Pub.
- Goldwert, M. (1972). *Democracy, Militarism, and Nationalism in Argentina, 1930-1966*. Austin, University of Texas Press.
- Gordon, H. (1972). *The Reichswehr and the German Republic 1919-1926*. Port Washington, Kennikat Press.
- Grauer, R. (2011). *Commanding Military Power: Organizational Sources of Victory on the Battlefield*. Political Science. Chicago, University of Chicago. Doctor of Philosophy: 376.
- Grauer, R. (2015). "Moderating Diffusion: Military Bureaucratic Politics and the Implementation of German Doctrine in South America, 1885–1914." *World Politics* 67(2): 268-312.
- Grauer, R. (2016). *Commanding Military Power*. Cambridge, Cambridge University Press.

- Grauer, R. (2017). "Uncertain Victory: Information Management and Military Power." *Journal of Global Security Studies* 2(1): 18-38.
- Grauer, R. and M. Horowitz. (2012). "What Determines Victory?" *Security Studies* 21(1): 83-112.
- Griffith, P. (1994). *Battle Tactics of the Western Front*. New Haven, Yale University Press.
- Gudmundsson, B. (1989). *Stormtrooper Tactics*. New York, Praeger.
- Hall, P. (2003). *Aligning Ontology and Methodology in Comparative Research*. *Comparative Historical Analysis in the Social Sciences*. Edited by J. Mahoney, and D. Rueschemeyer. New York, Cambridge University Press.
- Harrison, M. (1998). *The Economics of World War II*. Cambridge, Cambridge University Press.
- Hart, S., Hart, R., and M. Hughes (2000). *German Soldier in World War II*. Osceola, MBI Publishing Company.
- Hasselbladh, H. and K. Yden (2020). "Why Military Organizations Are Cautious About Learning?" *Armed Forces & Society* 46(3): 475-494.
- HBO. "Adon HaSelichot from Valley of Tears." Youtube, 21 Aug. 2021, <https://youtu.be/Je9rXTkelkg>.
- Head, R. (1973). *Doctrinal Innovation and the A-7 Attack Aircraft*. *American Defense Policy*. Edited by R. Head and E. Rokke. Baltimore, Johns Hopkins University Press: 431-445.
- Heikal, M. (1978). *The Sphinx and the Commissar*. New York, Harper & Row.

- Helwig, H. H. (1998). "You are here to Learn How to Die." *Learning the Art of War: Junior Officer Training in the British Army*. Edited by E. Converse III. Chicago, Imprint Publications: 13-26.
- Henderson, D. (1985). *Cohesion*. Washington DC, National Defense University.
- Herdberg, B. (1981). *How Organizations Learn and Unlearn*. *Handbook of Organizational Design*. Edited by Paul Nystrom and William Starbuck. Starbuck. Stockholm, Arbetslivscentrum.
- Herzog, C. (1975). *War of Atonement*. Boston, Little Brown.
- Hill, M. (1993). *Archival Strategies and Techniques*. London, Sage.
- Hoffman, F. (2007). *Conflict in the 21st Century: Rise of Hybrid Wars*. Arlington, Potomac Institute for Security Studies: 72.
- Hoffman, F. (2009). "Hybrid Warfare and Challenges." *Joint Force Quarterly* 2009(52): 34-39.
- House, J. (2001). *Combined Arms Warfare*. Lawrence, University Press of Kansas.
- Hoyt, T. (2007). *Social Structure, Ethnicity, and Military Effectiveness: Iraq, 1980–2004*. *Creating Military Power: The Sources of Military Effectiveness*. Edited by E. Stanley and R. Brooks. Stanford, Stanford University Press.
- Hull, I. (2005). *Absolute Destruction. Military Culture and the Practices of War in Imperial Germany*. Ithaca, Cornell University Press.
- Hutchinson, G. (1934). "The New Warrior." *Army Quarterly* VII (1): 252-265.
- Jewish Agency for Israel. "The Modern Orthodox Movement." *The Modern Orthodox Movement*, <https://archive.jewishagency.org/israel-your->

[community/partnership2gether/religious-streams/modern-orthodox-movement](#). Accessed 12 December 2021.

- Jolsen, H. (1960). *Orders of Battle: United Kingdom and Colonial Formations and Units in the Second World War 1939-1945*. London, Her Majesty's Stationary Office.
- K.O. (1926). "The Tactical Training of Section Leaders." *Army Quarterly* 1(XVIII): 391-395.
- Kebble, T. (1925). "The Army's Backbone." *Army Quarterly* 4(XVI): 151-157.
- Keegan, J. (1972). "The Inter-War Years". *A Guide to the Sources of British Military History*. Edited by R. Higham. London, Routledge & Kegan Paul Ltd.
- Kennedy, S. (1928). *Artillery Training*. London, War Office. III.
- Kesselring, A. (1953). *The Memoirs of Field-Marshal Kesselring*. London, William Kimber.
- Kier, E. (1997). *Imagining War*. Princeton, Princeton University Press.
- Kincaide, N. (1989). *Sturmalbeitlungen to Freikorps: German Army tactical and Organizational development 1914-1918*. Arizona, Arizona State University. Doctor of Philosophy: 496.
- King, G. et Al (1994). *Designing Social Inquiry: Scientific Inference in Qualitative Research*. Princeton, Princeton University Press.
- Kinzer, N. "South Atlantic Conflict of 1982." US Army Research Institute for the Behavioral and Social Sciences. April 1988
- Kirby, S. (1932). "The Strategical Concentration of Armies." *The Army, Navy, and Air Force Gazette*: 133-136.

- Kitchen, M. (1975). *A Military History of Germany*. Bloomington, Indiana University Press.
- Kitchen, M. (2009). *Rommel's Desert War*. Cambridge, Cambridge University Press.
- Kluckhohn, R., Ed. (1962). *Culture and behavior*. New York, Free Press of Glencoe.
- Kurtzman, D. (1998). *The Life of Yitzhak Rabin*. New York, HarperCollins.
- Larson, R. (1984). *The British Army and the Theory of Armored Warfare 1918-1940*. Newark, University of Delaware Press.
- Lauer, G. S. (2010). *Perspectives On Infantry: Quality and Cohesion—Comparison of American, British, and German Army Manpower Policies and Effects on the Infantry Small Unit during the Second World War, 1939-1945*. Department of History. Florida, The Florida State University. Doctor of Philosophy: 472.
- Lee, S. (1994). *Deterrence and the Defence of Central Europe: The British Role from the Early 1980s to the End of the Gulf War*. Department of War Studies. London, Kings College London. Doctor of Philosophy in War Studies: 416.
- Lewis, S. (1983). *Forlorn Hope: German Army Infantry Policy, 1918-1941*. Santa Barbara, University of California. Doctor of Philosophy: 309.
- Line of Fire. “The Battle of Goose Green”. Youtube, uploaded by War documentary, 12 January 2022, <https://www.youtube.com/watch?v=4UuikVFP-ek&list=PLg6zRFrieMH7bzNUvwpwI3EscwQEW0aCH&index=25>, Accessed on June 10, 2022.
- Little, D. (1991). *Varieties of Social Explanation*. Boulder, Westview Press.
- Luttwak, E. (1969). *Coup D'Etat*. New York, Alfred A Knopp.

- Lyall, J. (2020). *Divided Armies: Inequality and Performance in Modern War*. Princeton, Oxford University Press.
- Lyman, R. (2010). *Longest Siege: Tobruk*. London, Pan Books.
- Macksey, K. (1996). *Why the Germans Lose at War: The Myth of German Military Superiority*. Mechanicsburg, Greenhill Books.
- Manstein, E. (1958). *Lost Victories*. Chicago, Henry Regnery Company.
- March, J. (1994). *A Primer on Decisionmaking*. New York, The Free Press.
- March, J. and H. Simon. (1959). *Organizations*. New York, John Wiley & Sons, Inc.
- March, J. and J. Olsen (1979). *Organizational choice under Ambiguity. Ambiguity and Choice in Organizations*. Bergen, Universitetsforlaget.
- Marcus, R. (2018). *Israel's Long War with Hezbollah*. Georgetown, Georgetown University Press.
- Marshall, S. (1947). *Men Against Fire: The Problem of Battle Command in Future War*. New York, William Morrow & Company.
- Martin, J. (2002). *Organizational Culture: Mapping the Terrain*. Thousand Oaks, Sage Publications, Inc.
- Marzoratti, L. (2019). "Los Soldados, sus Jefes y el Estado: La Construcción de la Obediencia en el Ejército de Línea (Argentina, 1862-1882)". *Historia Caribe* 14(35): 179-211
- Maxwell, J. (1992). "Understanding and Validity in Qualitative Research." *Harvard Educational Review* 62(3): 279-300.

- Maxwell, J. (2004). "Using Qualitative Methods for Causal Explanation." *Field Methods* 16(3): 243-264.
- McGregor, A. (2006). *A Military History of Modern Egypt*. Westport, Praeger Security International.
- McNab, C. (2011). *Hitler's Army*. Oxford, Osprey Publishing.
- McPherson, J. *Battle Cry for Freedom*. Oxford University Press, 1988.
- Mearsheimer, J. (1983). *Conventional Deterrence*. Ithaca, Cornell University Press.
- Middlebrook, M. (2012). *The Falklands War*. South Yorkshire, Penn & Sword.
- Miller, D. and N. Sailkind. (2002). *Handbook of Research Design & Social Measurement*. Thousand Oaks, Sage Publications.
- Millett, A., Murray, W., Watman, K. (1988). "The Effectiveness of Military Organizations." *International Security* 11: 37-71.
- Millotat, C. (1992). *Understanding the Prussian-German General Staff System*. S. S. Institute. Carlisle, U.S. Army War College.
- Mitroff, I. and R. Kilman (1985). *Corporate Taboos as the Key to Unlocking Culture. Gaining Control of the Corporate Culture*. Edited by Kilmann, R., Saton, M., Serpa, R. San Francisco, Jossey-Bass.
- Mohr, L. (1971). "Organizational Technology and Organizational Structure." *Administrative Science Quarterly* 16(4): 444-459.
- Montgomery, B. (1938). "Major Tactics of the Encounter Battle." *Army Quarterly* 7 (VII): 268-273.
- Moorehead, A. (1965). *The Desert War*. London, Hamish Hamilton.

- Moorehead, A. (1967). *The March to Tunis*. New York, Harper & Row Publishers.
- Murray, W. and A. Millet. (2001). *A War to be Won*. Cambridge, The Belknap Press of Harvard University Press.
- Muth, J. (2011). *Command culture*. Denton, University of North Texas Press.
- Nassif, H. (2015). "Generals and Autocrats: How Coup-Proofing Predetermined the Military Elite's Behavior in the Arab Spring." *Political Science Quarterly* 130(2): 245-275.
- No Author. "The Higher Leading: Field Service Regulations, Part III, 1935." *British Army Review*.
- Nordlinger, E. (1977). *Soldiers in Politics*. Englewood Cliffs, Prentice Halls.
- O'Ballance, E. (1978). *No Victor, No Vanquished*. San Rafael, Presidio Press.
- O'Hanlon, M. (2009). *The Science of War: Defense Budgeting, Military Technology, Logistics, and Combat Outcomes*. Princeton, Princeton University Press.
- Olsen, J. (1976). "Choice in an Organized Anarchy". *Ambiguity and Choice in Organizations*. Edited by J. March and J. Olsen. Bergen, Universitetsforlaget: 82-139.
- Ott, S. (1989). *The Organizational Culture Perspective*. Pacific Grove, Brooks/Cole Publishing.
- Palit, D. (1974). *Return to Sinai*. Faridabad, Thomson Press.
- Patton, G. (1985). *October 1973*. Hamden, Archon Books.
- Perlmutter, A. (1969). *Military and Politics in Israel*. London, Frank Cass and Company Limited.
- Perlmutter, A. (1974). *Egypt, The Praetorian State*. New Brunswick, Transaction Books.

- Pettigrew, A. (1979). "On Studying Organizational Cultures." *Administrative Science Quarterly* 24(4): 570-581.
- Pion-Berlin, D. and E. Lopez. (1996). "Una Casa Dividida: Crisis, Fractura, y Conflicto en el Ejército Argentino". *Democracia y Cuestión Militar*. Edited by D. Pion-Berlin and E. Lopez. Buenos Aires, Universidad Nacional de Quilmes: 91-147.
- Pollack, K. (1996). *The Influence of Arab Culture on Arab Military Effectiveness*. Department of Political Science. Cambridge, Massachusetts Institute of Technology. Doctor of Philosophy in Political Science: 792.
- Pollack, K. (2002). *Arabs at War*. Lincoln, University of Nebraska Press.
- Pollack, K. (2020). *Armies of Sand*. New York, Oxford University Press.
- Potter, L. (1982). *Royal Artillery Falklands Oral History*. Royal Artillery Oral History Program. London, National Army Museum # NAM 9202-59-5.
- Powell, J. (2012). "Determinants of the Attempting and Outcomes of Coups d'etat." *Journal of Conflict Resolution* 56(6): 1017-1040.
- Press, D. (2005). *Calculating Credibility*. Ithaca, Cornell University Press.
- Quinlivan, J. (1999). "Coup-Proofing." *International Security* 24(2): 131-165.
- Rabin, Y. (1979). *The Rabin Memoirs*. London, Weidenfeld and Nicolson.
- Rabinovich, A. (2004). *The Yom Kippur War*. New York, Schocken Books.
- Reiter, D. (2007). "Nationalism and Military Effectiveness: Post-Meiji Japan". *Creating Military Power: The Sources of Military Effectiveness*. Edited by E. Stanley and R. Brooks. Stanford, Stanford University Press.
- Reiter, D. and A. Stam. (2002). *Democracies at War*. Princeton, Princeton University Press.

- Reuven, G. (1986). *Portrait of the Israeli Soldier*. Westport, Greenwood Press.
- Ricks, J. and A. Liu. (2018). "Process-Tracing Research Designs: A Practical Guide." *PS: Political Science & Politics*: 1-5.
- Roberts, B. (2016). *Mission Command During the Falklands War: Opportunities and Limitation*. School of Advanced Military Studies. Fort Leavenworth, United States Army Command and General Staff College.
- Rochlin, G., La Porte, T., and Roberts, K. (1993). "The Self-Designing High-Reliability Organization: Aircraft Carrier Flight Operations at Sea". *New Challenges to Understanding Organizations*. Edited by K. Roberts. New York, Macmillan: 11-32.
- Rodman, D. (2010). "The Israel Air Force in the 1967 and 1979 Wars: Revisiting the Historical Record." *Israel Affairs* 16(2): 219-233.
- Rodman, D. *Israel in the 1973 Yom Kippur War*. Eastbourne, Sussex Academic Press.
- Rolbant, S. (1970). *The Israeli Soldier: Profile of an Army*. London, Thomas Yoseloff Ltd.
- Rommel, E. (1979). *Attacks*. Provo, Athena Press.
- Rosen, S. (1996). *Societies and Military Power*. Ithaca, Cornell University Press.
- Rosinski, H. (1966). *The German Army*. New York, Frederick A. Praeger.
- Rothschild, J. (1985). *Culture and War. The Lessons of recent wars in the Third World*, vol. 2. Edited by R. Harkavy and S. Neuman. Lexington, Lexington Books.
- Rowan-Robinson, H., (1939). "Staff and Regimental Officers." *Army Quarterly* 10(VII): 68-81.
- Sackman, S. (1991). "Uncovering Culture in Organizations." *Journal of Applied Behavioral Science* 27(3): 295-317.

- Sakal, E. and M. Tlamin. (2014). *Soldier in the Sinai*. Lexington, University Press of Kentucky.
- Samuels, M. (1995). *Command or Control: Command, Training, and Tactics in the British and German Armies, 1888-1918*. London, Frank Cass.
- Samuels, M. (2015). "Doctrine for Orders and Decentralization in the British and German Armies, 1885–1935." *War in History* 22(4): 448-477.
- Scammel, J. (1922). "British Training Regulations." *Journal of the Royal United Service Institute*, November 1922: 263-268.
- Schall, M. (1983). "A Communication Rules Approach to Organizational Culture." *Administrative Science Quarterly* 28(4): 557-581.
- Schein, E. (1984). "Coming to a New Awareness of Organizational Culture." *Sloan Management Review* 25 (2): 3-16.
- Schiffman, L. "The Bar Kochba Revolt." *My Jewish Learning*, 24 April 2017, <https://www.myjewishlearning.com/article/the-bar-kochba-revolt/>. Accessed 12 December 2021
- Seidler, M. (2013). "Zionism's Conflicting Founding Designs and Their Ideological Impact." *Israel Studies* 17 (3): 176–190.
- Shamir, E. (2011). *Transforming Command*. Stanford, Stanford University Press.
- Shapiro, G and M. Schall. (1989). *Rhetorical Rules and Organizational Culture*. *Human Resource Development* Winter 1990: 321-337.
- Sheffy, Y. (2006). "Overcoming Strategic Weakness: The Egyptian Deception and the Yom Kippur War." *Intelligence and national security* 21(5): 809–828.

- Shils, E. and M. Janowitz. (1948). "Cohesion and Disintegration in the Wehrmacht in World War II." *Public Opinion Quarterly* 12(2): 280-315.
- Simon, H. (1976). *Administrative Behavior*. New York, The Free Press.
- Smircich, L. (1983). "Concepts of Culture and Organizational Analysis." *Administrative Science Quarterly* 28(3): 339-358.
- Snyder, J. (1984). *The Ideology of the Offensive*. Ithaca, Cornell University Press.
- Soldaini, A. (2012). *Liderazgo militar en la Guerra de Malvinas*. Instituto de Enseñanza Superior del Ejército. Buenos Aires, Escuela Superior de Guerra "Tte Gr1 Luís María Campos". *Licenciado en Estrategia y Organización*: 63.
- Spiers, E. (1980). *The Army and Society 1815-1914*. New York, Longman.
- Spiers, E. (1994). "The Late Victorian Army 1868-1914". *The Oxford Illustrated History of the British Army*. Edited by D. Chandler. New York, Oxford University Press.
- Spiers, E. (2006). *Between the South African War and the First World War, 1902-14*. Abingdon, Routledge.
- Sunday Times. (1974). *The Yom Kippur War*. London, A. Deutsch.
- Swidler, A. (1986). "Culture in Action." *American Sociological Review* 51(2): 273-286.
- Talmadge, C. (2013). "The Puzzle of Personalist Performance: Iraqi Battlefield Effectiveness in the Iran-Iraq War." *Security Studies* 22(2): 180-221.
- Talmadge, C. (2015). *The Dictator's Army*. Ithaca, Cornell University Press.
- Talmadge, C. (2016). "Different Threats, Different Militaries: Explaining Organizational Practices in Authoritarian Armies." *Security Studies* 25(1): 111-141.

- Talmadge, C. and A. Long. (2015). "Why the U.S. (still) can't train the Iraqi military." *Monkey Cage*. 22 September 2015. https://www.washingtonpost.com/news/monkey-cage/wp/2015/09/22/why-the-u-s-still-cant-train-the-iraqi-military/?utm_term=.d324f651a672. Accessed 12 December 2021.
- Terriff, T. (2006). "'Innovate or Die': Organizational Culture and the Origins of Maneuver Warfare in the United States Marine Corps." *Journal of Strategic Studies* 29(3): 475-503.
- Teves, O. (2016). *Pradera del Ganso: Una Batalla de la Guerra de Malvinas*. Buenos Aires, Argentinidad.
- Teveth, S. (1973). *Moshe Dayan*. Boston, Houghton Mifflin.
- Thompson, J. (1985). *No Picnic*. London, Leo Cooper.
- Thompson, J. and A. Tuden. (1959). *Strategies, Structures, and Processes of Organizational Decision*. *Comparative Studies in Administration*. Edited by Thompson J. et Al. Pittsburgh, University of Pittsburgh Press: 195-216.
- Thurburn, R. (1932). "Discipline Ancient and Modern." *Army Quarterly* 10(V): 41-55.
- *Tiger Rag*. (1976). *Infantry to Reorganize*. Ballykelly, The Royal Hampshire Regiment: 1.
- Travers, T. (1994). *The Army and the Challenge of War 1914-1918*. *The Oxford Illustrated History of the British Army*. Edited by D. Chandler. New York, Oxford University Press.
- Travers, T. (1998). *Learning the Art of War: Junior Officer Training in the British Army*. E. Converse III. Chicago, Imprint Publications: 13-26.
- Tute, W. (1976). *The North African War*. London, Jarrold & Sons Ltd.
- Van Crevald, M. (1982). *Fighting Power*. Westport, Greenwood.
- Van Crevald, M. (1985). *Command in War*. Cambridge, Harvard University Press.

- Van Creveld, M. (1988). "On Learning from the Wehrmacht and Other Things." *Military Review* January 1988: 62-71.
- Van Creveld, M. (1990). *The Training of Officers: From Military Professionalism to Irrelevance*. New York, The Free Press.
- Van Creveld, M. (1998). *The Sword and the Olive: A Critical History of the Israeli Defense Force*. New York, Public Affairs.
- Van Evera, S. (1984). "The Cult of the Offensive and the Origins of the First World War." *International Security* 9(1): 58-107.
- Visser, M. (2008). "Learning under conditions of hierarchy and discipline: the case of the German Army, 1939–1940." *Learning Inquiry* 2: 127-137.
- Von Clausewitz, C. (1984). *On War*. Princeton, Princeton University Press.
- Von Mellenthin, F. (1956). *German Generals of World War II*. Norman, University of Oklahoma Press.
- Von Moltke, H. (1993). *Moltke: On the Art of War*. Novato, Presidio Press.
- Von Seeckt, H. (1930). *Thoughts of a Soldier*. London, Ernest Benn Limited.
- Wallach, Y. (1984). *Israeli Military History*. London, Garland Publishing.
- Waltz, K. (1979). *Theory of International Politics*. New York, McGraw-Hill.
- Wardle, M. (1934). "Enthusiasm and All That." *Army Quarterly* 1(II): 202-215.
- Wardle, M. (1934). "Enthusiasm and All That: The Commanding Officer." *Army Quarterly* 10(VII): 63-82.
- Watson, A. (2007). "Junior Officership in the German Army During the Great War, 1914–1918." *War in History* 14(4): 428–453.

- Watson, A. (2007). "Junior Officership in the German Army during the Great War, 1914–1918." *War in History* 14(4): 428–453.
- Wazana, N. Israel's Declaration of Independence and the Biblical Right to the Land. The Torah. <https://www.thetorah.com/article/israels-declaration-of-independence-and-the-biblical-right-to-the-land>. Accessed January 10, 2022
- Weick, K. (1969). *The Social Psychology of Organizing*. Reading, Addison-Wesley.
- Weiss, R. "Haredim (Charedim), or Ultra-Orthodox Jews." *My Jewish Learning*, 25 May 2017, <https://www.myjewishlearning.com/article/haredim-charedim/>. Accessed 12 December 2021.
- Whitlock, S. (1976). "Know Your Comrades". *The Royal Hampshire Regiment*: 2.
- Wider, W. (2002). "Auftragstaktik and "Innere Führung: Trademarks of German Leadership." *Military Review* 82(5): 3-9.
- Wiest, A. (2005). *Haig: the evolution of a Commander*. Washington DC, Potomac Books.
- Willcox, H. (1930). "Platoon Leadership in the Encounter Attack." *Army Quarterly* 4(XIII): 117-122.
- Willems, E. (1986). *A Way of Life and Death*. Nashville, Vanderbilt University Press.
- Wimberley, D. (1926). "The Future Organization of the British Infantry." *Army Quarterly* 1(VIII): 294-308.
- Winton, H. (1988). *To Change an Army: General Sir John Burnett-Stuart and British Armored Doctrine, 1927-1938*. Lawrence, University Press of Kansas.
- Yin, R. (1994). *Case Study Research*. Thousand Oaks, Sage Publications.

ARGENTINE INTERVIEWS

- Argentine Retired Flag Officer. Personal Interview. February 26, 2019.
- Argentine Army Active Senior Officer. Personal Interview. February 22, 2019.
- Argentine Regimental Officer # 1. Personal Interview. February 20, 2019.
- Argentine Regimental Officer #2. Personal Interview. February 28, 2019.
- Argentine Army CO # 1. Personal Interview. February 27, 2019.
- Argentine Army CO # 2. Personal Interview. March 6, 2019.
- Argentine Army CO # 3. Personal Interview. March 14, 2019.
- Argentine Retired Enlisted. Personal Interview. February 21, 2019.

BRITISH INTERVIEWS

- Benest, D. Personal Interview. January 17, 2019.
- Neame, P. Personal Interview. January 7, 2019.
- Chaundler, D. Personal Interview. January 14, 2019.
- Thompson, J. Personal Interview. January 15, 2019.
- Scott, M. Personal Interview. January 21, 2019
- Hardy, T. Personal Interview. January 16, 2019
- White, J. Personal Interview. January 23, 2019

8. Annex 1

<p>Military Organizational Culture</p>	<p><i>This question identifies the organizational group to which the document author may have belonged.</i> <u>Definitions.</u> -Ranking commanding officers are any senior flag officers who held a top position at the army headquarters. Officers refers to: junior flag officers, recently promoted flag officers who usually oversaw operational formations; superior officers, senior unit leaders such as Colonels or Lieutenant Colonels; and junior officers, usually majors and captains in command of subunits. <u>1.- Who wrote this document?</u></p> <p>-----</p>	<p><u>1</u> 1=Retired ranking commanding officer or army chief. 2=Retired officer 3=Active officer 4=Active ranking commanding officer or army chief 5=Civilian</p>
	<p><i>This question identifies the army to which the author of the document belonged to.</i> <u>Definitions.</u> -Officers are any retired or active military leader. Civilians are any non-military bureaucrats with a position in either a defense ministry or cabinet level post that put them in oversight or control of an army. <u>2.- What was his/her affiliation?</u></p> <p>-----</p>	<p><u>2</u> 1=Officer in the British Army 2= British civilian decision-maker 3=Officer in the German Army 4=German civilian decision-maker 5=Officer in the Israeli Defense Forces 6=Israeli civilian decision-maker. 7=Officer in the Egyptian Army 8=Egyptian civilian decision-maker. 9=Officer in the Argentine Army. 10=Argentine civilian decision-maker 11 12</p>
	<p><i>Questions 3-5 aim at coding the document's contents about the army's tactical and operational beliefs which made up its organizational culture.</i> <u>Definitions.</u> -Obedience is defined as binding and obligatory requirement for officers to follow superior plans and instructions to the letter. Operational Flexibility is defined as the ability of officers and NCO's commanding troops to change their tactics and operations as required by battlefield conditions despite previous planning. <u>3.- What does the document say about the army's beliefs regarding obedience?</u></p> <p>-----</p>	<p><u>3</u> 1=Total obedience is necessary for effective operations. 2=Total obedience is demanded but some limited instances of reasoned disobedience are allowed. 3=Total obedience is not demanded amongst commanding officers, but</p>

	<p>-----</p> <p><i>Definitions. - Certainty is defined as the unambiguous perception of battlefield conditions. Uncertainty is defined as the ambiguous, imperfect, and fractioned perception of battlefield conditions.</i></p> <p><u>4.- What does the document say about the army's values regarding certainty?</u></p> <p>-----</p> <p><i>Definitions. -Control is defined as the degree of effective and detailed direction a commanding officer exerts over its maneuver units and their corresponding commanding officers. Total control is defined as effective and detailed direction which is to be followed to the letter of superior instructions and plans. Strict control is defined as effective direction of operations to be followed to the letter of instructions and plans, but which allows appeals to commanding officer for changes, if circumstances merit them.</i></p> <p><u>6. What does the document say about the army's values regarding control?</u></p> <p>-----</p> <p><i>Question 7 codes the primary organizational enforcement procedures used at the Army's headquarters level in order to ensure that junior, superior, and commanding officers complied with its established beliefs regarding obedience, certainty, and control.</i></p> <p><i>Definitions. -Command Procedures are the main protocols to direct troops in combat and training operations.</i></p>	<p>it is demanded from junior officers. 3=Relaxes obedience for the purposes of maintain operational flexibility.</p> <hr/> <p style="text-align: center;"><u>4</u></p> <p>1=Total certainty is necessary for effective operations. 2=Certainty is considered desirable but unlikely to be achieved in operations. 3=Acknowledges need to operate within some level of uncertainty. 4=Fully embraces operational uncertainty as a constant of operations.</p> <hr/> <p style="text-align: center;"><u>6</u></p> <p>1=Total control is seen as requisite for effective operational command 2=Strict control procedures that occasionally allow room for personal initiative. 3=Lower control demands at top hierarchy that coexist with high control demands from junior officers. 4=Reduction of control to minimum required in entire operational command chain.</p> <hr/> <p style="text-align: center;"><u>7</u></p> <p>1=Rigid drilling and command procedures to ensure orthodox compliance. 2=Command procedures processes that allowed for occasional unorthodoxies. 3=Command procedures that relied on personal</p>
--	--	--

	<p><u>7.- What does the document says about the primary mechanisms used to ensure compliance with army's tactical and operational beliefs?</u></p>	<p>initiative to comply with beliefs. 4=Long established traditions that called for soldiers to observe the army's goals in their actions.</p>
	<p><i>Question 8 codes the documents contents regarding the primary mechanism to coordinate the action of multiple combat leaders, and their units, across space and time. I call this coordination mechanism.</i> <u>Definitions.</u> -Drilling is defined as a type of military training which pre-programs responses and actions of soldiers according to military plans and assumptions about operating conditions. Selected military leaders is an informal mechanism where a handful of commanding officers were earmarked for special treatment based on political considerations.</p> <p><u>8.- What does the document says about the primary coordination mechanism chosen to organize military action by the army's headquarters and/or its operational formations?</u></p>	<p style="text-align: center;"><u>8</u></p> <p>1=Behavioral conditioning through peacetime drilling and learning of army's doctrine. 2=Selected military leaders that were called to make sure military action ensured certain objectives. 3=Reliance on personal professional judgment anchored from long established educational traditions. 4=Combination of different mechanisms.</p>
	<p>-----</p> <p><i>Question 9 codes the overall conclusions that can be drawn from the document regarding how the author believed that the army balanced two important concepts: Agency and Control. Agency is used in lieu of the term "logic of consequences". This logic is the practice giving individuals enough flexibility to calculate their behavior according the expected outcome of their actions. Control is used in lieu of the term "logic of appropriateness". This logic is the organizational practice of standardizing individual behavior to the utmost in order to guarantee the most effective organizational outcome.</i></p>	<p style="text-align: center;"><u>9</u></p> <p>1=Control was more attractive to winning group. 2=Imperfect compromise of agency and control giving more leeway to control. 3=Imperfect compromise of logics giving more leeway to agency. 4=Functional balance agency and control.</p>

	<p>9.- How did the winning group solve the tradeoff between control and agency in its tactical and operational beliefs?</p> <p>Question 10 codes the overall alignment that the author of the document could have had with the rest of the authors reviewed during the archival research.</p> <p>10.- What was his/her relative standing in the army?</p>	<p style="text-align: center;"><u>10</u></p> <p>1=Unclear 2=Not aligned with the beliefs of army's ranking commanding officers 3=Partly aligned with beliefs of army's ranking commanding officers 4=Fully aligned with beliefs of army's ranking commanding officers.</p>
<p>Military Imperatives</p>	<p>Question 11 determines how much obedience the army's coordination mechanisms needed to elicit from its soldiers.</p> <p><u>Definitions.</u> – Literal obedience is defined as an obedience that leaves no room for questioning of superior plans and/or instructions. Reflective obedience is defined as an obedience that calls for thoughtful implementation of superior instructions based on tactical and operational realities. Goal-oriented obedience is defined as an obedience which is oriented more towards the goals that the operational is meant to accomplish and less to specific instructions.</p> <p>11.- What does the document says about the levels of obedience required by the coordination mechanisms?</p> <p>-----</p> <p>Question 12 determines how much certainty the army needed its commanders to have in order to engage in operations. For definition see Question 3.</p> <p>12.- What does the document says about the levels of certainty that the army's coordination mechanism required for effective operations?</p>	<p style="text-align: center;"><u>11</u></p> <p>1=Requirement of literal obedience of commanding officers' instructions. 2=Requirement of reflective obedience of commanding officers' instructions. 3=Requirement of goal-oriented obedience to superior orders. 5=Unclear.</p> <hr/> <p style="text-align: center;"><u>12</u></p> <p>1=Mechanism required a high amount of certainty from officers. 2=Mixed results that validated the need for certainty before combat decisions. 3=Agnosticism about role of certainty in decisions but did not go as far as to shun its need.</p>

	<p>-----</p> <p><i>Question 13 codes the amount of control that the army's coordination mechanism required based on document analysis. For definition see Question 5.</i></p> <p>13.- What does the document says about the preferred levels of control that the army's coordination mechanisms prescribed?</p>	<p>4=Uncertainty was the norm in combat operations and officers had to embrace it.</p> <p>5=Unclear.</p>
		<p><u>13</u></p> <p>1=General requirement for high levels of control.</p> <p>2=Requirement for high levels of control except in some isolated instances.</p> <p>3=Different levels of control according to operation and command echelon.</p> <p>4=Reliance in desired outcomes in order to control the actions of lower commanders.</p> <p>5=Unclear</p>
<p>Military Effectiveness</p>	<p><i>Question 14 codes how well the primary coordination mechanism did in terms of producing information superiority. There are three dimensions that must be met for a force to have information superiority which are referred to as the dimensions of information: Timeliness, relevance, and accuracy (Alberts et Al, 1999, p. 54).</i></p> <p><i>Definitions. – Combat decision-making is the group of command decisions that are required to organize a military operation. The decisions that will be assessed will be at the operational and tactical levels. I define Timeliness as the ability to generate, disseminate, and act on information at the proper time. Relevance is defined as the ability to generate and disseminate information that is germane to the challenges faced by battlefield commanders. Accuracy is defined as the ability to generate, disseminate, and act on information that was minimally right about adversarial intentions, deployments, and assets.</i></p> <p>14.- Did the coordination mechanism allowed combat decision-making that gave information superiority over the enemy?</p>	<p><u>14</u></p> <p>1=Primary mechanism did not allow for information superiority (No dimensions met).</p> <p>2=Low information superiority (1 of the 3 dimensions met).</p> <p>3= Middle information superiority (2 of the 3 dimensions met).</p> <p>4= Primary mechanism gave force information superiority (3 dimensions met).</p>
	<p>-----</p> <p><i>Question 15 codes how well the primary coordination mechanism did in enabling commanders to form accurate operational and tactical assessments.</i></p> <p><i>Definitions. – Accuracy is defined as the relative ability to gauge and measure enemy dispositions thus making a commander able to preempt them or use them in his advantage. On the contrary, an inaccurate assessment would be that which, though giving the commander significant information of enemy locations and assets, gives him little or no picture of their intentions and thus makes him unable to preempt or use enemy actions to his advantage.</i></p>	<p><u>15</u></p> <p>1=No</p> <p>2=Uneven assessment quality that was inaccurate for the most part.</p> <p>3=Changing assessment quality that decreased the further down the chain of command it was executed.</p>

	<p><i>15.- Did the coordination mechanism led to accurate combat assessments in operations?</i></p> <p>-----</p> <p><i>Question 16 determines how much flexibility the primary coordination mechanism gave the army in terms of deploying multiple troops and combat systems in operations.</i></p> <p><i><u>Definitions.</u> -Flexibility is defined as a combat formation or unit's ability to organize its multiple types of forces and weapons systems across space and time in a synchronized way that allows them to defeat adversarial resistance.</i></p> <p><i>16.- Did the organizational cultures' coordination mechanisms led to highly flexible military operations?</i></p>	<p>4=Even assessment quality that was generally accurate across the chain of command.</p> <hr/> <p style="text-align: center;"><u>16</u></p> <p>1=No 2=Little flexibility in general with some minor exceptions. 3=Flexible deployment plans that nonetheless morphed into rigid operational and tactical actions. 4=Yes</p>
--	---	---

9. Annex 2

Interview script

1. Could you please tell me your rank and assignment at the time of the Battle of Goose Green?
2. How long had you been in the army before the battle?
3. What would you say was the strongest cultural norm regarding command and control you were taught before the Battle of Goose Green?
4. According to your training experiences before Goose Green, how did the army want its officers to coordinate their actions across time and space in battle?
5. Based on your time in the army, did you feel there was an organizational preference for obedience as a tactical value that was necessary to ensure tactical and operational effectiveness?
6. Do you have any thoughts on the army's values and preferences regarding the role of certainty in combat decision-making?
7. Do you recall how the army approached the issue of much certainty a commander or leader needed in order to engage the enemy either in assaults or meeting engagements?
8. In your experience before the battle, what were the army's values regarding the levels of tactical and operational control?
9. Before the battle, how do you feel tactical and operational control was, on average practiced throughout the army?
10. How do you think the army preferred to arrange the compliance of soldiers with its values regarding obedience, certainty, and control?
11. On average, do you feel the army demanded more independence or obedience from its soldiers in operations?
12. Do you feel that you were entirely aligned, partially aligned, or not aligned with the army's established beliefs before the battle?

Ask for examples

13. At the time of the battle, do you recall any instances in which the army's values regarding obedience enabled or hampered tactical and/or operational effectiveness?
14. In the same line, do you recall any instances in which the army's values regarding certainty enabled or hampered tactical and/or operational effectiveness?
15. Also, do you recall any instances in which the army's values regarding levels of control enabled or hampered tactical and/or operational effectiveness?

16. Do you feel that the way in which the army ensured compliance with its values allowed your forces combat decision-making that gave them information superiority over your enemy?
17. On the same line regarding compliance, do you feel that the army's preferences led to accurate combat assessments in operations?
18. Finally regarding compliance, do you feel that the army's preferences led to highly flexible military operations?

Wrap up

19. If you had to explain the army's organizational culture during the battle, how would you characterize it in terms of its approach to obedience, certainty, and control?
20. Would you be willing to give an opinion of how you think your adversary's culture was characterized along the same values?
21. In terms of the impact of the army's culture in its military effectiveness during the battle, what would you say the impact in its units' information and decision superiority, assessments, flexibility?
22. Based on your experience, how do you feel your adversary's culture influenced its units in those same areas?