CRACKING THE CODE

WAR'S HIDDEN METHODOLOGY

YACOV BENGO

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Disclaimer

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This book is dedicated to my beloved family who
have been by my side throughout my journey:
My mother and father, who have
always been a source of pride.
My wife's parents, without whom we would
not have been able to find time.
My children—I hope that this work will
be an inspiration for their future.
And most importantly, to my dear wife,
without whom none of this would have been possible.

Contents

Illustrations

Figures

Tables

About the Author

Yacov Bengo is a retired Israeli army general. His last active position was the head of the Israeli Defense Force Planning Directorate (J8). His military career spans approximately 30 years of service, mainly in the Armored Corps and the General Staff. Bengo is an expert in force buildup and in the utility of force from the tactical level to the strategic level of the General Staff. He is fluent in Hebrew and English. Bengo is married and is a father to two children.

Introduction

The general theory of war seeks to explain the phenomenon of war in and of itself, based on a deep study of the long history of wars. By contrast, military theory seeks to organize the structures and way armies operate, with an emphasis on the full use of tools and means of war at the disposal of armies or leaders. The theory of war is a relatively recent field of study; many consider Renaissance philosopher Niccolò Machiavelli to be the first systematic theorist dealing with the phenomenon of war, as his writing differs from that of his predecessors in its attempt to make conclusions about the phenomenon of war through systematic study of past conflicts.[1] Moreover, Machiavelli tried to organize the knowledge he had accumulated into clear rules for leaders as well as generals so that these may serve them in future wars.[2]

Although war originates in human beings, who determine its character and shape, relatively few people have taken time to observe it from a scientific, structural perspective, identifying its internal regularities. In the view of those few observers, this regularity is universal to the point that war's repeated appearance and future developments can be predicted. In attempting to understand what lies behind the theory of war and how it was formed, we find instead something close to a vacuum—a lack of insights into war and its component parts.

This "close to a vacuum" situation was the central motive for writing this book since it points to a theoretical lacuna facing scholars who seek to study the phenomenon of war analytically. Most of the studies in this field focus on theoreticians, their personalities, and their thoughts or perhaps a specific period and its ideas. But neither the theoreticians nor the times make the starting point of the theory of war any clearer. Without such a clarification of the methodology, real difficulty emerges in our ability to understand the advantages or disadvantages of a given theory, regardless of the theoreticians who came up with it or their life circumstances.

A clear example of this need for clarity can be found in the highly influential successive works of Professor Azar Gat, whose focus is the development and sources of military thought.[3] His studies deal in military thought and its connection to the period in which it was written in terms of culture, politics, and science. But studies of this sort still leave us under a veil when it comes to the viability of a general theory of war. The innovation in this book lies in the effort to extract

the hidden methodology underlying the description of the phenomenon of war, alongside a survey of the development of military history in the modern era in general and in the twentieth century in particular.

Ostensibly, the question we face is simple; there is abundant information regarding the phenomenon in question because many people (certainly in the military) and human societies were and are occupied with war. But a more discerning view shows the opposite to be the case: few have devoted the time to describe the phenomenon of war theoretically and systematically. Those in this select group are designated here as "military theorists," meaning those scholars focusing on the phenomenon of war.

In this book, I point to the various scholarly methodologies that led to the creation of different theories of war, using as a foundation a historical perspective tracing the military theoreticians, their fields of interest, and the wars they studied and used for forming their insights. Among other things, I seek to ask whether there is one complete theory in history dealing with the phenomenon of war—or whether such a theory can be extracted at all. My starting assumption is the understanding that underlying any theory, no matter the field, is a methodology allowing us to point to the characteristics and components of the phenomenon and the odds of it emerging in the future.

To understand what underlies the development of the central theories dealing with the phenomenon of war, I examine what led to their formation, what promoted them, and what, perhaps, will advance them in the future. Later in the book, I extract the unique context connecting components that repeatedly appear in historical events and various theories and analyze this context. This type of analysis can reveal the biases created during history, the characteristics that allowed theories dealing with the phenomenon of war to emerge, and the way to evaluate these theories in retrospect and perhaps even propose a better path for forming such theories in the future.

The question regarding the existence of an organized, clear methodology of the general theory of war lies at the heart of this book. My hypothesis is that the findings will point to a connection between the domain of time and how the phenomenon of war is analyzed, the connection between the proximity to war-related events (i.e., war itself) to the richness or paucity of the ideas accompanying them, on the congruence between the military domains of action and the industrial revolution as well as how the connection between time periods and war analysis affects the number and character of military

theorists. I hypothesize that it will be possible to connect common characteristics of theories and theorists across periods of history. These relationships present this question: Did particular obstacles or the absence of some of the typical processes and developments presented—because of the inability to reveal them or circumstances on the ground—lead to the development or specific results of the theories presented in these periods?

Structure

Chapter 1 presents the main points of the theory and methodology, defining the general theory of war and what is needed to extract it from the events of history. Chapter 2 is based on the field of research, meaning its diachronic delineation (how a theory developed over time). This chapter discusses the relevant definitions deriving from the unique, analytical perspective and focuses on the shared language or terminology formulated to describe aspects involved in research and pointing to the definitions. To identify and analyze the methodology of the general theory of war, I chose to conduct this discussion through four components or axes, described below.

With the first axis, dealing with the industrial revolutions, I discuss the changes these revolutions created in the world and their connection to war. This book does not focus on a specific technology at any point in time but mainly discusses the very phenomenon of industrialization.[4]

The second axis deals with the domains of war, asking what they are and how they formed. There is no debate over the domains of land, air, and sea—but are space, cyber, or the electromagnetic spectrum also considered domains? If so, what are their roles in war?

The third axis deals with wars themselves. The subject of what war is would seem to be this book's central objective. However, my point of reference is the insights of the theoretician about war and not the description of war itself. An important distinction is that this book will not delve into the factual aspects of war beyond general descriptions, when they can help us understand the context of the theory of war. In addition, this study was not meant to assess whether a particular theoretician erred regarding this or that fact in examining the phenomenon. The discussion here revolves around a theory that stands the test of time; any inaccuracies in it do not hinder the ability of the theoretician to explain the reality he sought to describe and extract

the needed regularity. Finally, as mentioned, even the phenomenon of war itself is not discussed here, as this is not a study of wars; the discussion of wars is limited to describing aspects of wars that the theoretician himself believed essential or contributory to his theory.

The fourth axis is devoted to select "military theoreticians." To avoid simplistic explanations as to why specific theoreticians were chosen, I let "market forces"—meaning military and academic scholars and institutions—point to the theoreticians they consider relevant. To this end, I chose a methodology from the field of economics known as "revealed preferences," which guided me in choosing relevant theoreticians for this book.

Revealed preferences is a concept first defined by American economist Paul Samuelson. Its core argument is that we can discover people's preferences by observing their choices. Thus, when examining the product or result, we can understand what served as the basis of the decision that influenced it.[5] I will use this approach in two parallel ways. In the first, I will survey the literature of studies considered to be fundamental to the field of the history of military theory and its development. In the second, I will propose an integration of "field studies," looking at curricula and syllabi in the field of military theory in some of the world's leading military academies.[6] In this manner, it will be possible to apply this revealed preference in practice, allowing us to identify which theories offer an explanatory basis for the phenomenon of war, whether the authors are generals, statesmen, or researchers.

I am not trying to grade the contribution of those who deal in the phenomenon of war, whether they be scholars of a clearly historical bent— such as John Keegan,[7] Martin van Creveld,[8] Beatrice Heuser,[9] and Lawrence Freedman,[10]—or scholars with a tendency toward broad theoretical understanding, such as Colin Gray or Edward Luttwak.[11] No one doubts the enormous, well-known influence of these researchers in many fields. Indeed, any survey of their prolific work would hardly do justice to the totality of their contributions.

We should therefore stress this point again: These researchers are not part of the object of this book, and they are certainly not counted among the military theoreticians. As noted, each theoretician selected for this research had to meet certain conditions, especially Samuelson's test of the principles of revealed preference. This test even led to a designated field test for the sake of the present study;[12] this study was meant to further solidify and establish the data showing these revealed

preferences, meeting the scientific conditions, and prove that this threshold exists and is well established and systematic.

Chapters 3, 4, and 5, the scholarly core of the book, are dedicated to analyzing the thought of military theoreticians based on the four axes (industrial revolution, domains of warfare, the wars themselves, and the theoreticians). It will thus be possible to conduct a renewed critical reading of their theories.

Chapter 6 integrates the insights arrived at in previous chapters. The working of these insights is not at all simple, as we need a comprehensive perspective on all the theoreticians and their theories examined during this study. To that end, I made use of two directions of analysis: an analysis of the formal aspect of the general theory of war, and an analysis of the content aspect of that theory.

Regarding the formal aspect, I do not mean a technical analysis of the theoreticians' war theories but rather an in-depth analysis pointing to the scope of the theories in relation to the scholarly field discussed in the second chapter. In this way, it is possible to affiliate the theoreticians to three groups of differing formal characteristics; their mention or nonmention of a particular axis points to the complete formal structure of the general theory of war.

Regarding the content aspect, the analysis deals in the content the theoreticians created and the methodology they used to that end. Here, theoreticians can be attributed to one of four groups, each of which attests to what the theoreticians sought to solve in the theory of war and how they did so. This categorization allows us to learn about what they share, where they differ, or what they are missing.

In the discussion at the end of the chapter, I propose a synthesis of the formal and content aspects into an overall theoretical framework for the general theory of war, including methodologies that provide scholarly support for the same. Among other things, I briefly demonstrate possible uses of the proposed theory and methodology.

In the summary chapter, I characterize the main points of the insights I reached, not just regarding the existence of the general theory of war but also regarding the applications deriving from it, which can serve future research. We can assume that these insights—on the characteristics of each of the theories, what comprised them, and what influenced them—will help advance the understanding of the phenomenon of war and how we human beings conduct ourselves when engaged in it.

If I succeed in proving the existence of a general theory of war in this book, it will help us to analyze existing theories of war and later even develop new ones, as war is a universal human phenomenon.

Notes

(Notes are presented primarily in shortened form. For more information, see the appropriate entry in the bibliography.)

1. Gat, *Development of Military Thought*, 17–18; and Paret, Craig, and Gilbert, *Makers of Modern Strategy*, 11–12.

2. This is the case, for instance, with the 27 rules for leaders and generals proposed in his book *The Art of War*, with the assumption that future success is assured if the rules are followed. Machiavelli, *Art of War*, 157–59.

3. Gat, *Development of Military Thought*; Gat, *Origins of Military Thought*; and Gat, *Fascist and Liberal Visions of War*.

4. Jensen, "Modern Industrial Revolution and the Challenge to Internal Control Systems," 831–80.

5. Samuelson, "Note on the Pure Theory of Consumers Behaviour," 61–71.

6. Tovy and Bengo, "Rak Dagim Metim Sochim Im Hazerem" [Only Dead Fish Go with the Flow], 10–15.

7. Keegan's two most prominent books to my mind are *The Mask of Command* and *A History of Warfare*. The former analyzes the military leadership of Alexander the Great, the Duke of Wellington, General Ulysses S. Grant, and Adolf Hitler. In the latter, Keegan seeks to present an alternative thesis to that of Carl von Clausewitz, for whom war is but the continuation of political policy, by arguing it to be a fundamentally cultural matter.

8. Van Creveld's two most important books, in my opinion, are *Supplying War* and *Command in War*. The former discusses the development of logistics and its influence on the character of war from pre-Napoleonic days to WWII. The latter conducts a historical analysis of the characteristics of command in war with a focus on the Napoleonic Wars as a central reference point.

9. Heuser's most popular book is *The Evolution of Strategy: Thinking War from Antiquity to the Present*, in which she examines the development of strategic thought, mostly after the Napoleonic Wars; the social institutions, norms, and patterns of behavior in which strategy operates; and the policy informing the strategy and cultures influencing strategic thought from ancient times until today.

10. I find Freedman's two most influential books to be *Strategy: A History* and *The Future of War*. In the first, he seeks to find the commonalities of strategic thinking across times and societies, from primitive groups, through Achilles and Odysseus in *The Iliad*, Sun Tzu and Machiavelli, to Jomini and Clausewitz. In the second, he gathers insights about the future face of war in light of history and the progression of wars. According to Freedman, there was a wide gap between what those theorists thought would happen in war and what actually did, and he seeks to articulate the causes of this gap.

11. Our present theory, based on our current weapons—weapons of a limited range of action—has been one of attaining our strategic object by brute force, that is, the wearing away of the enemy's muscles, bone, and blood. Luttwak's two most prominent books, in my view, are *The Grand Strategy of the Roman Empire* and *Strategy: The Logic of War and Peace*. In the first, he proposes using the military-strategic decision to explain the failure of the Roman Empire and not the conventional distinctions deal-

ing with forms of government, social conditions, or even the analysis of the effects of great battles. In the second, which has become a classic in strategic studies, he advocates looking at strategy through a layered lens via five different levels.

12. Tovy and Bengo, "Rak Dagim Metim Sochim Im Hazerem."

Chapter 1

Theory and Methodology

What is general war theory, and what is it based on? What makes theories of war unique are two fundamental questions: What is war (its nature or form)? And how can it be won? These questions imply that theories of war do not deal with the following subjects: (1) armies in themselves, (2) military doctrine that guides practical applications for armies, (3) military history, or (4) other fields of research regarding military activity, including political science and international relations.

However, the statement that these subjects are not included in theories of war is not absolute, as war is a human phenomenon and creation, and people shape and create it time and again. The point of observation of this phenomenon is not fixed, nor are the boundaries of the theories' scope. A review of the writings of military theoreticians shows that we can find mention of these four issues in their works, precisely owing to their desire to best explain and confirm their theories as tools to predict future wars.

However, a theory needs to meet two fundamental tests. The first is the need for a theory to be systematic and apply to more than one idea, allowing us to see it as a more complex structure of thought expressing connections between different ideas. The second concerns the theory's ability and inability to explain different phenomena.[1] A large part of the theory should rely on facts as much as possible, but still its causal contexts remain hypotheses. Theory can also include statements that are not entirely proven but that can be to a degree through multiple observations.[2]

A general survey of the writings of the selected theorists shows a clear breakdown of war theory into four categories. These categories are the starting point for observing the phenomenon of war, and we can use this point of departure to try to determine these and other laws that answer the second fundamental question of the theory of war: How can war be won?

The first category comprises studies describing the levels of war as a formative concept for observing the phenomenon of war. The division into levels often serves as an aid, with the specific breakdown changing depending on the context. In general, the theory of war is divided into the two levels of tactics and strategy or the five levels of

micro/techno-tactics, tactics, operations, strategy, and grand political strategy. The division of levels of war as an analytical tool depends on the different approaches of the theoreticians and their interpretations of the concepts describing the levels of warfare. For instance, the difference between the political, strategic, and tactical levels has a fairly long history, certainly since Prussian theoretician and army officer Carl von Clausewitz clearly defined these concepts.[3] Meanwhile, the operational level is a relatively new addition, usually related to the Napoleonic Wars at the beginning of the nineteenth century—and even more clearly to the American Civil War.[4] The advantage in using the category of levels of war lies in it being connectable to the arguments of military theory in an orderly fashion; the well-known and accepted argument is that victory at the technical-tactical level does not necessarily ensure victory at the strategic level.[5]

The second category encompasses studies focusing on the use of military force in its various forms and its role as a part of the state's overall power deployed to achieve its goals. This category focuses on the question of how to win wars, especially how to use military force most effectively. The use of military force covers all the reasons force is used, from the desire to indirectly influence opponents so that they behave in a way that advances the desired interest—convincing them to act the way you want—to destroying the enemy through military force, meaning physical force.[6] Between these extremes is the ability to deter and coerce. Deterrence has a more hidden character, aiming at convincing someone to avoid doing something. Coercion means convincing someone to act in a way desirable to us by demonstrating presence and threats through use of force.[7]

A third category of studies focuses on the criteria for creating the academic field of the study of war theory. As we have seen, it is not easy to define a field like war theory or to place it as a field of study within the academic world.[8] Two of the most valued norms in the scientific community are originality and organized skepticism.[9] These norms encourage researchers to seek out novel ways of thinking, integrate new data in their studies, and expand the boundaries and interpretation of knowledge. In practice, doing so means that fields of study expand with the development of research, despite the modern division into scientific disciplines established at the end of the nineteenth century and the beginning of the twentieth.[10] Thus, for instance, the study of war in universities is still included in the historical disciplines, even though most scholars accept Clausewitz's saying that "war

is the continuation of policy through other means,"[11] meaning that theories of war can include the academic disciplines covering the political sciences.

A fourth category of studies focuses on this question: Should war be interpreted in theoretical terms or as fixed actions of some kind, and nothing more? Put differently, does the theory of war explain or form causal connections that can explain why one side wins in wars, or does it point to a normative imperative that can pave the path for conducting a war? Military theory does not deal with war itself, creating a balance between practical goals (aid in granting practical advice to military and political leaders who actually deal in war) and theoretical goals (the ability to contribute to the growing knowledge and understanding of the subject of study).

One of the markers of this duality is what is known as the "principles of war."[12] But should we interpret these principles as a working paper for people dealing in war, who can then form and implement war plans? Or should we consider the principles of war to be concepts or causes that can explain the result of the battle, campaign, or war and thus contribute to the expansion of overall knowledge about war?[13]

We can see from these categories that scholars and studies lack a single, exclusive starting point for the question of what counts as an agreed-upon general theory of war. The four categories of war theory listed above offer only partial perspectives. Moreover, they tend from the start to have certain working assumptions, and these in turn influence the final analysis and results of the various studies. Scholars point to how theories of war as such are now in a state of confusion; these articles contain no uniform or agreed-upon understanding of the content of the theory of war. Consequently, future thinkers cannot understand "what" they should be addressing in studying war systematically.

I wish to discuss precisely this issue in this book, reexamining the theoretical writings of the theorists themselves. In doing so, I seek to extract a general theory of war from those writings—one addressing the characteristics of the writers, their period, and the thought itself—and conclude what created the theory (rather than the characteristics described by this or that scholar). The study in this book is therefore meant to break the conventions of analysis, trying to understand history as it happened and tying together different processes, means, and times during which these theories developed. As we will see, there are no studies dealing in military thought in this way. The overwhelming

majority of studies described or studied the theories themselves, without examining the context of the factors influencing how they were developed.

Methodology and Definition of Variables for Analysis

The methodology of this study is based first and foremost on how theories of war were formed, which encompasses the theoreticians and the ways in which they examined their assumptions. Since war is a fundamentally human phenomenon, theoreticians in this arena sought to derive conclusions directly from war itself, whether from reading the historical literature, experiencing it personally, or both. The writings of every military theoretician on the war they studied are the very core of the phenomenon they sought to point to. From them, they sought to extract a certain regularity (particularly empirical rules) that would be valid for the present or future.

In this study, I present the main thinking and writings of each of the central theoreticians under discussion here. Primary sources and original writings are emphasized with the hope of adapting them to the parameters to be examined, especially the wars the theoreticians themselves pointed to. I do not intend to check whether the theoreticians studied all that could be gleaned from the war they studied or whether they arrived at correct or incorrect conclusions. What makes a theory valid or not for the present study is its importance and status in light of the period in which the theoretician operated or afterward as well as the reliance of those dealing in war and research on the writings of this theoretician.

The connection between the four components—(a) the theoretician, (b) the war which he sought to use to form his theory, (c) the present or emerging technology in his time, and (d) the domains of warfare—is what will allow for a systematic and structural look at the history of ideas and help us extract deeper insights and conclusions about the general theory of war. A general examination of ideas with this method will prevent overestimating a particular theoretician or period, focusing instead on the "generality" characterizing the different periods.

In pointing to this generality, we can summarize our methodology and position its components in relation to the general theory of war extracted from historical events. The summary is meant to offer as broad a foundation of understanding as possible for the methodology

of the general theory of war. To that end, a unique approach is needed, which will lead us to a number of insights: First, we need a theoretical perspective about the past, a theoretical method allowing us to look at the writings of theoreticians in a focused manner, pointing to the advantages and disadvantages of the theory of war in question. Second, following from this, a reorganization of the insights of the theoreticians along the axis of time can clarify these insights and improve their status in the field of academic research, certainly vis-à-vis other fields. Lastly, and perhaps most importantly for creating a general theory of war, is the ability to point toward the future: a general theory of war can help us to build new, updated theories of war, relevant to wars in the future.

Notes

1. Angstrom and Widen, *Contemporary Military Theory*, 6–7.
2. Parsons and Shils, *Toward a General Theory of Action*, 3–29.
3. Clausewitz, *On War*, 133–40.
4. Naveh, *Omanut Hamaʾarachah* [Operational Art], 21, 23, 26–27, 33–35.
5. Olsen and van Creveld, *The Evolution of Operational Art*, 1–8; and Yarger, *Strategic Theory for the 21st Century*, 51, 55, 58.
6. Nye, *Soft Power: The Means to Success in World Politics*
7. Schelling, *Arms and Influence*; and George and Smoke, *Deterrence in American Foreign Policy*.
8. For more on this subject, it is worthwhile to read the insights of Michael Howard, one of the leading historians in the field of military scholarship. In his brief article from 1956, he expresses dissatisfaction with the academic attitude toward the profession of war. Howard, "Military History as a University Study," 184–91. David Skaggs expanded on Howard's critical approaches a few decades later: "Michael Howard and the Dimensions of Military History," 179–83.
9. Organized skepticism is a term coined by American sociologist Robert Merton, one of the most important sociologists of science in the twentieth century. Merton stated that organized skepticism is a fundamental principle of conduct in the scientific community. This means organized and established skepticism, not skepticism as a stance of the individual scientist. The weakness of the skeptical position on the part of the individual scientist is that it tends to arouse opposition, which often harms the standing of those who dare to be a skeptic in the organization. The transformation of skepticism into a group-institutional norm is therefore one of the main reasons for the success of science. Based on Yaron Ezrahi's article "Hamimut Habuʾah" [The Warmth of the Bubble].
10. Barkawi and Brighton, "Powers of War: Fighting, Knowledge and Critique," 126–43.
11. Clausewitz, *On War*, 252–57.
12. There is no one definition of the "principles of war," but many have referred to these principles in their writings in an effort to outline a "simple recipe" for a complex environment. This is clear both in the style of writing itself and what is considered simple and coherent at the various levels. "Classic" examples can be found in Foch, *The Principles of War*, 8, who noted just four principles in a laconic manner, while

Clausewitz listed principles at great length regarding the environment of action (type of territory/land) and the type of action (offense or defense); Clausewitz, *Principles of War*, 2–10. "New" scholarly titles easily display the multiplicity of terms accompanying the principles of war: Bronfeld, "Ekronot Hamilchamah Be'Idan Hameida" [The Principles of War in the Information Age], 56–63; Katz, "Ha'Ikraon Hanosaf" [The Other Principle], 17–19; and Amidror, "Ekronot Hamilchamah Be'Imut Ha'assymetri" [The Principles of War in the Asymmetric Conflict], 4–11.

13. Van Creveld, *Command in War*, 214–25.

Chapter 2

The Study
Scope and Definition

The general theory of war seeks to explain the phenomenon of war through the argument that the only way to study it is through observing history—the people who actually engaged in it. By contrast, a military theory seeks to arrange the military structure and explain how forces operate within it, especially by using the tools of war at their disposal. Military theory sometimes looks outward to the political but is fundamentally inward-looking, observing internal organizational processes versus broader, more comprehensive ones.[1]

This distinction is based on a wide range of scholarship, even though other names are sometimes used for the sake of differentiating between the theory of war and military theory. For instance, MacGregor Knox and Williamson Murray make a fundamental distinction between what they call "military revolutions" and "revolutions in military affairs" in their book *The Dynamics of Military Revolution: 1300–2050*.[2] In their view, military revolutions "normally resulted from massive social and political changes that have restructured societies and states and fundamentally altered the manner in which military organizations prepared for and conducted war. Such revolutions have been unpredictable and to a great extent *uncontrollable*" (emphasis in original).[3]

By contrast, they defined revolutions in military affairs as follows: "Revolutions in military affairs are periods of innovation in which armed forces develop novel concepts involving changes in doctrine, tactics, procedures, and technology. These concepts require time to work out. . . . Revolutions in military affairs take place almost exclusively at the operational level of war. They rarely affect the strategic level, except insofar as operational success can determine the larger strategic equation—often with a tenuous linkage."[4]

In his book *The Sources of Military Doctrine,* Barry Posen defines the difference between the theory of war and military doctrine a little differently, stating that military doctrine is organized knowledge on how and why military resources should be used.[5] That is, military doctrine does not deal with the essence of war but with the armies fighting it.

This book therefore considers the phenomenon of war in itself and not how armies seek to deal with it. As delineated below, the number

of theories of war is significantly smaller than theories about armies or cultures of war. The main reason is our difficulty as people to focus on the act of violence itself and our effort to decipher it in a universally human and social context.

To deal with the subject at hand, I have chosen four criteria that I will call "axes" or "axes of examination." These axes, which arise in almost every book seeking to deal with war and approaches to it, will allow us to examine and analyze theoreticians and their theories as well as to identify their methodological structure and where they converge or diverge. The general theory of war is based on these four criteria: (1) the axis of time (for our purposes, the development of the industrial revolutions in the modern era), allowing us to examine the technological capabilities and means at the disposal of people in a particular period that influenced turning them into an organized system; (2) the domains of war, which serve as the spheres of war (land, sea, air, space, and cyber) in which achievements can be secured on the battlefield; (3) the wars themselves as a phenomenon created by people; and (4) the theoreticians, their approaches, and the aspects serving them to explain the phenomenon of war.[6]

The First Axis: The Four Industrial Revolutions

The beginning of the industrial revolutions in the modern era is usually marked by the invention of the power loom in the eighteenth century. In fact, these revolutions continue today even though their precise dates are a matter of dispute. There is an inherent difficulty in tying a technological invention with the enormous social change it will bring about, all the more so to tie a particular technology to a general phenomenon.

The phenomenon of industrialization is not an isolated incident that can be viewed as a kind of crisis or turning point (a singularity, if you will) but rather a continuum of developments over a significant period. Thus, one must examine the period as a whole to determine that the world has fundamentally changed in its outlook, resources, conduct, processes, understanding, or technology. A perspective of a few decades allows us to identify a particular technology or accumulation of technologies that reached the point of maturity and critical mass, influencing not only the means of production but also the character of an individual's life as well as society as a whole. Thus, the

phenomenon of war is marked by its scope, size, and distribution and therefore also its inevitable influence on individuals and every aspect of their lives. A particular period should therefore be described via the convention of the industrial revolutions themselves.[7]

The industrial revolutions amounted to fundamental changes in the life of human society, bringing about global transformations. It is often assumed that the agricultural revolution moved humanity from a life of nomadic gathering and hunting to one of settled societies. But when we observe the four industrial revolutions, we can see that they moved humanity from a life based on a farming economy to one based on an enormous mass of machines, technologies, and information. Each one of these revolutions will be analyzed in terms of industrial technology and in relation to aspects of war.

The First Revolution (1764–1870)

The technological revolution, better known as the "First Industrial Revolution," began with the invention of the power loom in 1764. This invention, which combined steam and a manufacturing machine, paved the path for the "continuous production" of clothing and then industrial production.[8] This revolution continued to develop in multiple stages during the nineteenth century.

The most prominent feature of wars in this period was the mass conscript army or levée en masse,[9] meaning the capacity for equipping armies on a large scale in an organized, systematic fashion and moving them quickly and effectively. These processes are marked by the entry of firearms and tools manufactured en masse through industrial means. They allowed the existence of massive combat forces, especially on land. The technological revolution also contributed to improving the mobility of armies in various ways through steam power on land and transportation by sea.

The clearest examples of changes wrought by the industrial revolution are the Napoleonic Wars (1796–1815) and the American Civil War (1861–65). The Napoleonic Wars maximized what the new industry allowed for recruiting, arming, and moving mass armies.[10] In 1805, Napoleon commanded an army of 85,000 soldiers with great success. At the battle of Jena in 1806, he was already commanding an army of 150,000 men, while at Leipzig in 1813, his army numbered 180,000 strong. Equipment on this scale required an industry capable

of producing uniforms, standardized weapons and ammunition, and even preserved food on a large scale.[11]

The American Civil War—which can be viewed as a more developed stage of the First Industrial Revolution—combined the steam locomotive and the telegraph. The Union and Confederate armies had enough cables to network half a continent; both sides had 25,000 km (15,534 miles) of telegraph cable, employing 1,000 technicians for that purpose.[12] This move allowed the Northern Union armies to fight on two main fronts at once, east and west, ultimately defeating the Southern Confederate armies. Generals Ulysses S. Grant and William T. Sherman conducted a long series of battles in the fight for control of the Mississippi River, intending to cut its connection between the Southern states, ultimately winning the contest in July 1863. Thanks to the continuous telegraph communication between Lincoln and General Grant, it was possible to move Union forces more effectively than the Confederacy did. In this sense, the train and the telegraph were symbols of victory in the American Civil War no less than the mass army equipped with uniform weapons.[13]

The First Industrial Revolution led to the earliest significant technological evolution in the modern world. It also paved the way for progress in the field of combat, especially in developing combat capabilities on land and sea and in increasing the number of tools and people involved. But this industrial revolution's contribution does not end with combat; its influence is also and perhaps primarily visible in the continuous political motivation needed for conducting such long and large-scale wars.[14]

The Second Industrial Revolution (1870–1969)

The sparks of the second revolution began at the end of the nineteenth century, when the first successful fusion between machines and electricity replaced steam, leading to continuous mass production. One of the significant turning points in this revolution was the development of assembly lines with the concomitant phenomenon of masses of workers at factories. The consequences of this development were apparent in many aspects, especially clothing, food, the army, and industrial urban areas.[15]

This new revolution, which continued its predecessor in many ways, honed the military processes developed during the first revolution: It succeeded in expanding the scope of and reducing the time needed

for moving forces and means. It also helped make activities more efficient, saving vital resources and making it possible to stay away longer from an army's base of operations. It also allowed more focused and much safer communication, allowing the generals conducting the war and the statesmen running it great capability to integrate their actions to continue the campaign or prepare for the day after.

The central characteristic of wars in this period is the rise in the number of machines on the battlefield—tanks, planes, subs, ships driven by internal combustion—and the managing of connections between them via radio, communicating and coordinating in real time. These wars led to an arms race and to technological competition meant to increase the fatality rate, effectively changing the world. Wars particularly influenced by these changes were the American Civil War, which introduced rapid communication to the front via the telegraph, as described in the previous section, and the two world wars of the twentieth century, both "total wars" for which all the nation's resources were recruited.

The First and Second World Wars were characterized by the emergence of a wide range of technologies that achieved unprecedented advancements in all domains of war. However, the true victors were those who managed to adapt quantitatively and successfully integrated diverse technologies into a cohesive and functional system. This qualitative complexity and innovative integration, evident during these wars, is demonstrated by the number of battlefield casualties unparalleled in human history. Moreover, these conflicts showcased remarkable mobility and the ability to deploy military forces to virtually any location on Earth, further emphasizing the effectiveness of the interconnected technological systems employed.[16]

The Third Revolution (1969–2000)

A few decades later, in the second half of the twentieth century, a new kind of technology—this time electronic—arrived with the invention of the Advanced Research Projects Agency Network (ARPANET) in 1969 and the microprocessor in 1971.[17] This revolution did not emerge ex nihilo, and its sources are based on orderly evolution. A few milestones during the Second Industrial Revolution are worthy of note:

- 1874: the invention of the diode or semiconductor, a central milestone in the development of the first silicon transistor in 1947.[18]

- 1943: the invention of the first electronic computer, or ENIAC, considered to be the predecessor of computers as we know them

today (the German Z3 computer predated it in 1941 but was semimechanical).[19]

- 1958: the invention of the first commercial modem, the Bell 101, which allowed for the transfer of digital information on analog phone lines distributed nationally.[20]

- 1961: the invention of the first commercial robot, Unimate, which was integrated into the serial production line of a General Motors plant.[21]

Over the course of the Third Revolution (from 1969 onward), advances in automation, processing, and miniaturization led to progress in industrialization. The following milestones are notable and relevant for this study:

- 1971: the invention of the microprocessor, the wireless or Wi-Fi network, and email.[22]

- 1976: the invention of public key cryptography or PKC, which led the following year to the invention of RSA encryption, which allows people to transfer personal and commercial information safely to this day.[23]

- 1977: development and marketing of the first popular personal computer (PC), the Apple II, followed by the development of the IBM PC in 1981, which became the most widespread personal computer in the world at the time.[24]

- 1980: the development of Usenet (logical capabilities on the basis of computing powers existing then), which shaped the uses leading to the development of the internet or world wide web, based on the ARPANET of 1969.[25]

In technological and practical terms, the Third Revolution primarily improved those domains of war that had already been improved by the previous two revolutions. Advancements were not restricted to machines and more sophisticated tools of war in three domains but expanded to electronic command-and-control systems based on computer processers. These microprocessors allowed for the miniaturization of operational communication making use of tanks and other land-based tools of war, as well as air- and sea-based tools of war, and significantly improved fighting capability in each domain. In sum, this period enhanced the capabilities of operational air, land,

and sea forces to communicate with and aid each other in real-time battlefield combat.

In terms of information, the Third Revolution brought the world of war together with a rapid, massive transfer of communication on wartime events within the forces and to and from them. Battlefields became locations that were communicated, photographed, and broadcast globally as close as possible to events in real time.

In retrospect, it seems that the war representing the Third Revolution more than any other is the First Gulf War (August 1990–February 1991), especially the activity of the US Air Force during that war. The influence of the Third Industrial Revolution was apparent in two main fields:

- **The US Air Force's combat method.** This method was marked primarily by command-and-control capabilities integrated with precise intelligence appearing on electronic screens. It allowed the combination of operational components in large numbers at any given time and between new forms of aerial support for ground forces, at a level of precision and capacity that was much broader than in the past.[26]

- **The advanced weaponry deployed in the aerial campaign, specifically the move from weapons to weapons systems.** The weapons used in the Gulf War reflect the technological changes on aerial platforms such as the stealth F-117, the systems integrated into platforms such as the Joint Surveillance Target Attack Radar System radar for aerial targeting and Airborne Warning and Control System for aerial control, and finally, the weapons themselves, including guided weapons like the "Popeye" image-guided missiles and heat-guided, high-speed antiradiation missiles.[27]

The combination of these two fields allowed US air forces to help win the broader military campaign much faster than planned. Thus, the results of the campaign were influenced in no small part by the maximal integration of the results of the Third Industrial Revolution into the American military forces—to a level utterly incomparable to the inferior capacity of the Iraqi army.[28]

The Fourth Revolution (2000–)

The Fourth Industrial Revolution is unique in having formed the creation of the new, man-made cyber domain.[29] As this domain is

man-made, various parties have tried to define it over the years. The US Army defines the *cybernetic domain* as a "global sphere within the information environment, comprised of networks reliant on infrastructures of information technology, mutually dependent, including the internet, telecommunication networks, computer networks, processors, chips, and controllers."[30] According to the US Army, the cybernetic sphere is also the fifth domain—added to land, air, sea, and space—pointing to the ability to maintain interaction with the other domains. The British Ministry of Defence defines the *cybernetic domain* as a "sphere encompassing all forms of communication networks and digital activity; including activity and contents delivered on digital communication networks."[31]

In general, we can see that most governments and their armies broadly agree on this domain and have adopted the general definition (with appropriate local adjustments) of the International Telecommunication Union (ITU) for the cybernetic sphere: "The physical and non-physical sphere, created or comprised of part or all of the following factors: computers, mechanized systems and networks, software, computerized knowledge, content, transportation and control data, and users of the above."[32]

This definition entails the cybernetic sphere containing three layers dependent on one another:

- Physical level: the physical components of the network—hardware, mobile infrastructures and fixed infrastructures present throughout the spheres of land, sea, air, and space.

- Logical level: the level of software and bits. These move close to the speed of light and represent information, instructions, cybernetic assets (e.g., software with value, e-money), malicious software (malware, e.g., Trojan horses, ransomware, viruses, worms, etc.), and so on.

- Human layer: all users in this sphere in every respect.[33]

The Fourth Revolution is fully embedded in foundations laid in the Third Industrial Revolution. In terms of evolution, the rise of computing power and other technological developments, primarily memory compression capacity, was recognized at some stage as representing an independent domain. But since this distinction was never officially declared and was instead a gradual development, making it hard to precisely locate its starting point, we can only try to determine when

it happened. The scholarly consensus presently dates the emergence of the cyber domain to 2000. This dating seems satisfactory, as in retrospect, over two decades later its universal place and status are readily apparent.[34]

Aside from the improvement of processes created in previous revolutions, digitization allowed for two central developments. The first is the creation of a new "virtual world," which influences and is influenced by the physical world and by the creation of new means such as cloud computing, artificial intelligence, big data, and the like. The second is the reduction of the space-time dimension of the physical world into "zero time," leading to the geographic aspect sometimes being rendered meaningless.[35]

The Fourth Industrial Revolution, sometimes called the digital revolution, is running at full speed today, fusing the cyber and physical machine worlds, forming an independent domain serving as a platform for ongoing production. This revolution has therefore succeeded in blurring the boundaries between the physical, digital, and biological domains around the world and industrializing (once again) the production and use of information in all areas of life.[36]

The discussion thus far indicates the influence of the axis of industrial revolutions. These revolutions help us refine, identify, and clarify the "world of military tools" that existed or developed when thinkers formed their theories of war and its waging. The means, technologies, machines, and tools of war that the industrial revolutions effectively provided the armies were fundamental to how humans engaged in warlike actions during that historical period. The location, or "place," of these actions within a specific historical period, and especially the character of the influence of the technological tools and means on war, is subject to differing interpretations depending on the theoretician. Reality often proved that events on the ground were not always given proper weight until the moment the right person in the right place managed to connect the dots properly.

History teaches us that the phenomenon of industrialization in general and technological development in particular is a central criterion in influencing the distribution of tools serving the parties participating in the phenomenon of war, the culture accompanying it, and human thought and action. This distinction regarding industrial revolutions allows us to divide the timeline into the different periods (fig. 1).

Timeline and Main Wars		Axis of Industrial Revolutions
Napoleonic Wars 1803–1815	20	
	30	
US-Mexican War 1846–1848	40	First Industrial Revolution
	50	
	60	
Franco-Prussian War 1870–1871	70	
	80	
	90	
	1900	
WWI 1914–1918	10	Second Industrial Revolution
	20	
	30	
WWII 1939–1945	40	
Korean War 1950–1953	50	
Vietnam War 1955–1975	60	
	70	
	80	Third Industrial Revolution
First Gulf War 1990–1991	90	
	2000	
	10	Fourth Industrial Revolution
	20	

Figure 1. The four industrial revolutions along the timeline in the general theory of war.

The left side of the figure contains the timeline, running 200 years from 1820 to 2020. This range was chosen based on the year the theorists' formative works were published. The first theorist examined in this study is Antoine-Henri Jomini, whose *Art of War* was published in 1830, and the last theorist we will look at is David Howell Petraeus, whose Field Manual (FM) 3-24: *Counterinsurgency* was published in 2006. This is also an informed choice even though the First Industrial Revolution began in 1764, before Jomini published his book in 1830, and the Fourth Revolution is still underway. On the right side of the figure, the timeline is marked with the occurrences of the industrial revolutions, thus showing the correlation between the publication dates of the theorists' books and the unfolding of these industrial revolutions.

The Second Axis: The Five Domains of Warfare

Domains of warfare are theoretical tools laying important foundations for explaining the phenomenon of war. They mark the primary environments and spaces where war occurs and the relationship between them as well as their influence on all participants in this highly significant phenomenon.

Land Warfare

The first domain used to break down the battlefield is land warfare. It encompasses warfare occurring on and beneath the land surface (e.g., tunnels and holes), the air layer close to the ground, and weapons reaching the ground from the air or sea. War has been waged in this domain since the beginning of military history, and this domain remains the primary arena for warfare.

Sea Warfare

The second domain, historically speaking, is sea warfare, including warfare taking place at and under the sea on a variety of vessels. Like the land domain, the sea warfare domain is almost as old as humanity itself. By contrast, humankind has no long-standing experience when it comes to the other domains—air, space, and cyber—since they developed significantly only in the last hundred years or so.

Air Warfare

The third domain of warfare, air warfare, is distinguished by a diverse array of aircraft, each serving distinct functions and operating at varying altitudes. These aircraft possess the capacity to exert influence over the outcomes in the land and sea domains. Notably, aerial warfare has emerged as a paramount factor in modern warfare, effectively compressing the duration of actions relative to geographic distances.

Space Warfare

The fourth domain, space, is primarily characterized by platforms fixed in space for relatively long periods of time, such as satellites, or space shuttles present in space for shorter periods.

Cyber Warfare

The fifth and newest domain, cyber, describes warfare transpiring via various communication networks (primarily computer networks) and influences the information we consume as well as various physical aspects of infrastructure and systems. Malware in all its forms operating within the cyber domain is the equivalent of tools of war or weapons platforms in other domains.

Some tie the development of the domains of warfare to technological development. Although there is validity to this approach, I chose to establish the warfare domains as an axis of itself. The reason lies in the very phenomenon of war; people fought from the dawn of history in the land domain with their hands and sticks and stones long before they succeeded in inventing more sophisticated tools based on gunpowder and technology. Their ability to interpret and exploit this domain to win wars and realize their political needs was tested long before the introduction of any technology.

The land domain obviously has consequences for other domains of war, as it is what allows us to define the axis of domains as an independent factor to the point of explaining the phenomenon of war without any need for technological support. In fact, the historic incarnations of the land domain and its consequences for the other domains caused people to also seek to realize their political goals through the other domains. As I will show, this is not just a simple cognitive explanation; as we advance along the timeline, the land domain will reveal itself not to be a simple technological capability.

The tools and means of war now at the disposal of armies are called by the names they received when invented, but it is clear that the airplane of the Wright brothers is not the same as the jet planes of today; the same is true for the modern tank or warship, whose computing system is directly integrated into its weapons system, unlike its predecessors. Moreover, the number and diversity of tools and means of warfare moving and operating in the different domains allow forces today to fight in more ways to achieve the needed goals for victory in war.

The dating of the beginning of industrialization of the five domains of war is positioned relative to the timeline of publication of the 15 theories of war covered in this study. The dating of the land and sea domains was carefully determined in relation to the Napoleonic Wars, considered to be the first industrialized wars and an expression of the First Industrial Revolution (standardized weapons, cannons, and uniforms for the mass armies). The dating of the air, space, and cyber domains was determined in accordance with the first technology to break the boundaries of the domain and serve as the singularity of its industrialization (planes for air, satellites in space, networks and digital for cyber).

The Development of the Five Domains of Warfare

The choice of periods for the dating of the five domains of warfare is based on the quality of our available documentation (fig. 2). Thus, for instance, the beginning of the space domain is documented by a formative, widely covered event on July 4, 1957: the launching of the *Sputnik 1* satellite by the USSR, the first to reach space. The precise date of the beginning of the cyber domain is less clear-cut, and most scholars place it (in retrospect) from 2000 onward.

1801: Industrialization of the land and sea domains. The choice of 1801 as the starting point of the industrialization of the land and sea domains is not arbitrary; it is tied to the thought of Carl von Clausewitz, who focused on the Napoleonic Wars. He expertly described the lethality of the battlefield, which derived from the industrial capacity of his era, and tied it to the Napoleonic Wars. He also understood the enormous change involved in mass armies and the standardization of industrialized weapons and their decisive effect on the phenomenon of war (although he did not know how to conceptualize the phenomenon of industrialization itself).[37]

Timeline and Main Wars	Development of Domains	Axis of Industrial Revolutions
Napoleonic Wars 1803–1815 20 30	**1801 Industrialization of Land and Sea Domain**	
US-Mexican War 1846–1848 40 50		**First Industrial Revolution**
Franco-Prussian War 1870–1871 60 70 80		
90		
1900		
WWI 1914–1918 10 20	**1903 Industrialization of Air Domain**	**Second Industrial Revolution**
30		
WWII 1939–1945 40		
Korean War 1950–1953 50		
Vietnam War 1955–1975 60 70	**1957 Industrialization of Space Domain**	
80		**Third Industrial Revolution**
First Gulf War 1990–1991 90		
2000		
10	**2000 Industrialization of Cyber Domain**	**Fourth Industrial Revolution**
20		

Figure 2. The industrialization of the five domains of war

1903: Industrialization of the air domain. In the beginning of the twentieth century, armies deployed different kinds of tools with the hope of making full use of the airspace made available by the revolution of the Wright brothers. But the first interpretation of this revolution is attributed to Italian general Giulio Douhet (1869–1930), albeit not until 1921 or 14 years after the revolution began. Douhet recognized that the Wright brothers' small, single-engine-powered plane could become a whole system of operational tools working within the air domain and contribute exclusively to victory in war.

1957: Industrialization of the space domain. Some note 1954 as the year in which the space domain was industrialized since it is when the superpowers began competing in the field, with the United States and the USSR declaring their intention to launch artificial satellites to outer space. However, as discussed above, the USSR's history-making satellite launch in 1957 better marks the beginning of the industrialization of the space domain. This domain has grown exponentially since *Sputnik 1* sent its first signals to Earth. This surprising launch led the US to invest enormous resources that culminated in the launch of the Explorer 1 satellite four months later.

Over time, the US—and global—military involvement in space grew, as indicated by the following:

- In 1958, the US officially separated military space efforts from civilian efforts.[38]

- By 1959, two years after the launch of *Explorer 1*, the US began to advance its first military program for developing satellites to produce pictures taken over the USSR and China, the Corona Program.[39]

- The Outer Space Treaty of October 10, 1967, ratified by the United Nations (UN), established the need for demilitarizing space and the nonplacement of different kinds of weapons within it.[40]

- While the Space Treaty aimed to prevent the militarization of outer space, numerous countries such as China, the United States, India, the Soviet Union (at the time), and Russia continued in military experimentation aimed specifically at assessing the potential for combat in the space domain. These experiments explored methods such as missile attacks, ground-based lasers, and explosive satellite technologies.[41]

- The First Gulf War (1991) in which the US-led coalition, formed to fight Iraq and force it out of its occupation of Kuwait, is con-

sidered the "first space war": it is the first documented effort to make direct use, during conflict, of military capability from space, primarily to deny the Iraqis GPS broadcasts.[42]

- Most armies around the world consider space to be a military domain for all intents and purposes, visible in their clear distinction between plans dealing in space and those dealing in the aerial domain.[43]

A number of unique characteristics distinguish the space domain from other domains of warfare, and we need to be acquainted with them to understand how military forces uses it:

- There are no geographic boundaries in space, and every state may operate at any point therein. As such, access to space is global, and therefore any point can be a position from which to act against anywhere on Earth.

- The influence of Planet Earth on bodies in space is primarily through gravity. Therefore, a space vehicle is primarily subject to orbital mechanics and can operate continuously and for a particularly long period of time measured in many years. Capabilities in space are organized in many cases in mutually supporting satellites or at least continuously complementing satellites ensuring each can carry out their unique functions.

- Space has unique natural characteristics different from those in the atmosphere of Planet Earth. The space environment is defined as a region starting from a distance of some 50 km above Planet Earth at the lower bound of the ionosphere moving up. This environment leads to an extreme change in people's ability to dwell in space for long without suffering serious physical harm.[44]

In many ways, the military domain of space is still in its infancy. The few theoretical efforts to explain space as a domain of warfare have often led to a copying of the importance of sea as such a domain because there is some similarity between the two.[45] One reason for the relatively slow progress in codifying the space domain could be that a theoretician has not arisen for this domain; it lacks a breakthrough work that coherently explains the contribution of the domain to the phenomenon of war. Another reason is that space is a difficult physical domain requiring many resources to study and gain experience within it.

2000: Industrialization of the cyber domain. Two characteristics of the cyber domain make it stand out in relation to the phenomenon of war. The first is that it is the second domain built by man (the electromagnetic spectrum preceded it). There are those who view the cyber domain as a virtual one, but this view is mistaken. The cyber domain has a clear and unique physics composed of computers and communication conductors of varying types, connecting them at enormous speed with a large volume of information available to and from anywhere. These conductors are based on optic cables or electromagnetic conducting (including satellite communications). In this respect, the cyber domain is true physics, like the other domains. In the context of the phenomenon of war, this unique characteristic is marked by a reciprocity between the physical world and the logical layer, necessarily pointing to the creation or establishment of geographical and logical centers of gravity like any other classical battlefield.

The second unique characteristic of the cyber domain is the activity taking place within it: the compression of space-time. A simple and common example is data storage. For instance, a university library, whose books occupy a few buildings, can be stored in a few computers and a small amount of electronic memory, taking up less space than the average room. Moreover, we can quickly access this library from anywhere in the world. In other words, there is no geographic limitation of any kind on action in the cyber domain in terms of time and space, while the time needed to get a response is also incredibly fast, approaching zero.

In the context of the phenomenon of war, this attribute allows for the transfer of military capabilities—whether meant to aid fighting forces (combat intelligence, remote repair of computing systems) or to disrupt the activity of the enemy and do it harm (malware for preventing computing services, changing information to the point of disrupting the physical space). There is no need for the physical logistics characteristic of the classical world of war (transfer of kinetic ammunition to the battlefield) or time-consuming transportation aspects (rendering superfluous the need for physical messengers for delivering information).

Warfare in the cyber domain, which became integrated and industrialized in the wake of the Fourth Revolution, is no longer limited to the logical domain or information. Thanks to its great influence, it has already crossed the virtual lines and moved into the physical world. Examples of such processes and influences include harming aircraft

or land-based vehicles through malware; disrupting the ability of precise weaponry to hit its target; attacking the critical infrastructure of states; and spreading "fake news" influencing how all parts of the system operate, primarily the consciousness of all sides involved in the conflict before, during, and after its occurrence. All these factors succeeded in changing warfare but more than anything have also changed how statesmen use armies. Since the time-space relationship has changed and been reduced to near-zero, the response of political leaders also must be faster, both in making decisions about the war they are fighting and in taking political steps in the international arena.

The central expression of wars in this period is warfare with or against information systems supporting the military effort, both to back up the military effort and to deny the opponent the use of their information systems. Russia's cyberattack on Estonia in 2007 is considered the first belligerent event in this industrial era. During this attack, civilian command-and-control centers, military systems, and weapon systems were attacked to the point of complete paralysis. This strategy allowed Russia to advance its other warlike aims and achieve its desired operational aims as part of a well-orchestrated campaign.[46]

The industrialization of the cyber domain is continuing full speed ahead, and we can therefore state that the revolution has not yet ended, and its long-term effects are hard to predict. However, one reference point that can be noted is the human element; it will continue to be significantly influenced by this revolution over time and predictably also influence the act of war.[47]

Humans act to achieve their aims through these five physical domains of war. When we examine the modus operandi in these domains, we can identify a range of additional phenomena, which I will expand on with the presentation of the positions of theoreticians regarding the different domains of war. Therefore, it would be correct to note the human and civilian character apparent in the five domains.[48]

A person can be on land and sea almost without limit, including operating and living above and below them (underground, undersea). The main reason is the high level of reciprocity between these two domains (e.g., a fishing village: the fishermen are on land and live off the sea); humans succeeded in reaching the air and space via sophisticated and diverse technologies, the most well-known of these being the plane and the satellite. But mankind's physical presence in these two domains is relatively brief compared to its presence on land and sea; the only way to operate within the cyber domain is from a distance

by operating unmanned, automatic tools and computers, generally called programs. These programs, the most advanced of which can reach the point of making independent decisions, are what we call artificial intelligence.

The combination of these five domains undoubtedly contributes to the remarkable diversity found in human social life, whether it comes to the ability to move from place to place at increasing physical and cybernetic speeds or the ability to combine the capabilities of one domain with those of another. Space and civilian satellites allow us to communicate globally thanks to a simple communications dish installed on the ground or to get the location of some object in time and space in all the other domains—whether it be a car traveling in the land domain, a plane flying in the air domain, or a ship sailing in the sea domain. And this can all be done with simple mathematical-geometric calculation, checking the location of the object based on location data received from space-based satellites.

Societies whose lives take place within the five domains or that rely on these domains in some form are forced or required to protect their friends and their assets in these domains. And after all, this is what every viable society has needed to do in the land domain from the dawn of history.

The Third Axis: The Wars Studied by the Theoreticians

This axis focuses on the examination of wars the theoreticians used to develop their conclusions about the phenomenon of war. It does not deal with historical comparisons between facts the theoreticians note regarding war or the wars they observed, or from which they seek to make conclusions, and their actual events. This axis is also not meant for critique of a theoretician's form of study; it is of no interest to us if a theoretician derived experience from personal experience or from a reading of other historians' writings or perhaps from reasonable analogizing about the future. Additionally, that the number of wars fought exceeds that studied by theoreticians within the whole phenomenon is not germane to this axis.

Discussion here is instead meant to point to the way in which theoreticians addressed war itself—what they found or did not find methodologically and theoretically speaking. Ultimately, their theories gained a reputation because they succeeded in satisfactorily explaining

the phenomenon of war to those in the arena—politicians, combatants, commanders, and soldiers alike.

An example of the unique and varied connection between theoreticians and the wars from which they sought to learn can be found in the writings of Alfred Thayer Mahan (1840–1914) and Giulio Douhet. In his book *The Influence of Sea Power of Upon History, 1660–1783*,[49] published in 1890, Mahan sought to lay down the rules for the theory of war in the sea domain. His work is an effort to settle the matter regarding the existence of a general theory of war, more than a hundred years after the last war described in his book and without reference to wars occurring in his time and in which he took part.[50] By contrast, Douhet published his findings regarding the theory of war in *The Command of the Air* in 1921, focusing on the air domain and relying primarily on his personal experiences from World War I, just three years after it ended.

Repeated observation of the character of the study of war, as well as what served as the theoretician's analytical foundation, can grant us a critical, relevant perspective for this investigative axis. Importantly, readers must understand that central to the discussion of wars here and the phenomenon we are studying, considering, and critiquing is the theoreticians' interpretations of war.

It is worthwhile at this stage to clarify a number of points regarding the third axis's definition:

- This study is not meant to delve deeply into the factual aspects of war beyond general descriptions that help us understand the connection between events and the theory of war.

- The study also does not check if a particular theoretician erred in any particular fact when examining the phenomenon, since our interest here is a theory that survived the test of history, and even if errors can be found in it, this has no bearing on the ability of theoreticians to clarify the reality they sought to describe and from which to extract the needed laws and regularities.

- The study does not describe the phenomenon of war in itself, as it is not a study of wars; it only notes those parts theoreticians themselves consider to be important for the sake of establishing their own theories. The importance of the part or component of war will be determined by the theoretician rather than the war itself. For instance, Mahan's historical approach focused primarily on the sea domain and marginally (and sometimes not at all)

on technological components of one kind or another. Meanwhile Douhet focused on the plane as the central tool, with the air domain being the means through which to view wars, even those which had not yet occurred. If he presented facts from the past, they tended to be strongly slanted in favor of his arguments.

- Because the phenomenon of war cuts across many periods, I will only present diagrams that help clarify the text in terms of scholarly orientation, domains, the industrial revolutions, and the wars addressed by the theoreticians themselves.

The Fourth Axis: The Theoreticians

The axis of theoreticians is the most challenging, especially when it comes to how it is selected, examined, and analyzed. The main criterion for selecting the theoreticians in this axis is "revealed preference," a known term from the world of economics. In this way, I believe I have drawn up a list of theoreticians who "survived" history and whose theories are still valid and relevant to form the methodology of the general theory of war.

The Revealed Preference Approach and Its Contribution to Scholarship

Wars break out and are fought without regard to theories, as they have accompanied humanity even before it organized into societies in the sociological sense. But as opposed to the prevalence of warfare as a common human phenomenon, the number of thinkers who theorized to explain the phenomenon itself is relatively low, and the number of those who have remained relevant over the years is even lower. In choosing specific theoreticians, I let the "market forces" of those seeking to deal with the phenomenon in our day, whether academics or practitioners (statesmen or military officers), point to the military theoreticians they consider relevant. To that end, I made use of a methodology taken from the world of economics—revealed preference—as the metric for choosing the appropriate theoreticians for this study. Revealed preference is a concept first defined in 1938 by economist Paul Samuelson, based on the argument that we can discover the preferences of people by observing their choices, the product or

result being the best sign of what actually informs or influences their thinking and decisions.[51]

The revealed preference approach will be demonstrated in two ways: a survey of selected scholarly literature, some of which is considered foundational to the field of the history and development of military theory, and "field studies" looking at the curricula and syllabi in the field of military theory in a number of military academies around the world.[52]

Thus, I believe this approach will allow me to form a list of theoreticians, many of whom belong to both groups and whose thought is important and relevant even in our time. The two surveys combined will point to the theoreticians who "survived" history and whose theories are still valid. That is, their theories can still influence and aid practitioners of war in deciphering, understanding, and even executing what is needed of them to be victorious in war.

Once the relevant theoreticians are determined for this study, it will be possible to take the third step in the revealed preference process: pointing to the formative work of that theoretician, the work most notably attributed to them (even if they had many other writings). Thus, Samuelson's revealed preference approach will allow us to extract the information necessary for standing the test of time and history. This approach will point to military theoreticians from previous centuries who are still relevant for the discussion on war in the twenty-first century.

First Step: A Literature Survey

According to the revealed preference approach, the answer to the two-part question "Who are the military theoreticians relevant to this study, and where should we search for them?" can be found in many books, biographies, and critical studies as well as studies in the field of military history. In seeking to cover the theoretical field of war in this study, I chose books dealing in military theory in the broader sense while also surveying a long list of military theoreticians, including discussion of their thought and influence.

The consecutive editions of *Makers of Modern Strategy*. *Makers of Modern Strategy* is the title for a pair of books, the first of which is a collection of articles published in 1943 and entitled *Makers of Modern Strategy: From Machiavelli to Hitler*.[53] The book examined a wide range of theoreticians in different fields of military practice. In 1986,

that book was reissued with a slightly different title, *Makers of Modern Strategy: From Machiavelli to the Nuclear Age*,[54] but with the core remaining the same. The two collections of articles examine important military theoreticians from Machiavelli up to the publication of either edition. Therefore, the 1986 edition also includes military thought in the field of limited war, revolutionary war, and nuclear war. This collection discusses in depth the enormous changes in the character of war after World War II ended in 1945.

In both editions, authors trace the relationship between theory and practice, specifically how theory influenced the planning and conduct of wars throughout history as well as how wars led to developing new theories. In both, they also analyze the relationship between technology, policy, and war and determine the relevance of the theoreticians based on the historical context of the book's publication: WWII for the 1943 edition and revolutionary and nuclear war for the 1986 edition. Therefore, a comparative reading of the two editions shows that the 1943 edition was not simply transferred to the 1986 edition. In the updated version, the authors discuss important theoreticians in the context of thought, military action, and the political, social, and economic environments of that time.[55]

In his review of the two editions, Stephen Walt argues that although more than four decades separate the two, both illuminate and continue to reinterpret the phenomenon of war as one of the most powerful forces in history, one that cannot be truly understood without having a perspective of its past. Therefore, the two collections are must-reads for anyone dealing in war.[56]

The development and sources of military thought: The consecutive works of Azar Gat. An additional important resource is Azar Gat's series on the subject.[57] The importance of these books lies in the positioning of military theories, from Machiavelli to the theoreticians of the beginning of the twentieth century, within a broader historical and cultural context. Gat's books were considered central to their field as soon as they came out, and according to historian Eugene Rasor, they are must-reads for anyone who wishes to begin studying theories of war, whether they focus on the thinkers themselves and their historical background or delve deeper into their wide-ranging content.[58]

Gat points systematically to the manner of military theory's development, doing so via two central logical approaches:

- The first approach anchors the development of military thought as an inherent part of the general cultural background of the period in which the theory is written. In this sense, Gat does not engage in technical analysis of the military theories and components of strategy but rather seeks to reveal the influence which the assumptions and intellectual perceptions of the time had on the formation of a given military theory.

- The second approach points to the beginning of the sixteenth century as the starting point in the development of the science of war and efforts to find a military theory whose precise application would lead to victory in war.

- In his first book, Gat analyzes the development of military theory from the time of the Renaissance and the beginning of the Scientific Revolution to the era of Enlightenment and the beginning of the nineteenth century. The core of this book revolves around the era of Enlightenment, and Gat explains how the general cultural developments of this period led to extensive theoretical writing in the field of war as part of a broader phenomenon of writing the first theories about the fields of human endeavor. In other words, just as people in this time began to discover the secrets of the physical world through experimentation and observation, so did theoretical writing begin, driven by the desire to discover a theory to explain human behavior (in terms of psychology, sociology, economics), including the phenomenon of war. Gat examines the extensive writing on military theory, proving it to be influenced by two trends:

  ° First, the general culture of each period under discussion (Renaissance, Enlightenment, Romanticism) was at the heart of the military approaches and theories that developed during them. Culture therefore led to the birth of "the theory of war."

  ° Second, wars and the learning of their lessons influenced the shaping of new theory. Thus, for instance, the German school replaced the French school in the mid-eighteenth century, considering the victories of Frederick the Great in the War of Austrian Succession (1740–48) and the Seven Years' War (1756–63). Similarly, France's defeat in the Franco-Prussian War (1870–71) also influenced French military thinking.

Gat conducts a similar analysis in his second and third books dealing with the period from the end of the nineteenth century to WWII. He shows once again how political and social worldviews (fascism) and cultural developments (modernization) had enormous and sometimes exclusive influence on the development of military theories in the periods his works cover. Therefore, the logical conclusion from Gat's books and the two editions of *Makers of Modern Strategy* is that the road to understanding the writing of a particular military theory is in its historical context—social, cultural, economic, and technological.

Other foundational books. I will briefly discuss two other books that can be defined as "textbooks" but whose authors support the central argument of this study. These are Jan Angstrom's *Contemporary Military Theory: The Dynamics of War* and J. J. Widen and Elinor Sloan's *Modern Military Strategy: An Introduction*.[59]

Both books examine the military theories formed in the past few centuries; in each, chapters are devoted to a particular field of military practice, such as sea or air. The power of these two books lies in the three intertwined areas or circles of discussion. The first circle centers on thinkers in each field of military practice, including what they share, where they differ, and what makes them unique. The second describes the relevance today of the various thinkers studied. The third circle is the time of the books' publication, the second decade of the twenty-first century. Readers thus are exposed to contemporary theoretical trends, such as in cyber and space, but also to extensive theoretical writing from the end of the twentieth century.

Second Step: Field Research

The idea of carrying out field research in this area came from reading the thesis of Nick Bosio, an Australian military officer.[60] In his 2018 study, he asked the following three questions: What exactly is "military theory"? What are the causes influencing its writing? What credibility does it have vis-à-vis war itself? To validate his work, Bosio conducted a field study to determine which theoreticians were taught in both civilian and military academic institutions and if there was a common denominator or alignment of these institutions and to discern the prevalence of the theoreticians being studied.[61] To test the validity of this field study, I conducted another one. The study was done on behalf of the Israeli Defense Force's (IDF) International Cooperation Unit,

part of its Operations Branch, and was presented and made accessible in February 2020.[62] This study included two methodological tools:

- The first tool was interviewing military attachés serving in Israel (something Bosio did not do) in order to receive formal and informal information on the grade they give the various military establishments in their countries. This round of interviews was then buttressed by studying the contents of the aforementioned military institutions and the courses studied therein. This step of field studies helps point to the influential and relevant institutions for the purpose of this study.

- The second tool is a study of the syllabi of the military academies of foreign militaries. The armies under review were those of the United States, Britain, Germany, India, China, France, and Russia. It is important to remember that each military academy chooses to also emphasize figures who are part of that country's history. Additionally, command and staff colleges in the United States, such as the Naval War College or the Air Command and Staff College, alongside the study of general military theories, tend to focus on the military history and specific theories related to that particular arm as well as the history and theory of the field of joint operations.

A comparison of Bosio's 2018 study in Australia with the IDF's 2020 field research in Israel shows a clear match in results, pointing to the dominance of the theoreticians studied in the different military academies.[63]

Listing theoreticians based on the revealed preference approach. Combining the two efforts—the survey of scholarly literature and field research—allows for cross-referencing all sources, whether they are based on scholarly literature for which there is consensus or on field studies. Table 1 provides this information. Theoreticians are listed in the first column, with the table noting whether they were referenced by prominent scholars and the two field studies.

Table 1. The prominence of theoreticians in studies on the theory of war as shown by revealed preference

Theoretician	Scholarship					Field studies	
	Earl, Gordon, and Gilbert	Paret	Gat	Angstrom and Widen	Sloan	Bosio	IDF Research
Jomini	y	y	y	y	y	y	y
Clausewitz	y	y	y	y	y	y	y
Mahan	y	y	y	y	y	y	y
Bloch	y	y	y	n	n	y	n
Corbett	y	y	y	y	y	y	y
Douhet	y	y	y	y	y	y	y
Liddell Hart	y	y	y	y	y	y	y
Isserson	n	y	n	n	n	y	n
Mao	n	y	n	y	y	y	n
Fuller	y	y	y	y	n	y	y
Brodie	n	y	n	y	y	y	n
Thompson	n	y	n	n	y	n	n

Legend: y = scholar/research features reference to the theoretician; n = no reference to the theoretician

In terms of the "revealed preference" test, 12 theoreticians made the "finals." Six of these—Jomini, Clausewitz, Mahan, Corbett, Douhet, and Liddell Hart—appear in all seven of the studies under discussion. Fuller appears in six of the seven; Bloch, Mao, and Brodie in four; and Isserson and Thompson in two. The low number of theoreticians listed in the table aligns with the argument that few manage to reach the unique pinnacle of being studied for their military theories and considered notable contributors to the understanding of the phenomenon of war.

I chose to add three theoreticians to the list who deal in the phenomenon of war against insurrection, with the aim of magnifying the

study's argument. These theoreticians—David Galula, Rupert Smith, and David Petraeus—meet the criterion of revealed preference. Their selection is based on two arguments: the first is the need to emphasize the model dealing with anti-insurrectionary war, as if not, we would rely solely on Mao and Thompson, who comprise a relatively older generation of theoreticians. The second is that analysis of the phenomenon of war in the context of popular insurrection, guerilla warfare, or warfare against forces using guerilla tactics does not lie within the consensus of military theory. This is because of politics (democratic or totalitarian regimes could consider the study of this phenomenon as justification of something they view negatively), considerations of ethos (wars where victory is insufficiently clear), or even economics (wars that as a whole are characterized by small-scale fighting and do not require the full power and resources of the army in terms of the number of soldiers, platforms, and advanced armaments on a large scale).

Third Step: Constitutive Essays Ranked by the Revealed Preference Approach

Having discussed the selected theoreticians, we are now left with completing the third step of revealed preference: pointing to the formative works that remain part of their oeuvre. This is a relatively simple effort, and a survey of the scholarship leads to the following list:

1. Jomini, *The Art of War*, 1830.
2. Clausewitz, *On War*, 1832.
3. Mahan, *The Influence of Sea Power Upon History, 1660–1783*, 1890.
4. Bloch, *The Future of War*, 1898.
5. Corbett, *Some Principles of Maritime Strategy*, 1911.
6. Douhet, *The Command of the Air*, 1921.
7. Liddell Hart, *The Decisive Wars of History*, 1929.
8. Isserson, *The Evolution of Operational Art*, 1932.
9. Mao, *On Guerilla Warfare*, 1937.
10. Fuller, *Memoirs of an Unconventional Soldier*, 1938.
11. Brodie, *The Absolute Weapon*, 1946.
12. Galula, *Counterinsurgency Warfare: Theory and Practice*, 1964.

13. Thompson, *Defeating Communist Insurgency: The Lessons of Malaya and Vietnam*, 1966.

14. Smith, *The Utility of Force*, 2005.

15. Petraeus, FM 3-24, *Counterinsurgency (COIN)*, 2006.

The works of the theoreticians chosen for this study serve as the core of knowledge needed for those dealing in the phenomenon of war, whether as scholars or practitioners. These are the students, thinkers, and scientists of war on the one hand and, on the other hand, those dealing with war in all its complexity at all levels. This list of 15 theoreticians and their central writings meets Samuelson's definition of revealed preference. Moreover, it shows us the revealed preference of the history of military thinking.

In this study, I will provide a brief survey of each theoretician's biography, which may lead to insights about life events that may have influenced the development of their theory, and the main points of their theory and how their work supports the general theory of war. I will then place each theoretician along a timeline, with the core criterion being the date of publication of their central, foundational book among their published works. Figure 3 depicts the date of publication of each theoretician's most influential and formative work along the timeline. At the center of the figure are the names of the theorists with the date of publication of their formative works as determined by this study. The distribution of the names along the timeline is diachronic and without significance content-wise at this stage.

We can say that the description of the four axes opens a sphere of research for us that is both physical and cognitive. This sphere is the foundation from which we can continue to extract a general theory of war, with the side-by-side juxtaposition of the historical development of each axis visible in figure 4 below.

This figure represents the four axes of observation of the general theory of war and combines insights from the three previous figures. From left to right are the axis of wars occurring in the lifetime of the theoreticians, the axis of the development of the five domains, the axis of theorists based on the date their theory was published, and the axis of industrial revolutions.

Timeline and Main Wars	Theoreticians	Axis of Industrial Revolutions
Napoleonic Wars 1803–1815 20		
30	Jomini (1830) Clausewitz (1832)	First Industrial Revolution
US-Mexican War 1846–1848 40 50		
60		
Franco-Prussian War 1870–1871 70 80		
90	Mahan (1890) Bloch (1898)	
1900		
WWI 1914–1918 10	Corbett (1911)	Second Industrial Revolution
20	Douhet (1921) Liddell Hart (1929) Isserson (1932)	
30	Mao (1937)	
WWII 1939–1945 40	Fuller (1939) Brodie (1946)	
Korean War 1950–1953 50		
60		
Vietnam War 1955–1975 70	Galula (1964) Thompson (1966)	
80		Third Industrial Revolution
First Gulf War 1990–1991 90		
2000	Smith (2005) Petraeus (2006)	
10		Fourth Industrial Revolution
20		

Figure 3. Distribution of theorists noted in this study based on date of publication of their formative works

Timeline and Main Wars		Development of Domains	Theoreticians	Axis of Industrial Revolutions
Napoleonic Wars 1803–1815	20	1801 Industrialization of Land and Sea Domain		
	30		Jomini (1830) Clausewitz (1832)	First Industrial Revolution
US-Mexican War 1846–1848	40			
	50			
	60			
Franco-Prussian War 1870–1871	70			
	80			
	90		Mahan (1890) Bloch (1898)	
	1900			
WWI 1914–1918	10	1903 Industrialization of Air Domain	Corbett (1911)	Second Industrial Revolution
	20		Douhet (1921) Liddell Hart (1929) Isserson (1932)	
	30		Mao (1937) Fuller (1939)	
WWII 1939–1945	40		Brodie (1946)	
Korean War 1950–1953	50			
Vietnam War 1955–1975	60	1957 Industrialization of Space Domain	Galula (1964) Thompson (1966)	
	70			
	80			Third Industrial Revolution
First Gulf War 1990–1991	90			
	2000		Smith (2005) Petraeus (2006)	
	10	2000 Industrialization of Cyber Domain		Fourth Industrial Revolution
	20			

Figure 4. The research sphere: Four axes coalesce

Presenting the information in this way gives us the tools we need to extract the methodology of the general theory of war; analysis of the interpretations, approaches, and outlooks of the theorists against figure 4 will allow us to understand how they treated each axis, when they did, and what they tried to emphasize. Mapping out what each theorist did or did not study vis-à-vis the axes and their derivatives will start to point to the general theory of war. The four components—wars, domains of warfare, theorists, and the industrial revolutions—and the relationships between them will continue to accompany us in the following chapters, where I examine the thought of each theorist, individually and relative to the other theorists under study.

Notes

1. Angstrom and Widen, *Contemporary Military Theory*, 5; van Creveld and Keegan, *The Art of War*, 14–15; and Mahnken and FitzSimonds, *Limits of Transformation*, 17–26, 45–60.

2. Knox and Murray, *Dynamics of Military Revolution*, 1–14, 176–77, 179–80.

3. Knox and Murray, 176.

4. Knox and Murray, 179–80.

5. Posen, *Sources of Military Doctrine*, 13–14.

6. Angstrom and Widen, *Contemporary Military Theory*, 1–33. Angstrom and Widen's book deals with possible classifications of war and different criteria for the various distinctions, necessary or possible, between these classifications. Posen, *Sources of Military Doctrine*, 13–22, 220–44 passim, deals at length with the development of military doctrines within military organizations with the aim of helping them to deal with the phenomenon of war and win it. Collins, *Military Strategy: Principles, Practices and Historical Perspectives*, 81–92. Collins deals with the practices of applying military strategies, with the aim of distinguishing between the world of war and the world of armies and statesmen dealing in war. See also the book by Sarkees and Wayman regarding the dilemma of classifying wars (over 150 types just for 1969–2000): *Resort to War: 1816–2007*, 579–94.

7. Jensen, "Modern Industrial Revolution," 831–80.

8. Continuous or serial production involves the production of goods through advanced industrial methods. The finished products are created from raw materials in the continuous production process, sometimes along an assembly line.

9. The political and social revolution in France at the end of the eighteenth century changed the face of war. This revolution, which defined terms like "nation" and "citizen," enacted the general draft, the levée en masse. This move led not only to a significant increase in the size of armies, which required extensive logistical support for movement and maintenance of the army, but also a change in the structure of the French officer corps, with the introduction of candidates from outside the aristocracy. Franz, *Character of Modern War*, 3.

10. Van Creveld, "Napoleon and the Dawn of Operational Art," 9–32.

11. Van Creveld, *Command in War*, 55–89, 90, 125–28.

12. Thurbon, "Origins of Electronic Warfare," 61.

13. Stewart, *American Military History*, 199–306. On the unity of command, made possible thanks to telegraph communication between Lincoln and his generals, see

in particular 283–86. On the importance of trains for battle, especially at Chattanooga, where soldiers were moved over 1,600 km, see 278–82.

14. Jensen, "Modern Industrial Revolution," 835.

15. Jensen, 835–36.

16. Van Creveld, *Command in War*, 153–56, 157–60.

17. All dates related to technological development in the world of computing and communications were taken from Garfinkel and Grunspan, *The Computer Book: From the Abacus to Artificial Intelligence*. The authors describe the development of the world of computers succinctly, both chronologically and content-wise, and the communications and logical protocols accompanying it. Since this is the Kindle version of the book, use is made of the *Chicago Manual of Style* guidance for referencing in the next several citations; instead of noting the chapter number, the reference is to the header date that serves as the reference point.

18. Garfinkel and Grunspan., under "1974" and "1874."

19. Garfinkel and Grunspan, under "1943" and "1941."

20. Garfinkel and Grunspan, under "1958."

21. Garfinkel and Grunspan, under "1961."

22. Garfinkel and Grunspan, under "1971."

23. Garfinkel and Grunspan, under "1976" and "1977." RSA encryption is named after its inventors, Ron Rivest, Adi Shamir, and Leonard Adleman. RSA encryption involves generating a pair of mathematically related keys: a public key and a private key. The public key is used for encrypting data, while the corresponding private key is kept secret and used for decrypting the encrypted data. The security of RSA encryption relies on the difficulty of factoring large numbers into their prime factors. This algorithm is commonly used for secure communication, digital signatures, and securing sensitive information in various applications.

24. Garfinkel and Grunspan, under "1977" and "1981."

25. Garfinkel and Grunspan, under "1980."

26. On the integration of advanced weaponry and command-and-control systems on the battlefield, see Keaney and Cohen, *Revolution in Warfare?: Air Power in the Persian Gulf*, xii, 22, 28–29, 33, 95–96, 109, 119; and Murray, *Air War in the Persian Gulf*, 19–20, 43, 97, 170, 276, 300, 314.

27. For further detail on the weapons in question and the integrated systems and platforms described here, see Keaney and Cohen, *Gulf War Air Power Survey*, 39–126.

28. For a critical article on the war that considers the changes to only have been incremental, see MacGregor, "Joint Force: A Decade, No Progress," 18–23; and Press, "Myth of Air Power in the Persian Gulf War and the Future of Warfare," 5–44.

29. "Cyber" is short for cybernetics, a comparative science dealing in the control, oversight, and communication among people, animals, and machines. This concept is identified with the world of information, communications, internet, and computer networks. The word originates in the Greek *kybernetike*, which means captaincy or helmsmanship. "Cybernetics," Gurevitz and Arev, *Encyclopedia Shel Ha-Ra'ayonot*.

30. US Army, "Cyberspace Operations Concept Capability Plan 2016–2028," 6.

31. Cabinet Office, *Cyber Security Strategy of the United Kingdom*, 3.

32. The ITU, a professional UN agency, handles issues related to information technology and communications. It was founded in 1865 and deals with international regulation and standardization of these fields. International Telecommunication Union, "Introduction to the Concept of IT Security." For instance, the definition was adopted in its entirety by the Israeli government in Decision 3611 on August 7, 2011: Promotion of the National Capability in the Cybernetic Sphere, accessed April 11, 2020, https://www.gov.il/.

33. Even and Siman-Tov, *Lochama Bemerchav Kiberneti* [Warfare in Cyber Space], 16.

34. Regarding the scholarly consensus, I chose to prove my argument based on references to studies from different countries regarding this argument, as can be seen from the wide range of sources listed below:

US: Maynard (Arizona) surveys and dates the Fourth Industrial Revolution to 2000 but notes no exact date. According to Maynard, "The Fourth Industrial Revolution represents an unprecedented merging of digital, physical, and biological technologies throughout the length and breadth (of society), and consequently a change can be expected in the manner of production of products and their use": "Navigating the Fourth Industrial Revolution," 1005.

The article by Min, David, and Kim points to a similar dating, although it deals with the purely financial aspects of revolution: "The Fourth Industrial Revolution: Opportunities and Challenges," 90–95.

Germany: Schwab, founder of the World Economic Forum, and Davis provide a broad historical survey, dating the revolution to the beginning of the twenty-first century. *Shaping the Future of the Fourth Industrial Revolution*, 9–12, fig. 1, and fig. 2.

France: Researchers for the Sogeti technological consulting company describe the Fourth Revolution and the challenges it contains in this research booklet: Bloem et al., *Fourth Industrial Revolution*, 11–15.

Romania: Prisecaru studies and dates the Fourth Revolution to around 2000 and even notes the move to the Third and Fourth Revolutions and their characteristics. "Challenges of the Fourth Industrial Revolution," 57–62.

35. Schwab, *Fourth Industrial Revolution*, 11–13.

36. Schwab.

37. Paret, "Napoleon and the Revolution in War," 123–42.

38. Lewis, "Neither Mahan nor Mitchell," 277–99.

39. Lewis.

40. "United Nations: Office for Outer Space Affairs," l.

41. Lewis, "Neither Mahan nor Mitchell," 277–99.

42. Paikowsky, "What Is New Space?," 84–88.

43. The following is a brief survey of the extensive literature in the field: Klein, *Space Warfare: Strategy, Principles and Policy*, 1–20, 33–126: Klein deals with space warfare with the aim of proposing principles regarding policy and strategy for warfare of this kind, due to the rising power of the international space industry and the ability of many players to take part. Johnson-Freese, *Space Warfare in the 21st Century*, 56–81: Johnson-Freese includes an interesting chapter on the "Thucydides Trap," meaning the question of whether increasing competition between powers in space means inevitable conflict or not. Harrison, "Why We Need a Space Force," 1–6: In this brief article, Harrison notes the need for the United States to establish a designated military force in space and to cease to view it as solely auxiliary to other domains. Harrison, Cooper, Johnson, and Roberts, *Escalation and Deterrence in the Second Space Age*, 10–34: Authors of this book point to an increase in the military efforts of many countries to achieve supremacy in space as a component of their basic deterrent capability. The significant change as far as the authors are concerned started in 1991, where they identify a second generation of competition in space due to the significant technological changes contributing to the reduction in cost for space activity compared to the past. Paikowsky and Ben-Israel, "India's Space Program: An Israeli Perspective on Regional Security," 394–405: Here, the authors point to the processes in the Indian military space industry, offering a comparison to similar developments in Israel.

44. United States Department of Defense, *Joint Doctrine for Space Operations*.

45. Sumida, "Case of Alfred Thayer Mahan," 100–11; and Sheldon and Gray, "Theory Ascendant? Spacepower and the Challenge of Strategic Theory," 1–17.

46. The war, which lasted for 22 days, was only recognized as such in retrospect, based on an understanding of the different interests in war in depth and in the wake of complementary intelligence revelations that clarified the Russian way of thinking and organized use of force. Ruus, "Cyber War I: Estonia Attacked from Russia"; Shakarian, Shakarian, and Ruef, *Introduction to Cyber-Warfare: A Multidisciplinary Approach*, 8–9; Ottis, "Analysis of the 2007 Cyber Attacks Against Estonia," 163–69; and Kaiser, "Birth of Cyberwar," 11–20.

47. Schwab proposes 23 examples set to influence humankind thanks to the continued industrialization of the fourth revolution, with "industrialization" here meaning the quantity, distribution, and systemic methods that will lead to changes in man's way of life. Schwab, *Fourth Industrial Revolution*, 109–57.

48. Unlike definitions considering the cybernetic sphere to be a fifth domain, there is an approach that views the cybernetic sphere as one of seven, alongside air, space, sea, land, electromagnetic, and human. As opposed to the previous definitions, this approach distinguishes the cybernetic and electromagnetic spheres and lists the human level as a sphere in itself. The cybernetic sphere is an artificial sphere realized through the electromagnetic sphere and interfacing with physical spheres via sensors and effectors (operating components). As such, the cybernetic sphere serves as a functional magnifier of civilian and military systems operating in all spheres, while also pushing them toward a cybernetic attack. Convertino, DeMattei, and Knierim, *Flying and Fighting in Cyberspace*, 2–3.

49. Mahan, *Influence of Sea Power upon History, 1660–1783*.

50. Mahan served on a warship as a lieutenant during the first year of the American Civil War (1861–65), but this fact is not addressed in his book.

51. Samuelson, "A Note on the Pure Theory of Consumer's Behaviour," 61–71.

52. Tovy and Bengo, "Rak Dagim Metim Sochim Im Hazerem," 10–15.

53. Earle, Craig, and Gilbert, *Makers of Modern Strategy: From Machiavelli to Hitler*.

54. Paret, Craig, and Gilbert, *Makers of Modern Strategy*: *From Machiavelli to the Nuclear Age.*

55. To be more precise, the new 1986 edition includes three articles from the earlier 1943 edition in their original form and another four articles appearing in both editions (but that were significantly revised for the new edition). The other 22 articles are new. As for the contents, the articles in the 1986 edition deal with the great theoreticians and political and military leaders like Machiavelli, Clausewitz, Marx and Engels, Napoleon, Churchill, and Mao. Other articles trace the relationship between theory and experience throughout the generations (e.g., the development of American strategy or the appearance of revolutionary war in the modern world).

56. Walt, "Search for a Science of Strategy: A Review Essay," 140–65.

57. Gat, *Development of Military Thought: The Nineteenth Century*; Gat, *Origins of Military Thought: From the Enlightenment to Clausewitz*; and Gat, *Fascist and Liberal Visions of War.*

58. Rasor, "Azar Gat, *The Development of Military Thought*," 374–75.

59. Angstrom and Widen, *Contemporary Military Theory*; and Sloan, *Modern Military Strategy: An Introduction.*

60. Bosio, "Understanding War's Theory."

61. Bosio, 32, 34, 38–39, 41.

62. Tovy and Bengo, "Rak Dagim Metim Sochim Im Hazerem," 10–15.

63. Tovy and Bengo.

Chapter 3

The Theorists and Their Thoughts

From the First Industrial Revolution to World War I

This chapter focuses on thinkers who operated in the era between the First Industrial Revolution (1764) and WWI (1914). This period was chosen based on the coalescence of the different axes, as shown in the previous chapter. The five theorists we will discuss are Jomini, Clausewitz, Mahan, Bloch, and Corbett.

It is worth noting a few things about all five thinkers. For example, they were all rooted in the geopolitics and geostrategy of Europe, as they themselves experienced it, either directly (Jomini, Clausewitz, Mahan) or through deep study of European history and its wars (Bloch, Corbett). Also, during the period of 1764–1914, two industrial revolutions took place: the first, which is commonly attributed to the invention of the mechanical loom in 1764, and the second, dated to 1870. Understanding the consequences of the First and Second Industrial Revolutions is a prominent feature of the writing of the five thinkers, but already we can point to how they were profoundly aware that the direct consequence of both industrial revolutions allowed for a significant increase in the size and scope of the phenomenon of war, due to technological developments allowing for equipping masses of people with weapons and supplies and turning their organization into an army capable of war. General statements like these, true as they are, cannot replace the detailed analysis required here if we wish to extract the components of the general theory of war.

Jomini: *The Art of War* (1830)

Antoine-Henri Jomini (1779–1869) worked as a banker before joining the French army as a staff officer at the age of 19. He quickly stood out and moved up the ranks, commanding a battalion by the age of 21. But in 1801, at the end of the Second Coalition War, one of France's revolutionary wars,[1] he was discharged from the French army.

In civilian life, he discovered his second love: writing about military matters. His first major work, *Traité des Grandes Opérations Militaires* or *A Work on Grand Military Operations*, reached the attention of

Michel Ney (1769–1815), one of Napoleon's most respected generals. Ney returned Jomini to military service in 1805 and attached him to his staff, which was conducting the campaign at Austerlitz.[2] Because he was not promoted to the rank of general by Napoleon, Jomini resigned from the French army in 1813 and switched to the Russian army.[3] There, he became the personal instructor of Nikolai I, the future Czar of Russia (1796–1855), from 1825–55, and of a number of senior military officers. He also took part in Russia's wars against the Ottoman Empire and Persia.[4] Jomini would eventually return to serve in the French army until his retirement in 1815.

Jomini then continued to consult and write on military affairs. His book *Précis de l'art de la guerre* or *The Art of War*,[5] which we will discuss below, was first published in 1830.[6] This book made his global reputation as a military theorist and practitioner.[7]

Jomini's Theoretical Concepts

Theory of war: a matter of laws and of art. Jomini is often seen as having developed a highly schematic theory of war based on five primary components: strategy, grand tactics (what we call the operational level), logistics,[8] the tactics of the various arms, and the art of engineering. He himself defined "strategy" as the art of war on the map and proper management of masses in the theater of war; strategy tells us where to act, while tactics tells us how to act, including how to use our forces:

> The art of war, independently of its political and moral relations, consists of five principal parts, viz.; Strategy, Grand Tactics, Logistics, Tactics of the different arms, and the Art of the Engineer. We will treat of the first three branches, and begin by defining them. In order to do this, we will follow the order of procedure of a general when war is first declared, who commences with the points of the highest importance, as a plan of campaign, and afterward descends to the necessary details. Tactics, on the contrary, begins with details, and ascends to combinations and generalization necessary for the formation and handling of a great army.
>
> We will suppose an army taking the field: the first care of its commander should be to agree with the head of the state upon the character of the war: then he must carefully study the theater

of war, and select the most suitable base of operations, taking into consideration the frontiers of the state and those of its allies.

The selection of this base and the proposed aim will determine the zone of operations. The general will take a first objective point: he will select the line of operations leading to this point, either as a temporary or permanent line, giving it the most advantageous direction; namely, that which promises the greatest number of favorable opportunities with the least danger.[9]

Jomini sought to point to six core principles, beyond the five components of the theory of war, that embody the universal theoretical laws that explain the phenomenon of war. In his view, this regularity allows those who engage in war to win at any time and place:

From the different articles which compose it, we may conclude that the manner of applying the general principle of war to all possible theaters of operations is found in what follows:

1. In knowing how to make the best use of the advantages which the reciprocal directions of the two bases of operations may afford, in accordance with Article XVIII.

2. In choosing, from the three zones ordinarily found in the strategic field, that one upon which the greatest injury can be done to the enemy with the least risk to one's self.

3. In establishing well, and giving a good direction to, the lines of operations; adopting for defense the concentric system of the Archduke Charles in 1796 and of Napoleon in 1814; or that of Soult in 1814, for retreats parallel to the frontiers. On the offensive we should follow the system which led to the success of Napoleon in 1800, 1805, and 1806, when he directed his line upon the extremity of the strategic front; or we might adopt his plan which was successful in 1796, 1809, and 1814, of directing the line of operations upon the center of the strategic front: all of which is to be determined by the respective positions of the armies, and according to the maxims presented in Article XXI.

4. In selecting judicious eventual lines of maneuver, by giving them such directions as always to be able to act with the greater mass of the forces, and to prevent the parts of the enemy from concentrating or from affording each other mutual support.

5. In combining, in the same spirit of centralization, all strategic positions, and all large detachments made to cover the most important strategic points of the theater of war.

6. In imparting to the troops the greatest possible mobility and activity, so as, by their successive employment upon points where it may be important to act, to bring superior force to bear upon fractions of the hostile army.[10]

However, although he noted many rules in his book, Jomini ultimately admitted that "every maxim has its exceptions."[11] This skepticism, which accompanies most of the schematic laws he outlines, points to his complex views regarding the regularities he identified within the phenomenon of war. The term "art," which he used in the title of his book, is for him an act of inquiry and adaptation needing to be expressed within the fixed components, these being the laws themselves. Thus, the first thing required in the art of war is to figure out what war should be chosen to achieve the needed political ends: "We will suppose an army taking the field: the first care of its commander should be to agree with the head of the state upon the character of the war."[12]

Jomini considered this theory to have educational value despite the horrors of the phenomenon of war. Those who deal in war are required to win, and he sought to present them with a positive theory that offers them this possibility. It is a theory relying on solid, unshakable foundations, which allow for the creation of the desired postwar future:

> Correct theories, founded upon right principles, sustained by actual events of wars, and added to accurate military history, will form a true school of instruction for generals. If these means do not produce great men, they will at least produce generals of sufficient skill to take rank next after the natural masters of the art of war. . . . I cannot too often repeat that the theory of the great combinations of war is in itself very simple, and requires nothing more than ordinary intelligence and careful consideration.[13]

Mediating between art and science is therefore very much on the general's mind; he pours art into the scientific portion of the theory of war, a combination that finds expression in the intuition of the military genius. In the end, he is the one who determines whether the principles offered by Jomini were properly applied or not:

These truths need not lead to the conclusion that there can be no sound rules in war, the observance of which, the chances being equal, will lead to success. It is true that theories cannot teach men with mathematical precision what they should do in every possible case; but it is also certain that they will always point out the errors which should be avoided; and this is a highly-important consideration, for these rules thus become, in the hands of skillful generals commanding brave troops, means of almost certain success.[14]

This is why Jomini noted toward the end of his book that "war in its ensemble is not a science, but an art."[15] And if that wasn't clear enough, he noted: "I will say no more; for I could only repeat what has already been said. To relieve myself in advance of the blame which will be ascribed to me for attaching too much importance to the application of the few maxims laid down in my writings, I will repeat what I was the first to announce: — *that war is not an exact science, but a drama full of passion*" (emphasis in original).[16]

Levels of war as a mediating mechanism. Jomini distinguished between strategy, grand tactics (what we call the operational level), and secondary tactics (what we just call tactics). Grand tactics refers to the art of the "successful combinations" before and during the main battle. The guiding principle of tactical combinations, as well as of strategy, involves bringing the main military force against part of the enemy's force and to the point whose occupation assures the most significant results:

> Battles are the actual conflicts of armies contending about great questions of national policy and of strategy. Strategy directs armies to the decisive points of a zone of operations, and influences, in advance, the results of battles; but tactics, aided by courage, by genius and fortune, gains victories.
>
> Grand tactics is the art of making good combinations preliminary to battles, as well as during their progress. The guiding principle in tactical combinations, as in those of strategy, is to bring the mass of the force in hand against a part of the opposing army, and upon that point the possession of which promises the most important results.[17]

Jomini's military experiences enabled him to identify this intermediate level of "grand tactics"[18] between strategy and tactics in terms of

both scholarship and application. In establishing the term "grand tactics," he sought to present the need for a mediating level between strategy and tactics. According to him, grand tactics deals with the choice of positions for conducting battle—in positioning battle or "primary" maneuvers before an attack, in the clash between two marching armies, in unplanned battles, and in the organization of leading forces into battle.

The primary physical components of grand strategy are a safe or secured base of operations, identifying the primary target, the strategic fronts that need to be organized against or created, defensive lines, the area of operations in which battles will take place, operational lines and lines of retreat to and from the same, supporting lines of movement, and natural and man-made obstacles.[19]

For all the importance of grand tactics, Jomini argued that strategy is the key to warfare and that it is driven by fixed, scientific principles. An excessive focus on grand tactics is insufficient for winning in war. The leading strategic principle that should guide the commander is taking the initiative away from the enemy. The central example of this is creating a situation where the enemy is forced into making moves in accordance with the wishes of the other side. Taking the initiative from the enemy can only be done through offensive action, by concentrating massive forces against weaker or partial enemy forces, at some decisive point. Jomini claimed that if the initiative was taken properly, it would lead to the destruction of the enemy in battle and to a pursuit leading to his defeat: the complete destruction, capture, or dispersal of his soldiers.[20]

Jomini stated that capitals are included in what he called "strategic points" since these cities are not just centers of transportation and communication but also serve as the seat of government and other civilian authorities. According to him, strategically, the goal of the campaign determines the strategic, land-based goals. If the aim is offensive, then the goal is to conquer the capital of the enemy or a district whose loss would force the enemy to sue for peace. In invading a country, the capital is usually the target. In strategic terms, the conquest of a capital or the defense thereof is usually the main political, economic, or psychological goal. Despite this single-value definition, Jomini argued that his psychological interpretation was a derivative of the meaning the commander attributed to the capital in terms of the strategic goals he needs to meet:

The most important topographical or artificial features which make up the theater of a war will, in succeeding portions of this chapter, be examined as to their strategic value; but here it may be proper to remark that this value will depend much upon the spirit and skill of the general.[21] . . . I think the name of *decisive strategic point* should be given to all those which are capable of exercising a marked influence either upon the result of the campaign or upon a single enterprise.[22] . . . The decisive points of a theater of war are of several kinds. The first are the geographic points and lines whose importance is permanent and a consequence of the configuration of the country.[23] . . . All capitals are strategic points, for the double reason that they are not only centers of communications, but also the seats of power and government.[24] . . . In strategy, the object of the campaign determines the objective point. If this aim be offensive, the point will be the possession of the hostile capital, or that of a province whose loss would compel the enemy to make peace. In a war of invasion the capital is, ordinarily, the objective point (emphasis in original).[25]

Jomini distinguished between what he called "geographical objective points" and "objective points of maneuver." The former depends on the characteristics of the land contours of the battlefield, the relationship between these characteristics and the ultimate strategic goal, and the positions held by both sides for the conflict. Geographical objective points also include those controlling central junctions or primary supply lines. Objective points of maneuver are those located on the enemy's flank and are determined by the relative positions of both armies.[26]

"Decisive points" can be fixed or temporary and fleeting. They can have a unique geographical context or a context relative to the enemy force. "Decisive geographical points" have importance over a longer period since they are fixed in place; they can be both natural and manmade. The military value of these points is frequently dependent on the question of ability: a place that no force protects or commands is more or less worthless.[27]

For him, operational lines are divided into two types. The first were "natural" operational lines such as rivers, mountains, deserts, shorelines, and the like through which, over which, and around which military operations must be conducted. To this we can add "environmental" operational lines, which are man-made, more or less fixed, and include

political borders, fortifications, road networks, and naval bases. Jo-mini's second type of operational lines relate directly to purely strate-gic choices: what is the goal, and what force needs to be confronted? Jomini viewed the natural or environmental strategic choices as ter-ritorial lines of operation, while calling the actual strategic choices "operational lines of maneuver."[28]

Jomini wrote that forces should be concentrated in preparation for a decisive clash with the aim of destroying the enemy. He argued that the art of war involves introducing as large a force as possible at a decisive point of the operational theater and conceived of battles as the effective clash between armies struggling to decide the great ques-tions of policy and national strategy.

Jomini argued that strategy directs armies toward decisive points in the theater of operations and has an advance influence on the results of battles. Meanwhile it is tactics—aided by courage, genius, and luck—that grants victories. Jomini did not accept the claim of other thinkers that battles are the primary, decisive characteristics of war. He argued that armies had been destroyed in strategic operations that did not involve actual battles, owing to a "series of slight errors." Ac-cording to him, "Battles have been stated by some writers to be the chief and deciding features of war. This assertion is not strictly true, as armies have been destroyed by strategic operations without the oc-currence of pitched battles, by a succession of inconsiderable affairs. It is also true that a complete and decided victory may give rise to results of the same character when there may have been no grand strategic combinations."[29]

This unique view led Jomini to place military technology, no matter how developed, within the realm of battlefield tactics. He believed that technology does not change the strategic rules he noted, though it does change the character of the battlefield. Jomini stated,

> The superiority of armament may increase the chances of success in war: it does not, of itself, gain battles, but it is a great element of success. . . . The armament of armies is still susceptible of great improvements; the state which shall take the lead in making them will secure great advantages. . . . The new inventions of the last twenty years seem to threaten a great revolution in army orga-nization, armament, and tactics. Strategy alone will remain unaltered, with its principles the same as under the Scipios and Caesars, Frederick and Napoleon, since they are independent of

the nature of the arms and the organization of the troops. . . . The means of destruction are approaching perfection with frightful rapidity. . . . [They] will multiply the chances of destruction, as though the hecatombs of Eylau, Borodino, Leipsic, and Waterloo were not sufficient to decimate the European races.[30]

In his view, "strategy alone will remain unaltered";[31] enormous changes can and do occur at the other levels of war, but they are not significant enough to change the fixed rules of strategy. In other words, the levels of war are not static and do change in one form or another, but the ability to point to the regularity of this phenomenon and offer a fixed and positive theory is possible only thanks to the laws of strategy.

Jomini's Contribution to the General Theory of War

Jomini pointed to the unique structure of the theory of war. On the one hand, it is a phenomenon with fixed, rigid components, which Jomini identified at the strategic level. On the other hand, it is a phenomenon that is varied and whose boundaries are difficult to fix at the tactical level. If we stop at this point, then despite the changing aspects of the tactical level over the years, we can still point to empirical aspects of the phenomenon and the regular ability to measure it with purely scientific tools.[32] All we need to do, according to Jomini, is to observe a given war at its various levels and point to its aspects and characteristics, whether we are dealing with the means of war of a particular period at a tactical level or the use of the laws of strategy as he formulated them.[33]

But he did not stop here; despite his own rules, he did not hesitate to say that general war is open to interpretation by those committed to understanding the phenomenon of war. He indicated those who lead wars at all levels view war from a deeply subjective assessment of their experiences. Thus, their interpretations derive from the facts on the ground at the battlefield—or in the political field, seeking to determine the goals of war—but they also rely on the fixed laws of war. In other words, one cannot understand the phenomenon of war without understanding the subjective interpretation of those making decisions during the war, even if their decisions were made based on an empirical perspective, as Jomini demonstrated in great detail.[34]

Jomini's theory of war is therefore built on fixed characteristics that have fixed but flexible relationships with the different levels of war

(strategic level—fixed and rigid, tactical level—flexible and fluid). However, this theory of war's content and vitality comes from the interpretation of those who deal in the act of war itself, seeking to lead their side to victory.

Clausewitz: *On War* (1832)

Carl Philipp Gottfried von Clausewitz (1780–1831) was born in Prussia. He enlisted in the army at the age of 12 as a cadet in an infantry regiment and fought in his first war at age 13, against the French army. In 1801, he joined Berlin's military academy. Upon completion of his studies there, he was appointed adjutant for the Prussian Prince August.

In 1812, he deserted from the Prussian army and joined the Russian army, doing so to avoid serving under Napoleon's command when he invaded Russia. Clausewitz served in several command roles in the Russian army. After Napoleon's defeat there, Clausewitz returned to serve in the Prussian army. In 1815, he was promoted to colonel and took part in the battle of Waterloo as General Johan von Thielmann's chief of staff. In 1818, he received the rank of major general and was appointed to run the Prussian Military Academy in Berlin. This role, which was solely administrative, left him time to establish his thought regarding military-political affairs through a study of past wars and based on his own personal operational experience. In 1831, he was appointed to the chief of staff of the army sent to put down riots that had broken out in Poland; he died of cholera during the campaign.

Clausewitz began writing *Vom Kriege* (*On War*) in 1819. Eight years later he had completed the writing of six parts of the book, with two others in draft form. But he did not manage to publish his writings during his life or enjoy the recognition he gained after his death. His book reached the broader public only a year after he passed, when his wife completed the editing of the work and brought it to print in 1832.[35]

Clausewitz's Theoretical Concepts

Clausewitz's book bequeathed three central subjects to the world, which include the core of his innovations in the theory of war: his "trinity," the division into levels of war, and the importance of the act of military decision as a mechanism connecting the levels of war.[36]

The political and social framework: The central shaper of the phenomenon of war. Clausewitz believed, perhaps justifiably in his time, that the deepest changes in war are political and social rather than material. He observed that "very few of the new manifestations in war can be ascribed to new inventions or new departures in ideas. They result mainly from the transformation of society and new social conditions."[37] Moreover, "Clearly the tremendous effects of the French Revolution abroad were caused not so much by new military methods and concepts as by radical changes in policies and administration, by the new character of government, altered conditions of the French people, and the like."[38]

Clausewitz emphasized the need for understanding the character of every war: "The first, the supreme, the most far-reaching act of judgment that the statesman and commander have to make is to establish by that test [of viewing war as a policy move] the kind of war on which they are embarking; neither mistaking it for, nor trying to turn it into, something that is alien to its nature. This is the first of all strategic questions and the most comprehensive."[39]

Clausewitz's "trinity." Clausewitz simplified the phenomenon of war to three main trends: "As a total phenomenon its dominant tendencies always make war a paradoxical trinity—composed of primordial violence, hatred, and enmity, which are to be regarded as a blind natural force; of the play of chance and probability within which the creative spirit is free to roam; and of its element of subordination [of war to policy], as an instrument of policy, which makes it subject to reason alone."[40]

Establishing matters this way allowed Clausewitz to better examine the relationship between the trends and identify their characteristics: "The first of these three aspects mainly concerns the people; the second the commander and his army; the third the government. The passions that are to be kindled in war must already be inherent in the people; the scope which the play of courage and talent will enjoy in the realm of probability and chance depends on the particular character of the commander and the army; but the political aims are the business of government alone."[41]

Next, Clausewitz explained, "These three tendencies are like three different codes of law, deep-rooted in their subject and yet variable in their relationship to one another. A theory that ignores any one of them or seeks to fix an arbitrary relationship between them would conflict with reality to such an extent that for this reason alone it would

be totally useless. Our task therefore is to develop a theory that maintains a balance between these three tendencies, like an object suspended between three magnets."[42]

This "trinity" of Clausewitz can be schematically represented by a simple equilateral triangle (fig. 5). In the below figure, the right side of the triangle, populace, represents primordial violence, hatred, and enmity. The left side of the triangle, military, represents the interplay of chance, probability, and creative spirit; and the base of the triangle, government, represents war as an instrument of policy subject to reason alone.
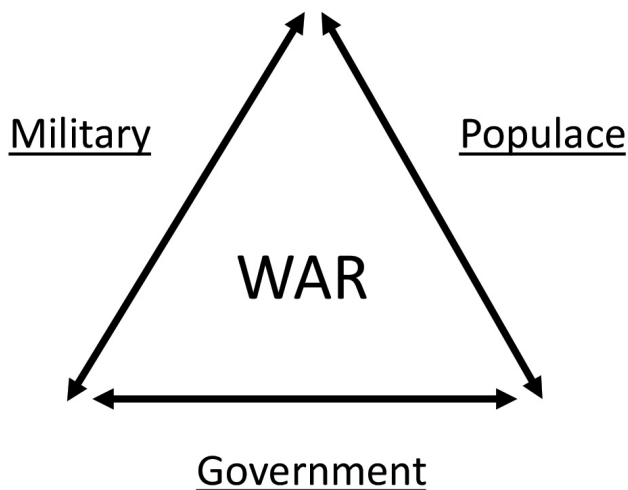
Figure 5. **The three dominant trends in war, according to Clausewitz.** (Reproduced from Handel, *Masters of War,* 78. Handel does an excellent job of presenting Clausewitzian thought in schematic form.)

This representation grants each trend equal weight, even though Clausewitz himself thought this weighting to be incredibly rare when it comes to war since one of the sides will generally be more dominant than the other during war. Still, the three-sided sketch of Clausewitz's position unquestionably gave researchers theoretical and scientific tools to discuss war.

Levels of War: Policy, Strategy, and Tactics

Clausewitz's "trinity" allowed him to make one of his most famous arguments: that war is not an act in and of itself but one with a broader political and social context and, therefore, does not involve the total-

izing use of force so much as enough force to achieve the political aims established by the heads of state and not the heads of the army. We can draw a number of conclusions based on this definition.

The first conclusion is that it is important that the statesman and army commander properly define the war they start, both in political and military terms; frequently adapt their goals in accordance with the course of the war; and most importantly, define the degree of force or violence needed and where to direct it to those ends. As Clausewitz writes, "We see, therefore, that war is not merely an act of policy but a true political instrument, a continuation of political intercourse, carried on with other means. What remains peculiar to war is simply the peculiar nature of its means. . . . The political object is the goal, war is the means of reaching it, and means can never be considered in isolation from their purpose."[43] War, per this analysis, is the degree of violence deployed by the army.

The second conclusion is that the goals of the war connect the tendencies of the public—such as anger and hostility, as expressed by statesmen—with the political goals of the heads of state. In addition, we can conclude from Clausewitz's definition that the military commander does risk and probability management and that war is a tool in the hands of the decision-makers.

The third conclusion is that the army needs to set a goal of developing a theory that connects the three components of political goals, war as a tool for achieving those goals, and the military management of the war.

Later in the book, Clausewitz defines two levels of war—strategy and tactics. He defines *strategy* as "the use of the engagement for the purpose of the war. . . . [Strategists] will draft the plan of the war, and the aim will determine the series of actions intended to achieve it: [they] will, in fact, shape the individual campaigns and, within these, decide on the individual engagements."[44] Clausewitz adds that "since most of these matters have to be based on assumptions that may not prove correct,"[45] one cannot give too detailed orders in advance, and therefore, "the strategist must go on campaign himself. Detailed orders can then be given on the spot."[46]

For Clausewitz, strategy is the art and science of the commander conducting a war. By contrast, tactics is the act of warfare itself: "In tactics the means are the fighting forces trained for combat; the end is victory."[47] There is a connection between tactics and strategy: "Our assumptions about tactics and strategy being what they are, it will be

self-evident that a change in the nature of tactics will automatically react on strategy."[48]

Clausewitz therefore identified not two but three levels that are logically related to one another: the policy level determining the goals of war, the strategic-level planning and directing it based on the policy, and the tactical level of warfare itself, executing and influencing the strategy. However, Clausewitz did not offer sufficient theoretical tools for understanding the connection between the different levels or the mechanisms of influence between them.

Military Decision: The Connecting Mechanism between Levels of War

Clausewitz therefore left us without an organized methodology connecting policy and strategy/tactics, aside from the statement that it is an act of pure genius on the part of the leader. There is no doubt that he was thinking of the figure of Napoleon as a genius leading the connection between the three levels in the intuitive sense, while constantly being present on the battlefield.

A more critical reading of Clausewitz's writings reveals that even if not said explicitly, he effectively proposes the act of war itself as the connecting tissue between the levels, meaning the defeat of the enemy army on the battlefield and no more. Among the many examples of this view in his book are the following: "The battle must always be considered as the true center of gravity of the war,"[49] "there is then no factor in war that rivals the battle in importance,"[50] "the major battle is therefore to be regarded as concentrated war, as the center of gravity of the entire conflict or campaign,"[51] "and we concluded that the grand objective of all military action is to overthrow the enemy—which means destroying his armed forces. It was therefore possible to show . . . that battle is the one and only means that warfare can employ. With that, we hoped, a sound working hypothesis had been established."[52]

The defeat of the enemy army on the battlefield requires all levels to deal concretely with the act of war. It requires asking relevant questions like when and where to defeat the enemy army, how to explain to the people why the country must go to war, or what resources the state will need to win the war. Questions like these are required since the enemy army is a measurable thing that can be assessed based on proper intelligence, and clear modes of action can be established at every level to defeat it.

The development of the interpretation of Clausewitz has led to his being considered the father of the approach of destruction or total war. However, the lack of critical study of his thought has led to stagnation of military thought and rigid understanding, per which the defeat or destruction of the enemy army is a thing in and of itself, regardless of context—something Clausewitz himself strongly opposed. As noted, Clausewitz did not leave us with a methodology allowing a connection between the different levels of war, so the concept of "decision" on the battlefield gained precedence over others, to the point of even tilting Clausewitz's entire "trinity." Military decision thus appears to be the be all and end all of the act of war in Clausewitzian thought.[53]

On the Need for Theory

Clausewitz pointed to the necessity of theory: "In short a working theory is an essential basis for criticism";[54] "our aim is not to provide new principles and methods of conducting war; rather, we are concerned with examining the essential content of what has long existed, and to trace it back to its basic elements."[55] Clausewitz's theory of war, although it seems simple, contains enormous complexity. This is because Clausewitz believed that his theory contains the inherent tensions embedded within the phenomenon itself. And since his experience taught him that one cannot necessarily point to some fixed process that assures victory in war, he integrated the artistic aspect into his theory.

The art of war is therefore not outside the theory of war but rather an inherent part of it. Thus, Clausewitz's theory, although it points to clear regularity within the phenomenon, does not assure victory or guaranteed applications aside from a kind of set of general insights. These insights can point to actions leading the phenomenon in a positive direction (victory) and actions leading to the phenomenon in a negative direction (loss). In other words, war is both art and science. And theory, whose uniqueness derives from repeated regularity, must contain this internal tension between the two. Even when Clausewitz pointed to "laws" or "principles" of war as part of the theory, he took care to clarify that their validity is only relative and never absolute.

Clausewitz devoted the entire second part of his book to analyzing the theory of war. He even addressed it: "Efforts were therefore made to equip the conduct of war with principles, rules, or even systems. This did present a positive goal, but people failed to take adequate

account of the endless complexities involved." According to him, "the conduct of war branches out in almost all directions and has no definite limits; while any system, any model, has the finite nature of a synthesis. An irreconcilable conflict exists between this type of theory and actual practice."[56] He added, "It is only analytically that that these attempts at theory can be called advances in the realm of truth; synthetically, in the rules and regulations they offer, they are absolutely useless. They aim at fixed values; but in war everything is uncertain, and calculations have to be made with variable quantities. They direct the inquiry exclusively toward physical quantities, whereas all military action is intertwined with psychological forces and effects. They consider only unilateral action, whereas war consists of a continuous interaction of opposites."[57] Clausewitz also wrote in this context that "the very nature of interaction is bound to make it unpredictable";[58] and that "the theory of war [cannot] apply the concept of law to action, since no prescriptive formulation universal enough to deserve the name of law can be applied to the constant change and diversity of the phenomena of war."[59] Thus, the theory Clausewitz proposes is fundamentally modest. Not only is it primarily based on describing the inherent tensions between the fixed components of war (state, nation, army), it does not even claim to point definitively to some fixed successful "result," leaving wide room for the human element as such.

Theory, Chance, and Uncertainty

Clausewitz did not like the idea of "engineering war," even though the weapons used in war enabled this and indeed were attractive to those who did not deal in war; they allow creating different metrics, whether dealing in the balance of power, economic needs, or cost-benefit calculations. But in Clausewitz's view, the chaos accompanying the phenomenon of war does not allow for achieving the mathematical quantification and precision possible in other sciences: "In short, absolute, so-called mathematical, factors never find a firm basis in military calculations. From the very start there is an interplay of possibilities, probabilities, good luck and bad that weaves its way throughout the length and breadth of the tapestry. In the whole range of human activities, war most closely resembles a game of cards."[60]

Clausewitz pointed to the most difficult variable to predict: the willingness to fight. According to him, the willingness to fight is a human and nonmaterial component, and its level cannot be measured

in any way except within the battle itself. As such, it overshadows the other empirical components of the battlefield: "If you want to overcome your enemy you must match your effort against his power of resistance, which can be expressed as the product of two inseparable factors, viz. *the total means at his disposal* and *the strength of his will*. The extent of the means at his disposal is a matter—though not exclusively—of figures and should be measurable. But the strength of his will is much less easy to determine and can only be gauged approximately by the strength of the motive animating it" (emphasis in original).[61] Moreover, "Let us admit that boldness in war even has its own prerogatives. . . . It is a genuinely creative force."[62]

Daring and risk taking therefore contradict any rational analysis and defy all rules, meaning they are unpredictable and hard to properly respond to. Therefore, a particular modus operandi, which both sides are aware of but which is rejected by only one side, may paradoxically have greater odds of success.

On Individual Genius in War and Its Importance

The unique character of the phenomenon of war led Clausewitz to highlight the human factor, particularly the role of the battlefield commander. He viewed the commander as the only one who can properly balance the tensions of war and all that occurs within it and can bring victory on the battlefield, swaying the phenomenon in a positive direction (victory). Further, "anything that could not be reached by the meager wisdom of such one-sided points of view was held to be beyond scientific control: it lay in the realm of genius, *which rises above all rules*" (emphasis in original).[63]

Moreover, "given the nature of the subject, we must remind ourselves that it is simply not possible to construct a model for the art of war that can serve as a scaffolding on which the commander can rely for support at any time. Whenever he has to fall back on his innate talent, he will find himself outside the model and in conflict with it; no matter how versatile the code, the situation will always lead to the consequences we have already alluded to: *talent and genius operate outside the rules, and theory conflicts with practice*" (emphasis in original).[64] And as Clausewitz clarifies in another place, "for in the art of war experience counts more than any amount of abstract truths."[65]

Human Character: The Central Leader of the Phenomenon of War

Clausewitz stressed that war, in all its aspects, reflects the human character and is therefore influenced by irrational motives. At its highest levels, it is a creative and practical action based on inborn talent and inspiration in which the opposing sides act and react to real or imagined moves in unpredicted ways. Moreover, even if the conduct of the war itself is rational (e.g., adapting goals to capabilities and clearly defining those goals), the ultimate political goals may be irrational.

Unlike other military theoreticians of his time, Clausewitz considered war to be an "organic" activity, not something "inorganic" or "mechanical." Since this attribute was his fundamental assumption, he necessarily concluded that war can never be studied beneficially as an exact science. He clarified this conclusion nicely in a thorough discussion in part two in the book, chapter three, "Art or Science of War." Clausewitz noted there that the aim of science is knowledge, while the aim of art is creative talent, and that "it is therefore consistent to keep this basis of distinction and call everything 'art' whose object is creative ability, as, for instance, architecture. The term 'science' should be kept for disciplines such as mathematics or astronomy, whose object is pure knowledge."[66] In furtherance of this argument, he wrote: "To repeat, creation and production lie in the realm of art; science will dominate where the object is inquiry and knowledge. It follows that the term 'art of war' is more suitable than 'science of war.' "[67]

But even exact science cannot progress without the aid of certain creative, artistic components and vice versa; the "practical" occupation with art (e.g., the art of war) can also include or be based on scientific theories. Every profession integrates elements of art and science in a combined and inseparable manner. Therefore, that the practical occupation with war is more art than science does not mean that war cannot be studied systematically or that scientific methods cannot be applied to certain nonscientific fields, such as psychology, economics, or political science.

Clausewitz's Contribution to the General Theory of War

Clausewitz's primary focus was on the phenomenon of war itself, and his notable innovation lies in the examination of the intricate relationships among the entities that give rise to this phenomenon, such as the army, nation, and state. Additionally, he introduced the

concept of levels of war, encompassing tactics, strategy, and even policy as a distinct level. Clausewitz emphasized the idea that achieving victory over the enemy's army on the battlefield necessitates concrete engagement at all levels of war. Amid these considerations, it becomes crucial to understand the role of the human spirit within the context of war. This aspect adds another layer of complexity to the overall understanding of the phenomenon of war.

The axis of revolutions and the axis of domains of warfare were not primary for Clausewitz. He considered them entirely secondary given the enormity of events on the battlefield. If they even had an effect, it was limited solely to the battlefield itself. In his view, when war takes place on the battlefield, it encompasses all of a person's occupations as well as those of a given society.[68]

It is the scientific delving into the heart of the phenomenon, even if Clausewitz did not consider war a science, that makes Clausewitz unique and cements his theory. In this sense, he is the first to grant this phenomenon a distinctive place among the other human phenomena. He did not see war as an art or a science but part of man's social experience. This perspective places war somewhere between art and science, but much closer to the former.

Clausewitz believed that there is a chaotic aspect within the phenomenon of war itself that cannot be controlled in any way and is a derivative of the characteristics of human beings themselves. Therefore, the scientific nature of the phenomenon is fundamentally limited. He described this chaotic dimension at length as "friction," a concept whose role is to scientifically explain the inability to predict results in advance. Therefore, friction is a concept that requires an artistic approach to the phenomenon, even though it is analyzed rationally and scientifically.

Friction as a component shifting war from the world of science to the world of art can be seen in three ways: (1) living, rather than inanimate, forces participate in war; (2) war involves a clash—actions and reactions—between opponents; and (3) there is a clash between asymmetric interests in war. For instance, the offensive, which is weaker by nature, strives to secure assets the attacker did not have before. Meanwhile, the defense, which is stronger by nature, seeks to deny the attacker any gains and to maintain those assets it already has.

Although Clausewitz explained the different principles deriving from those who seek to discuss or deal in a phenomenon as complex as war—whether they be military or political leaders—he did not

commit to the idea that those who follow this set of principles would necessarily achieve a positive result (victory), even if they tried to implement the laws laid down in *On War*. This is because the theory he proposed also had a limitation: the inability to predict the desired result, meaning victory in war or, in more scientific terms, to bring the phenomenon to a positive result. Clausewitz therefore leaves us with a sense that we have a scientific theory, but one whose essence quickly reveals itself to deny us the ability to make any predictions. This, of course, means the theory is very frustrating but one Clausewitz manages to base on strong scientific foundations.[69]

Clausewitz's work influenced generations of army commanders, and according to the testimony of these commanders, like Moltke the Elder,[70] they followed his guidance in the wars in Europe during the nineteenth century and even during WWI.

Mahan: *The Influence of Sea Power Upon History, 1660–1783* (1890)

Alfred Thayer Mahan (1840–1914) was an officer in the American Navy. In 1859, he was commissioned, serving on ships that blockaded the Confederacy during the Civil War. However, he did not experience combat during this service. After the war, he conducted a series of routine tasks until 1886, when he was transferred to the United States Naval Academy,[71] where he was asked to teach naval strategy and history.[72] Four years after presenting at the academy, he published his book *The Influence of Sea Power Upon History, 1660–1783*, which enjoyed immediate success and aroused great interest around the world. Mahan was even invited to meet senior figures in Imperial Japan and Great Britain. Later, Mahan published a few more books and articles that also dealt with sea power.

Mahan believed that historians largely ignored the role played by sea power in history. In his book, he describes the sea clashes between the fleets of France, Spain, Holland, and Britain in the seventeenth and eighteenth centuries until the American Revolution. In doing so, he sought to demonstrate that sea power played a critical role in warfare.[73]

Mahan's Theoretical Concepts

Mahan defined "six principled conditions" that influenced a nation's sea power:

1. Geographical position.

2. Physical conformation, including, as connected therewith, natural productions and climate.

3. Extent of territory.

4. Number of Population.

5. Character of the people.

6. Character of the government, including therein the national institutions.[74]

The first condition of geographic position has the most significant effect on the development of a nation's sea power. In Mahan's view, all countries with a shoreline are interested in the sea and the relative advantages it can provide them, to say nothing of the fact that coastlines have proven themselves to be routes of military invasion throughout history, just like any land border.

However, in terms of shorelines, the difference between countries derives from the ratio of their land borders to their shorelines; a state that conceives of military threats to it as land based will focus on developing a land army versus a naval fleet. The same is true in the reverse: a state that views threats to it as coming toward its shoreline will build up a significant naval fleet and focus less on its land power. Mahan considered the examples of Britain, France, and Holland to be proof of this idea.

In his view, Britain succeeded in focusing its efforts and resources on expanding naval power due to the simple fact that it is an island state surrounded by the sea. By contrast, France and Holland worked to maintain a balance between their fleet and army because of their geographical position.[75]

The status of a state vis-à-vis other states and in relation to its geographical characteristics therefore plays the primary role in the development of its naval power. Britain has a significant natural advantage, as it is on the northern side of the English Channel, while its eastern side looks toward the North Sea. From this position, Britain can influence all naval movement coming from the Baltic Sea, Holland, Belgium, Germany, and the Scandinavian countries. But a state can also accumulate enormous influence in the sea through not just its status but also its colonies and their location. Once again, Britain serves as a prime example, with British colonies Gibraltar and Malta serving as a base of operations for Britain in the Mediterranean.[76]

According to Mahan, understanding the importance of these six characteristics and the ability to operate against them—either individually or in combination—allows for the destruction of the maritime trade of a rival state. The capacity of a state to radiate naval power, based on its geographical position and its colonies, therefore enables it to destroy another's maritime trade. In this respect, Mahan believed that the ability to intercept, trap, or destroy the merchant marine or fleet of the enemy is a function that depends on the state's geographical position. For Mahan, the destruction of maritime trade means the beginning of the strategic defeat of the rival state.[77]

The second condition influencing the sea power of a state, according to Mahan, is its physical conformation. Thus, a state with a wide shoreline but with only a few places capable of sheltering big ships is in a position of inferiority. Britain enjoys a wealth of deepwater locations, allowing the development of ports for loading and unloading cargo and the establishment of shipyards for large vessels. It has excellent ports along its southern shore, including Plymouth and Portsmouth. In addition to these, it has a number of points of departure giving it access to the sea along the western border, the Irish Sea, and the North Sea. If we take access to the sea in Scotland into account, then Britain has a clear advantage: a shoreline contributing to the development of its sea power. Its ports give it an advantage over France, which has five ports, at best, alongside the Atlantic shore.[78]

Another factor influencing the physical conformation of a state is the multiplicity of or absence of river estuaries reaching the sea. Rivers provide natural routes allowing for the transportation of goods from a country's interior to its ports. An abundance of rivers grants a state more opportunity for economic growth and maritime trade. During war, rivers can offer naval forces safe lines of retreat. Mahan uses the example of Germany, which proves how rivers can serve as trade routes reaching the state's ports from areas far from the shore.[79]

Extent of territory is the third condition Mahan notes as a factor influencing a state's sea power. He argues that the length of a shoreline a state must defend can be an advantage or a disadvantage, depending on the character of the people in that state. Mahan gave the example of the Confederacy during the American Civil War to show that a long shoreline with many rivers providing entrance to the interior became a danger threatening the Southern states. This factor was due to a relative paucity in population and a culture that did not inherently consider the use of the sea.[80]

The size of population is the fourth condition Mahan indicates as a factor determining a state's ability to develop sea power. The greater the size of the portion of the population capable of serving at sea, the greater its ability to create increased sea power. Ostensibly, the higher the number of people making a living off the sea in peacetime, the larger the number of people who will fight on the sea in times of crisis; in practice, however, this is not necessarily the case. Mahan demonstrated this contradiction with the story of Sir Edward Pellew, an officer in the British navy, who was forced to deal with a shortage of seamen when war broke out with France at the end of the eighteenth century. In 1793, he ordered his officers to search for miners from the district of Cornwall since he considered the dangerous nature of their work to mean they would be well suited to dealing with naval combat. Thanks to his irregular recruitment efforts, he succeeded in defeating an enemy frigate, a midsize warship, on its first voyage.[81] Mahan even noted that it was not only the number of people available in peacetime that matters but also the existence of a reserve that can set out when hostilities start. Therefore, the overall size of the population capable of serving at sea is a prerequisite for a state seeking to develop its sea power.

The size of the state's population influencing its sea power is not the only factor: another is that population's character. The desire to study countries and unknown destinations, to travel and trade with distant nations, is a characteristic of a population showing interest in sea-related matters and that can therefore provide the human foundation for both naval fleets and merchant marines when need be. Mahan offered another aspect of this character by contrasting Spain and Portugal on the one side and Britain and Holland on the other. According to Mahan, Spain and Portugal were rich thanks to the raw materials their merchant marine brought to the mother country from their colonies in the new world. The gold and silver mined in Central and South America created a great deal of wealth for the nations of Spain and Portugal. However, they did not use this wealth to develop the local economy, instead becoming dependent on their imports. Britain and Holland, by contrast, used their merchant marines to trade with other countries and export what they themselves produced. They thus succeeded in developing and cultivating their local industry, which would over time eclipse the imported wealth of Spain and Portugal. Thus, the character of those nations contributed to the development of their sea power and influenced it, just like the other conditions.[82]

Finally, Mahan took note of the character of the government, the last of the six conditions influencing a state's ability to develop naval power. In his view, a government with a vision and determination to develop sea power, containing a people with the appropriate character, creates the potential for the formation of such a naval force. Moreover, Mahan believed that a state with a vision of ship building, meaning the willingness to take risks and strive for innovation and look toward the future, is a state that can direct talented citizens to find their future in the sea.[83]

Mahan believed that a nation's reserves of strength depended on its merchant marine and its fighting fleet. He believed that decisive naval attacks in war would ensure a nation's advantage over naval enemies, and he criticized those who dismissed them or ignored past successes:

> Nevertheless, a vague feeling of contempt for the past, supposed to be obsolete, combines with natural indolence to blind men even to those permanent strategic lessons which lie close to the surface of naval history. For instance, how many look upon the battle of Trafalgar, the crown of Nelson's glory and the seal of his genius, as other than an isolated event of exceptional grandeur? How many ask themselves the strategic question, "How did the ships come to be just there?" How many realize it to be the final act in a great strategic drama, extending over a year or more, in which two of the greatest leaders that ever lived, Napoleon and Nelson, were pitted against each other? At Trafalgar it was not Villeneuve that failed, but Napoleon that was vanquished; not Nelson that won, but England that was saved; and why? Because Napoleon's combinations failed, and Nelson's intuitions and activity kept the English fleet ever on the track of the enemy, and brought it up in time at the decisive moment. The tactics at Trafalgar, while open to criticism in detail, were in their main features conformable to the principles of war, and their audacity was justified as well by the urgency of the case as by the results; but the great lessons of efficiency in preparation, of activity and energy in execution, and of thought and insight on the part of the English leader during the previous months, are strategic lessons, and as such they still remain good.[84]

In making this argument, Mahan displayed his belief in the strategic importance of tracking the enemy fleet, expediting the decisive battle, and the relationship between the two. The prominent example

for him was the decisive battle at Trafalgar for Britain's very naval dominance. He also wrote that:

> it is then particularly in the field of naval strategy that the teachings of the past have a value which is in no degree lessened. They are there useful not only as illustrative of principles, but also as precedents, owing to the comparative permanence of the conditions. This is less obviously true as to tactics, when the fleets come into collision at the point to which strategic considerations have brought them. The unresting progress of mankind causes continual change in the weapons; and with that must come a continual change in the manner of fighting, — in the handling and disposition of troops or ships on the battlefield.[85]

Mahan explained how the British maintained a strong army and why the Germans sought to copy them:

> The fact of England's unique and wonderful success as a great colonizing nation is too evident to be dwelt upon; and the reason for it appears to lie chiefly in two traits of the national character. The English colonist naturally and readily settles down in his new country, identifies his interest with it, and though keeping an affectionate remembrance of the home from which he came, has no restless eagerness to return. In the second place, the Englishman at once and instinctively seeks to develop the resources of the new country in the broadest sense. In the former particular he differs from the French, who were ever longingly looking back to the delights of their pleasant land; in the latter, from the Spaniards, whose range of interest and ambition was too narrow for the full evolution of the possibilities of a new country.[86]

Mahan was referring here to what he believed characterized the English: their ability to naturally and skillfully settle distant territories, certainly compared to other nations that were less successful. At the end of the book, he moved from the issue of the national character to the issue of trade, perhaps to appeal in this way to the American people: "For two hundred years England has been the great commercial nation of the world. More than any other her wealth has been intrusted to the sea in war as in peace; yet of all nations she has ever been most reluctant to concede the immunities of commerce and the rights of neutrals. Regarded not as a matter of right, but of policy, his-

tory has justified the refusal; and if she maintain her navy in full strength, the future will doubtless repeat the lesson of the past."[87]

Mahan therefore argued that sea power and sea control are necessary for maintaining the status of empire, prosperity, and national strength: "It is the possession of that overbearing power on the sea which drives the enemy's flag from it, or allows it to appear only as a fugitive; and which, by controlling the great common, closes the highways by which commerce moves to and from the enemy's shores. This overbearing power can only be exercised by great navies, and by them (on the broad sea) less efficiently now than in the days when the neutral flag had not its present immunity."[88]

The importance of control of the sea, according to Mahan's thought, lies in his understanding of the relationship between economics and power, which ultimately became sea power. He considered the two to be directly correlated, defining it in absolute terms, as can be seen from the following definition:

> The profound influence of sea commerce upon the wealth and strength of countries was clearly seen long before the true principles which governed its growth and prosperity were detected. To secure to one's own people a disproportionate share of such benefits, every effort was made to exclude others, either by the peaceful legislative methods of monopoly or prohibitory regulations, or, when these failed, by direct violence. The clash of interests, the angry feelings roused by conflicting attempts thus to appropriate the larger share, if not the whole, of the advantages of commerce, and of distant unsettled commercial regions, led to wars.[89]

Mahan's Contribution to the General Theory of War

Mahan's contribution to the general theory of war lies in his conceptualization of the axis of domains, especially the sea domain. The "deciphering" of the sea and the theoretical establishment of military actions at sea at the operational and strategic levels are what he thought led to victory in war.[90] Mahan studied past cases in depth with the hope of extracting the fixed components and even laws leading to that victory. He therefore offered an approach he considered preferable for victory in war: focusing on the sea domain for the sake of achieving victory. According to his approach, victory at sea was not some tacti-

cal victory without broader resonance; it was a strategic victory, which would ultimately also lead to victory on land.[91]

Mahan's theory relied on the solid empirical foundation of an analysis of 123 years of war (1660–1783) conducted between the fleets of France, Spain, Holland, and Britain.[92] The empirical study of the wars themselves and the detailed and in-depth analysis of the wars in the sea domain allowed Mahan to extract the aforementioned six conditions representing a fixed historical pattern within the phenomenon of war, a model leading to "sea control." Thus, sea control is not a tactical concept in Mahan's theory, as one might mistakenly conclude from his study of tactical battles over the course of those 123 years. Sea control is a clearly strategic concept and must be front and center for statesmen and strategists.[93]

Thus, sea control as defined by Mahan was in his view destined to win land wars as well. Mahan's desire to reach a decisive war against an enemy fleet derived from his strategic understanding that without a fleet sailing the sea, nations will ultimately also lose the land battles or at least remain trapped within the land domain without being able to achieve strategic influence needed to realize their national aims—as history has proven.

In Mahan's view, the industrial revolutions and the tools and means of war created in their wake, such as the shift from sailing ships to steamships, do not serve a significant role in his theory of war. The types of ships and guns placed on ships or on the straits between the seas are but a distraction from the real issue: the need to achieve control of the sea, a prerequisite for victory in war as a whole.

Bloch: *The Future of War* (1898)

Jan Gotlib Bloch (1836–1902) was a Polish banker who specialized in funding the laying of railway lines in a time when Poland was part of the Russian Empire, which is why he sometimes used his Russian name, Ivan, or his Polish name, Jan.

After retiring from the world of business, he began to study modern war. He was greatly influenced by the character of the Franco-Prussian War (1870–71). In his view, this war pointed to the fundamental changes arising on the battlefield, especially in terms of the number of casualties and the great speed with which the Prussian army moved to achieve its goals.[94] Bloch invested eight years in research, leading to the pub-

lication of six volumes chock-full of pictures, figures and tables, economic data, and technical surveys. He introduced an entirely new way of thinking to the study of war, combining the analytical skills of the engineer, economist, and sociologist. His book is effectively one of the first works in the modern field of performance review.

The book *The Future of War in Its Technical, Economic and Political Relations; Is War Now Impossible?* was published in a number of languages, received wide distribution, and was extensively discussed before WWI.[95] The main reason for this discussion was Bloch's unequivocal conclusion that war between the great powers had become too expensive and therefore arouses second thoughts regarding the worthwhileness of such a war and, further, that war in the future will lead to the bankrupting of the states involved rather than any positive desired result. Bloch went so far as to argue that war can no longer be decided militarily and that going to war effectively means economic and social suicide.

Bloch's Theoretical Concepts

The increase in firepower, which began in the 1860s, led to all European armies and the US Army being equipped with breech-loading rifles. This period also witnessed the increasing use of smokeless gunpowder (for both rifles and artillery), leading to improved visibility on the battlefield. The invention of recoilless weapons led to the production of rapid-fire artillery. From the 1880s, the machine gun also entered the battlefield. All these led to the doubling and even tripling of rates, ranges, and precision of fire, which were already on the rise in the 1870–71 war, which Bloch studied in depth.

The consequences of these developments were clear to Bloch. He argued that in future wars, the entire front will stagnate, leaving behind a "desert of fire" between the rival sides: "At first there will be increased slaughter—increased slaughter on so terrible a scale as to render it impossible to get troops to push the battle to a decisive issue. They will try to, thinking that they are fighting under the old conditions, and they will learn such a lesson that they will abandon the attempt forever. Then, instead of a war fought out to the bitter end in a series of decisive battles, we shall have as a substitute a long period of continually increasing strain upon the resources of the combatants."[96] He later stated, "Certainly, everybody will be entrenched in the next war. It will be a great war of entrenchments. The spade will be as indispensable to a

soldier as his rifle . . . . Battles will last for days, and at the end it is very doubtful whether any decisive victory can be gained."[97]

According to Bloch, after stagnation emerges and the war becomes an attritional struggle, the economic factor will come into play. As we know, modern industrialized economies are absolutely mutually dependent owing to the sophisticated global division of labor and developed trade network. War's harm to all of these would be destructive. In such circumstances, war may perhaps be possible, but it is as good as suicide. A general European war would mean, according to Bloch, "a frightful series of catastrophes which would probably result in the overturn of all civilised and ordered government. . . . What is not possible is any war that will not entail, even upon the victorious Power, the destruction of its resources and the break-up of society."[98]

Analyzing the Battlefield: The Coordinate System

Bloch started his work with a detailed study of the war itself, meaning the actual clashes between armies. In this sense, he left little room to the imagination when it came to the military capabilities, actual and potential, that the soldiers and commanders had when making decisions on how to use them. To point to the quality and scope of the change, Bloch chose examples from the past: "The following well-known saying of Napoleon is no longer applicable, 'When the battle is over the vanquished in reality are little weaker than the victors, but the moral result constitutes such a great difference that the appearance of two or three squadrons is enough to cause great results.' "[99]

The ability to attack Napoleon's statement and argue that it no longer holds was based on a qualitative and quantitative analysis in many fields: regarding military technology, Bloch identified artillery and sniping as central components leading to a significant change in the character of war and battle in Europe, present and future. On the relationship between the artillery and the infantry he states:

> It is an accepted axiom that without the aid of artillery it is impossible to drive infantry, even infantry considerably weaker in numbers, out of a fortified position; and as all infantry when acting on the defensive will be entrenched, then armies in future will find themselves mainly dependent upon artillery.
>
> The increase in the artillery of all armies, the improvement of ammunition, the adoption of smokeless powder and of new explosives, the improvement in tactics, all these must lead to such

great losses in the artillery service that their action will be para-lysed, or the losses in the armies will become so tremendous that war itself will be impossible."[100]

Bloch continued, "In this connection the accuracy of modern fire must again be insisted upon. Cannon at a distance of 2011 yards has placed shot in the same hole four times in succession."[101] Moreover, "in comparison with 1870 the strength of the French artillery has been multiplied 116 times, and of the German 42 times."[102]

Addressing the field of sniping, Bloch pointed to the lethality of snipers on the battlefield and their ability to cause massive casualties on the other side, at distances considered ineffective until then: "Ma-neuvers in which smokeless powder has been used confirm the opin-ion that from a distance of 440 yards it is impossible to discover marksmen hidden behind trees or bushes. But from this distance every shot of a skilful marksman will claim its victim."[103] Summarizing this point, Bloch said, "Nowadays with quick-firing and long-range guns the first few miles of retreat will prove more dangerous than the defence of a position, but the chain of marksmen covering the retreat may greatly delay the course of the attack."[104] He further analyzed the situ-ation in his own day: "The zone of deadly fire is much wider than before, and battles will be more stubborn and prolonged."[105]

These tactical aspects of Bloch's work have enormous significance, which do not begin and end with qualitative analysis of existing or future weapons of war. Their primary importance is systemic-strategic of the sort that influences forms of warfare and the considerations required of commanders in deciding how to conduct war: "The power of opposition of every military unit has increased so greatly that a division may now accept battle with a whole army corps, if only it be persuaded that reinforcements are hastening to the spot."[106]

Bloch arrived at the following conclusion: "From the opinions of many military writers the conclusion is inevitable that with the increase of range and fire, and in view of the difficulties with which assault is surrounded, a decisive victory in the event of numerical equality is possible only on the failure of ammunition on one side."[107] When sum-marizing the power of artillery in his time and the consequences of the same, he wrote: "If, to form some idea how losses in a future war from the action of artillery alone will exceed the corresponding losses in 1870–71, we multiply the figure of these latter losses by the figures which represent the increased force of modern artillery, the result

would be incredible, for it would show that there could not be an army large enough to sustain such losses. But for the purpose of giving an idea as to the power of modern artillery these figures have a theoretical value, resulting as they do from simple arithmetical calculation."[108]

Bloch did not limit his work to the operational level of war; he also discussed the consequences of combat on the battlefield, as he understood it, for civil society and its political leadership: "With the increase of culture and prosperity nervousness has also increased, and in modern, especially in Western European armies, a considerable proportion of men will be found unaccustomed to heavy physical labour and to forced marches."[109] He later wrote,

> Military men cannot admit to be unnecessary that which forms the object of their activity in time of peace. They have been educated on the history of warfare, and practical work develops in them energy and capacity for self-sacrifice. Nevertheless, such authorities are not in a position to paint a complete picture of the disasters of a future war. Those radical changes which have taken place in the military art, in the composition of armies, and in international economy, are so vast that a powerful imagination would be required adequately to depict the consequences of war, both on the field of battle and in the lives of peoples.[110]

To Whom Does War Belong?

In the seventh chapter of his book, Bloch dealt at length with militarism as a political-social phenomenon. He implicitly raised fundamental questions regarding the essence of war within the context of the political, social, and military, how it is conducted, and who it belongs to:

> Those who have considered the facts briefly set out in the foregoing chapters can hardly fail to agree that if European society could form a clear idea, not only of the military character, but also of the social and economic consequences of a future war under present conditions, protests against the present state of things would be expressed more often and more determinedly. . . . In all countries, with the exception of England, the opinion obtains that great armies are the support of government, that only great armies will deliver the existing order from the perils of anarchism, and that military service acts beneficently on the

masses by teaching discipline, obedience and order. . . . But the views of those interested in the present order do not extend so far, and are generally limited by considerations of safety at the present time.

This safety the propertied classes see in large armies. . . . As concerns the views of other orders of society, views which are expressed openly and constitute the so-called public opinion, these are too often founded only on those facts to which accident gives prominence. The public does not investigate and does not test independently, but easily gives itself up to illusions and errors. Such, for instance, is the conception of great armies, not only as guarantors of security, but even as existing for the encouragement of those industries which equip them, and those trades which supply them, with provisions and other necessaries.[111]

Bloch encapsulated his insights on the broader context of war: "To cast light on the nature of a prolonged war from all sides, military knowledge alone is not enough. The study and knowledge of economic laws and conditions which have no direct connection with military specialism is no less essential."[112]

War: A Phenomenon of the Professional Officer Class

Bloch stated that the professional officer class has the strongest interest in war; it is the primary factor seeking to maintain the militaristic system and therefore needs to be taken into consideration. Bloch did qualify this by saying: "But changes which have taken place in political and social conditions, the increased importance of knowledge, industry, capital, and finally, the immense numbers of the military class, considerably reduced its privileges in society."[113] Bloch added, "In our time both military and political affairs have ceased to be high mysteries accessible only to the few. General military service, the spread of education, and wide publicity have made the elements of the polities of states accessible to all. All who have passed through the ranks of an army have recognised that with modern weapons whole corps and squadrons may be destroyed in the first battle, and that in this respect the conquerors will suffer little less than the conquered."[114] He even compared the status of the "military class" in past wars and their status in wars that took place in his time: "The times are passed when officers rushing on in advance led their men in a bold charge against the enemy, or when squadrons seeing an ill-defended battery galloped up to it,

sabred the gunners, and spiked the guns or flung them into ditches. Courage now is required no less than before, but this is the courage of restraint and self-sacrifice and no longer scenic heroism. War has taken a character more mechanical than knightly. Personal initiative is required not less than before, but it is no longer visible to all."[115]

To this Bloch added the change in attitude among the civilian population toward the evolution of war:

> The exact disposition of the masses in relation to armaments is shown by the increase in the number of opponents of militarism and preachers of the Socialist propaganda. In Germany in 1893, the opponents of the new military project received 1,097,000 votes more than its supporters. Between 1887 and 1893 the opposition against militarism increased more than seven times. In France the Socialist party in 1893 received 600,000 votes, and in 1896 1,000,000. Thus, if the present conditions continue, there can be but two alternatives, either ruin from the continuance of the armed peace, or a veritable catastrophe from war.[116]

War: A Political-Social Phenomenon

Bloch viewed war as a political-social phenomenon: "It is impossible here even to outline the energetic struggle against militarism which is being carried on in the West. It is true that the advocates of the settlement of international disputes by peaceful means have not attained any tangible success. But success, it must be admitted, they have had if the fact is taken into account that the necessity of maintaining peace has been recognized by governments, and that dread of the terrible disasters of war has been openly expressed by statesmen, and emphasised even from the height of thrones."[117]

He also addressed the consequences of mass conscription on the question of war:

> It cannot be denied that conscription, by taking from productive occupations a greater number of men than the former conditions of service, has increased the popularity of subversive principles among the masses. Formerly only Socialists were known; now Anarchism has arisen. Not long ago the advocates of revolution were a handful; now they have their representatives in all parliaments, and every new election increases their number in Germany, in France, in Austria, and in Italy. It is a strange coincidence

that only in England and in the United States, where conscription is unknown, are representative assemblies free from these elements of disintegration. Thus side by side with the growth of military burdens rise waves of popular discontent threatening a social revolution.[118]

War: A Rational Phenomenon

Bloch considered war to be a phenomenon that could only be conducted rationally. This was because the phenomenon of war itself, with its enormous harm, could not be possible if people did not think about it rationally.

Bloch derived his rationalist attitude toward war from economic thinking, with its measurable metrics and businesslike approach to profits and losses. As such, the wars Bloch described based on economic metrics could not only not lead to profits but would indeed contain the potential for enormous economic loss in terms of human lives and national resources—and at an intensity that could change the face of society from the ground up. According to him, "State securities tend to fall more and more into the hands of the middle classes—that is, the classes which live on incomes derived from work, but who are nevertheless in a position to save."[119]

The application of a rational economic approach to the phenomenon of war convinced Bloch that there is no rational argument or grounds for Europe's nations to go to war with one another:

> As concerns other possible pretexts for war, examination would show that, in the present conditions of Europe, none are of sufficient gravity to cause a war threatening the combatants with mutual annihilation or complete exhaustion, nor need those moral misunderstandings and rivalries which exist between European states be seriously considered. It cannot be supposed that nations would determine to exterminate one another merely to show their superiority, or to avenge offences committed by individuals belonging to one nation against individuals belonging to another. Thus a consideration of all the reasonable causes of war would show that not one was probable.[120]

Bloch's Contribution to the General Theory of War

Bloch's unique contribution to the general theory of war was twofold. The first is his clear and penetrating discussion of the concept of "victory." Bloch thinks there is no precise formula for victory and that those who offer one are effectively offering a fiction serving political or military interests.[121] His extreme position that victory cannot be achieved in war required a serious debate of the costs of war. Until Bloch, the "correct" study of the phenomenon of war meant it should lead to positive results, meaning victory. The problem arose when all the data showed that victory was not achievable in war, with the victors ostensibly reaching a state where they are hanging by a thread in terms of being able to realize their victory without threatening the whole political-social structure that gave birth to the phenomenon of war in its unique context.

The ability to make such a significant claim comes from Bloch's second contribution: his obsession with military technology and an analysis of its consequences. Bloch's awareness of the industrial revolution of his time and his deep understanding regarding the technological power presented by the machines of war being birthed by this revolution allowed him to build his arguments as "bottom-up processing."[122] Bloch conducted a thorough survey of the technological means at the disposal of armies on the battlefield (i.e., at the "bottom"), which made it possible for him to then cast his gaze to the phenomenon of war itself (the "top"). At the heart of the phenomenon is the battlefield, with its people and technological means with their great destructive power. The existence of such a battlefield required many resources, thus requiring the power of the state and its direction to maintain operational capability. All this, even before it was even possible to assess if a positive result, meaning victory, was achievable on the battlefield.[123]

These two areas—the inquiry into the concept of victory and the potential power of new technological means—led Bloch to determine that the phenomenon of war is no longer a matter solely for military men but a political-social issue of the first order. This issue led to additional serious questions at all levels, especially those related to the ability to go to war when declared and the certain knowledge that the enemy can be defeated in it. Bloch created the connection between military technologies and war itself through the levels of war. The lethality of the tactical battlefield is not a separate, distinct component

but rather one that directly affects the overall strategic political-social dimension. Only such a complex view can explain the phenomenon of war with all that entails.

For Bloch, the ability to think in this way relies on rationalism,[124] as rational thinking is the only faculty that can mentally include the negative aspect of the phenomenon of war, meaning loss with all its attendant risks. Here we return to the contributions of Bloch to the general theory of war: first, the formula for victory in war and the understanding that war does not necessarily produce a positive strategic output. This precept is true even when all sides are willing to pay the ultimate price in men and equipment on the battlefield. The second is the power of the industrial and technological revolution of his time, leading to a lethality not yet seen on the battlefield.

Corbett: *Some Principles of Maritime Strategy* (1911)

Sir Julian Stafford Corbett (1845–1922) was born in London, received a law degree at Cambridge, and worked part-time as a lawyer. In 1899, the success of his book *Drake and the Tudor Navy; With a History of the Rise of England as a Maritime Power* led his decision to devote all his activity to naval historiography.[125] In 1902, he was invited to lecture at the Royal Naval College before senior officers, leading to a regular relationship between himself and the British Royal Navy, one that continued to varying degrees throughout his life. Many of the military theories Corbett developed during that time were controversial but attracted support from within and outside the navy.

Corbett's success came in the wake of his book *Some Principles of Maritime Strategy*.[126] Originally published in 1911, it was effectively a summary of lectures he had given a few years previously at the British Naval College.[127] The new theories Corbett presented stood on firm foundations, even if they were partially contrary to those of Mahan, who was already considered the leading theoretician in the field of naval warfare.

Corbett's Theoretical Concepts

In his work, Corbett tightened the connection between the sea and land domains while also weakening it. From the start, he stressed that war at sea is but an extension of the phenomenon of war in general and should be understood by the same conceptual framework for

understanding land-based warfare developed by thinkers of the nineteenth century, especially Clausewitz. According to Corbett, we should use the term "war at sea" rather than "sea war," as war at sea stretches, in its means and goals, beyond the actions of the fleets and is closely connected to the development of warfare on land. In his view, war at sea occupies a secondary position compared to war on land. Arguing against sea advocates, who sang the praises of control of the waters of the world, Corbett noted that "men live upon the land and not upon the sea."[128] As far as Corbett is concerned, this fact points to most of the differences between land warfare and sea warfare. He argued that naval warfare is generally much less decisive, and although it can cause serious harm to certain enemies, it generally is not enough to deal a blow decisive enough to win the war. Therefore,

> by maritime strategy we mean the principles which govern a war in which the sea is a substantial factor. Naval strategy is but that part of it which determines the movements of the fleet when maritime strategy has determined what part the fleet must play in relation to the action of the land forces; for it scarcely needs saying that it is almost impossible that a war can be decided by naval action alone. Unaided, naval pressure can only work by a process of exhaustion. Its effects must always be slow, and so galling both to our own commercial community and to neutrals, that the tendency is always to accept terms of peace that are far from conclusive. For a firm decision a quicker and more drastic form of pressure is required. Since men live upon the land and not upon the sea, great issues between nations at war have always been decided—except in the rarest cases—either by what your army can do against your enemy's territory and national life or else by the fear of what the fleet makes it possible for your army to do.[129]

Corbett summarized that "for it scarcely needs saying that it is almost impossible that a war can be decided by naval action alone."[130] In reference to strategy on land, he argued that military theoreticians went far afield in stressing the need to deal the enemy one, sole, primary defeat in battle. He argued that even though the conditions created by the French Revolution—which led to the conscription of a mass army[131]—present a real temptation for devoting military efforts toward the destruction of the enemy's main forces, such an event is in fact coincidental and sporadic rather than fundamental and universal, as

it is often presented. Corbett noted that even Clausewitz erred in his discussion of the issue of decisive victory on the battlefield when he coined the term "limited war."[132]

According to Corbett, everything said about warfare by land can be said even more strongly about warfare by sea, as there, conditions turn the limited war into the rule rather than the exception. On land, even Clausewitz's limited wars between neighboring countries fighting over this or that district involved the full use of the powers and resources of the belligerents. By contrast, the British control of the sea allowed them to properly isolate the different theaters of war, enabling them to conduct limited operations in every sense of the word at sites of their choosing.[133]

The theoretical understanding of the idea of limited wars led Corbett to look at the concept of "sea control" with more nuance. He considered control of the sea to be a dynamic process that could undergo extreme changes during war: one side in the war could control the sea in defined areas for a long period of time. By contrast, there could be other periods of time in which neither side has control. Corbett argued that it is a common error to assume that if one side loses control of the sea, the other side gains it. In his view, the most common situation in war is that neither side has control; the normal state of affairs is not one of a controlled sea but a sea no one controls.[134]

As such, we can understand that Corbett's obsessive occupation with the issue of control of the sea derived from his deep understanding of the inherent contrast between land control and sea control. Given this, he made a number of major statements regarding the crucial importance of achieving sea control as a strategic objective in the context of the phenomenon of war in general and land war in particular. According to him, "the object of naval warfare must always be directly or indirectly either to secure the command of the sea or to prevent the enemy from securing it."[135] He then went on to define "command at sea": "Command of the sea, therefore, means nothing but the control of maritime communications, whether for commercial or military purposes."[136]

Corbett elaborated using the example of the role of frigates compared to ships of the line. Frigates had a unique relationship with the main ships of the line, aiding them primarily in preliminary reconnaissance or in protecting their flanks. However, they also operated independently in accompanying convoys or acting against pirates to protect British naval shipping while disrupting enemy shipping. The need to concen-

trate the activity of the navy's ships to maintain sea control harmed the use of frigates, as if they did not, they could disperse them to maintain this control.[137]

Corbett noted that sea control "may exist in various states or degrees, each of which has its special possibilities and limitations."[138] The level of sea control can change greatly in terms of the factors of space, time, and force. The degree of sea control is not quantifiable and can only be described in general terms. When it comes to space, sea control can be general or localized. Corbett defined "general and permanent control" as a state where the enemy cannot "interfere with our maritime trade and oversea operations so seriously as to affect the issue of the war, and that he cannot carry on his own trade and operations except at such risk and hazard as to remove them from the field of practical strategy."[139]

He also noted that in a situation where control is undermined, general conditions may lead to equilibrium. In such a situation, neither side can win outright, and control may indeed be in the hands of the enemy.[140] The goal may then become strategic and encompass the entire theater. It may also become operational, meaning when control is undermined in the primary section of the theater. Weakened control at sea happens when the capabilities of both sides are more or less equal and when both sides have the opportunity to achieve control of the entire theater or at least part of it, on the assumption there is no significant change in the balance of power and neither side takes the initiative. This state of affairs allowed Corbett to continue and promote his theory on two fundamental issues—defense and concentration of force—which were a theoretical innovation in the field of the use of force at both the strategic and operational levels.

Regarding the first issue, defense, Corbett identified its enormous advantages but was careful not to fully endorse Clausewitz's argument that defense is stronger than offense as a universal rule.[141] He instead chose one of Clausewitz's explanations for the strength of the defense, using Britain as an example. He argued that strategic defense would allow Britain to hold fast in war even in the extreme case of losing sea control. He argued that loss of control at sea does not mean that control has gone over to the enemy. In fact, an unstable situation, in which neither side entirely controls the sea, is the most common situation in sea warfare. When there is a struggle for control, as happened during America's War of Independence, it is sufficient to hold on to continue to exist.[142] The consequences of this statement were obvious to Corbett:

"It is a direct negation of the current doctrine that in war there can be but one legitimate object, the overthrow of the enemy's means of resistance, and that the primary objective must always be his armed forces. It raises in fact the whole question as to whether it is not sometimes legitimate and even correct to aim directly at the ulterior object of the war."[143]

Corbett did not minimize the importance of warfare and of main battles in war,[144] but he did warn against the idea that "war consists entirely of battles between armies or fleets." This idea, he argued, "ignores the fundamental fact that battles are only the means of enabling you to do that which really brings wars to an end—that is, to exert pressure on the citizens and their collective life."[145] If the battle is but a means to an end, Corbett argued, other means may reveal themselves to be no less effective, hence his strategic requirement to deny any sort of enemy movement by sea, whether commercial or military: "Consequently by denying an enemy this means of passage we check the movement of his national life at sea in the same kind of way that we check it on land by occupying his territory."[146] In fact, the situation is even more difficult on land, where battle can usually be forced on the enemy, while at sea, the enemy fleet may hide in its ports, creating the vital need for other means to beat him.[147]

Regarding the second issue, concentration of force, Corbett chose a different approach than his predecessors and distinguished between the geographical and physical concentration of military power at sea. He considered concentration to be a flexible concept, in which there was an inherent amount of "dispersal." However, the term "concentration" revolved around what he believed to be the need for "strategic deployment,"[148] meaning the physical deployment of the fleet, the closest thing to the idea of a geographical strategic center. This idea is based on a long analysis by Corbett of the wars between Britain and France. This survey led him to the insight that strategic deployment points to regional boundaries, such as that of the Royal Navy in the eastern Atlantic. Dispersal beyond this area, such as in the Indian Ocean or even the Eastern Mediterranean, breaks the concentration.[149]

According to him, concentration had become "a kind of shibboleth, so that the division of a fleet tends almost to be regarded as a sure mark of bad leadership. Critics have come to lose sight of the old war experience, that without division [splitting the fleet] no strategical combinations are possible."[150]

In reference to the past, Corbett argued that "the riper and fresher our experience and the surer our grip of war, the looser were our concentrations . . . . Victories have not only to be won, but worked for. They must be worked for by bold strategical combinations, which as a rule entail at least apparent dispersal."[151] He advocates that

> concentration should be so arranged that any two parts may freely cohere, and that all parts may quickly condense into a mass at any point in the area of concentration. The object of holding back from forming the mass is to deny the enemy knowledge of our actual distribution or its intention at any given moment, and at the same time to ensure that it will be adjusted to meet any dangerous movement that is open to him. Further than this our aim should be not merely to prevent any part being overpowered by a superior force, but to regard every detached squadron as a trap to lure the enemy to destruction.[152]

The French, who were weaker at sea, tended to disperse more often for the purpose of sporadic activity. Corbett did not consider this incompetence, as many claimed, but rather proof of a cunning strategy leading to the embarrassment of the stronger British fleet, forcing it to disperse itself and giving the French the opportunity to at least win small victories.[153]

Corbett's Contribution to the General Theory of War

Corbett's holistic perspective of sea warfare in its overall context allowed him the necessary complexity and nuance for observing naval combat. He considered observation of this phenomenon too simplistic, not allowing for determining two central questions: (1) How can we realize the strategic achievements needed of naval warfare in the general context of war? and (2) What are the operational distinctions needed of statesmen and military leaders regarding the proper use of their standing military forces at sea?

Hence, we have Corbett's unique contribution to the general theory of war, which lies in the conceptual distinction between the sea and land domains. Although his primary studies and theoretical insights deal largely with the sea domain, he nevertheless believes that the land domain is the central factor in the phenomenon of war, by its very nature. Warfare at sea accompanies warfare on land and is not a replacement for the latter. This understanding allowed Corbett to observe

the relationship between the land and sea domains as complementary at the three levels—strategic, operational, and tactical.[154]

Per Corbett's understanding, the strategic level clarifies two main things: first, the general policy of war on land takes precedence over the war at sea, which means the latter needs to be conducted at the operational and tactical levels. Second is the profound understanding that naval strategy will always bear the mark of a limited war, in the sense that there is an inherent difficulty in naval warfare to achieve full control of the seas and conduct a battle of general annihilation.[155]

The operational level led Corbett to recognize that systemicity is required in the exercise of force in the maritime domain to attain the required strategic achievements. In this regard, Corbett emphasized the need to distinguish between the physical space required for concentrating naval power for action and joint conceptual action to achieve the required strategic achievements.[156]

Occupation with the tactical level was meant primarily to clarify its theoretical *validity*, according to Corbett. In this sense, tactical clarifications for locations of ships, their class, and their style of combat were meant to demonstrate the applicability of the operational ideas he proposed.

In Corbett's view, these fundamental insights make occupation with military technology superfluous; the axis of industrial revolutions and character of combat with the technology means at the disposal of the phenomenon of war are marginal components for understanding the general phenomenon. Even the industrial revolution of his time does not create a new reality requiring unique arrangements. In this sense, Corbett's theory touches on the nature of war and the domains where it takes place. Corbett therefore tries to understand the phenomenon of war from the inside and discern true regularities and laws.

Notes

1. In 1798–1801, the Second Coalition War took place between the French Republic and a coalition that included Russia, Austria, and England.

2. The Austerlitz campaign between France and a Russian-Austrian coalition took place in December 1805 and ended with a decisive victory for France.

3. The shifting of officers between armies was not unusual in Jomini's time, as being an officer was considered both a class and a profession. This enabled officers to move among armies without being considered traitors, even continuing to move up in the ranks.

4. The Ottoman-Russian War (1828–29) broke out due to the closing of the Dardanelles to the ships of the Russian Empire. The straits were closed on the order of the Ottoman Sultan. The war ended with a Russian victory and arrangements

granting Russia sovereignty over extensive territories. The Russia-Persia War (1826–28) broke out at the initiative of the Kingdom of Persia, which sought to restore territories Russia acquired in its previous conflict. This war also ended in a Russian victory.

5. In this book, I rely on this translated version of Jomini's work: Antoine-Henri de Jomini, *The Art of War*, trans. by G. H. Mendell and W. P. Craighill, 101.

6. Jomini published an updated edition of his book in 1838, shortly after Marie von Clausewitz published the tenth and final volume of her husband's writings.

7. If you asked any general in Western Europe or the United States, "Who is the leading military strategist in the world?," the answer was almost always Jomini. This may be because of Jomini being one of the last generals to survive the Napoleonic Wars, but also thanks to his clear and precise writing, which made reading his works easier despite his handling of a range of complex issues. See Orlov, *Definitions and Doctrine*, 6–7.

8. Jomini was the first to use the term "la logistique," translated into "logistics" in English. He was also the first significant military thinker to devote attention to logistics, which he defined as the practical application of operating armies. This can be seen in his explanation of the role of supply lines: every operational theater contains a number of supply lines, imagined routes between two points, through which forces and supplies are moved. Jomini described supply lines as useful, designated routes between army positions throughout the area of military activities. Rider, "Evolution of the Concept of Logistics," 25–26; and Jomini, *Art of War*, 101.

9. Jomini.

10. Jomini, 175–76.

11. Jomini, 84.

12. Jomini, 66.

13. Jomini, 323, 325.

14. Jomini, 323.

15. Jomini, 321.

16. Jomini, 344.

17. Jomini, 178.

18. Jomini.

19. Jomini, 178–217.

20. Jomini, 74.

21. Jomini, 77.

22. Jomini, 86.

23. Jomini, 86.

24. Jomini, 87.

25. Jomini, 88.

26. Jomini, 86–88.

27. Jomini, 118.

28. Jomini, 100–101.

29. Jomini, 178.

30. Jomini, 47–49.

31. Jomini, 47.

32. While Jomini searched for timeless principles for defining war through quantitative data—geographic, technical, and logistical—Clausewitz focused on a hermeneutic, interpretative approach that stressed the moral and political values of war. For more, see Widen, "Sir Julian Corbett and the Theoretical Study of War," 112.

33. For a critique that Jomini's writings contributed to a deepening divide between military and political leaders, as well as his claim that technology does not change the basic principles of war, see Shy, "Jomini," 164.

34. Clausewitz and his contemporaries argued that Jomini's writings ignored elements of morale and morality in war. For more, see Swain, "'Hedgehog and the Fox,'" 101.

35. I rely here on the full English translation of the work done by Michael Eliot Howard and Peter Paret: Carl von Clausewitz, *On War*, ed. and trans. by Michael Eliot Howard and Peter Paret.

36. Although Clausewitz is considered to be a unique thinker and even the pre-eminent war theorist, this study includes him as one of 15 thinkers chosen based on revealed preference as part of the effort to extract a general theory of war.

37. Clausewitz, *On War*, 515.

38. Clausewitz, 609.

39. Clausewitz, 88–89.

40. Clausewitz, 89.

41. Clausewitz.

42. Clausewitz.

43. Clausewitz, 87.

44. Clausewitz, 177.

45. Clausewitz

46. Clausewitz.

47. Clausewitz, 142.

48. Clausewitz, 226.

49. Clausewitz, 248.

50. Clausewitz, 261.

51. Clausewitz, 258.

52. Clausewitz, 577.

53. For criticism of this approach, see Handel, *Masters of War*, 57–66.

54. Clausewitz, *On War*, 157.

55. Clausewitz, 389.

56. Clausewitz, 134.

57. Clausewitz, 136.

58. Clausewitz, 139.

59. Clausewitz, 152.

60. Clausewitz, 86.

61. Clausewitz, 77.

62. Clausewitz, 190.

63. Clausewitz, 136.

64. Clausewitz, 140.

65. Clausewitz, 164.

66. Clausewitz, 148.

67. Clausewitz, 148–49.

68. On the confusion and complexity of Clausewitz's psychological descriptions, especially those dealing with the desired traits for a military commander given the newness of psychology at that time, see Paret, "Clausewitz," 203–4.

69. On academia's clear lack of interest in military affairs; the difficulty in accepting Clausewitz's work, especially in the nineteenth century, with its being multidisciplinary and too complex and detailed; and the popularity of Jomini in that period, see Handel, *Clausewitz Bemivchan Hatmurot Hatechnologiyot* [Clausewitz in the Face

of Technological Transformations], 10–12; Handel, *Masters of War*, 260–65; and Swain, "Hedgehog and the Fox," 101.

70. Helmut von Moltke (1800–1891), Prussian army chief of staff, was primarily known for orchestrating victory in the Franco-Prussian War (1870–71), which paved the way for the German Empire. He only became known as "Elder" to distinguish him from his nephew, Johan Ludwig von Moltke "the Younger" (1848–1916).

71. The United States Naval Academy is located in Annapolis, the capital of the state of Maryland. It was founded October 10, 1845, replacing the old Naval Academy based in Philadelphia that operated from 1834 to 1845.

72. Gat, *Development of Military Thought*, 174–78.

73. Mahan, *Influence of Sea Power*, iv–vi.

74. Mahan, 28–29.

75. Mahan, 29–30.

76. Mahan, 32.

77. Mahan, 31–35.

78. Mahan, 36–42.

79. Mahan, 37.

80. Mahan, 43.

81. Mahan, 46.

82. Mahan, 53–54.

83. Mahan.

84. Mahan, 11–12.

85. Mahan, 9.

86. Mahan, 56–57.

87. Mahan, 540.

88. Mahan, 138.

89. Mahan, 1.

90. American admiral Joseph C. Wylie argued that Mahan was the first to write a significant naval military theory but that his ideas were unripe and general, without a clear naval strategy and that, unlike Corbett, he did not write down his ideas in a systematic manner. Historian Jeremy Black supports this argument. Michael Lindberg and Daniel Todd sharpen this argument and say that Mahan had perhaps innovated when it came to showing the importance of naval power, but he did not fully understand the economic consequences of this power or the connection between territorial expansion and economic contribution to the state. Wylie, *Military Strategy: A General History of Power Control*, 58; Black, *Military Strategy: A Global History*, 178; and Lindberg and Todd, *Brown-, Green- and Blue-Water Fleets*, 30. Another common critique of Mahan was that he viewed naval warfare as an end in itself, unlike other scholars and especially Corbett who viewed naval warfare as a way of connecting between different territorial areas, securing trade routes, and so on. Lindberg and Todd, *Brown-, Green- and Blue-Water Fleets*, 33. For more critiques of Mahan's theories, see Gough, "Maritime Strategy: The Legacies of Mahan and Corbett as Philosophers of Sea Power," 55–57; and Hattendorf and Jordan, *Maritime Strategy and the Balance of Power*, 83–94, 95–109.

91. For more on the argument that Mahan's theory is no longer relevant for the modern era since it is unconnected to the present-day mutual dependence of combined arms between the navy and other armed forces and that it renders the navy superfluous in supporting land maneuvers on land or from the sea, see Cleaver, "Pen Behind the Fleet," 45–46; and Crowl, "Alfred Thayer Mahan: The Naval Historian," 460.

92. For more on objections to Mahan's work even in his own time on the part of his colleagues in the American Navy, with the significant technological changes that

took place during the nineteenth century in the naval field (the move from wooden sail ships to steel steam ships), see Crowl, "Alfred Thayer Mahan," 447.

93. For more on the argument that Mahan did not properly analyze the changes in British foreign policy and the way in which it let the Germans establish a strong fleet and start a naval arms race in the run-up to WWI and the changes in the conception of "sea control" given the entry of submarines into the fight and the massive use thereof, see Luttwak, *Strategy: The Logic of War and Peace*, 169–73.

94. France lost this war.

95. The Polish title is *Przyszła wojna pod względem technicznym, ekonomicznym i politycznym*. Here, I use the English 1899 translation: Jan Bloch, *The Future of War in Its Technical, Economic and Political Relations; Is War Now Impossible?*, trans. by R. C. Long (New York: Doubleday & McClure Co., 1899).

96. Bloch, xvi.

97. Bloch, xxvii.

98. Bloch, xxxi.

99. Bloch, 52.

100. Bloch, 17.

101. Bloch, 18.

102. Bloch, 19.

103. Bloch, 18.

104. Bloch, 340.

105. Bloch, 338.

106. Bloch.

107. Bloch.

108. Bloch, 19.

109. Bloch, 340.

110. Bloch, 349.

111. Bloch, 347–48.

112. Bloch, 348.

113. Bloch, 351.

114. Bloch, 355.

115. Bloch, 352.

116. Bloch, 355.

117. Bloch, 350.

118. Bloch, 356.

119. Bloch, 353.

120. Bloch, xlviii.

121. For a critique of Bloch as being biased by pacifistic tendencies and with his considering war in its modern form as being illogical and lacking victors, see Pieczewski, "John Bloch's *The Future of War*. Pacifism Based on Economics," 73.

122. Top-down and bottom-up processing are strategies of systems theory, developed from 1969 onward as part of the effort to provide a scientific response to the mechanization of information in computer sciences. In the top-down model, a survey of the system is first provided in general terms without getting into the details of any particular part, after which each part of the system is defined in detail until the model is validated. By contrast, the bottom-up model first defines all the system's parts in detail, only then combining them into greater components, which are in turn combined until we get the complete system. A bottom-up analysis may seem satisfactory owing to its being based on a knowledge of all the factors that may influence the basic parts of the system.

123. German military historian Hans Delbrück argued against Bloch: "From a scientific standpoint, the book does not have much to recommend it. It is a rather uncritical and poorly arranged collection of material; and although it is embellished with illustrations, the treatment is amateurish and overburdened with vast amounts of detail that have nothing to do with the actual problem. Moreover, the conclusions are faulty and hastily drawn." For this and more on the opposition of both German and British and military establishments to Bloch on the grounds of his lack of personal military experience and the fact that he did not personally serve in general, see Welch, "Centenary of the British Publication of Jean de Bloch's *Is War Now Impossible? (1899–1999)*," 276–77.

124. For more on the claim that Bloch's main weakness was his stubborn avoidance of European history in favor of an economic-social theory of the future, without wondering if states would act rationally, see the article by British general and Foreign Service man Charles Edmund Webber from 1901. Webber, "Army Reform Based on Some 19th Century Lessons in Warfare," 279–80.

125. Corbett's first book, *Drake and the Tudor Navy; With a History of the Rise of England as a Maritime Power*, published in two volumes in 1898, was his first successful historical work. He subsequently decided to change professions and study military affairs in academia.

126. Corbett, *Some Principles of Maritime Strategy*.

127. To provide his students with a clear frame of reference, Corbett worked with the director of the Royal Naval College, Captain Edmund G. W. Slade, to produce the slim booklet *Strategical Terms and Definitions Used in Lectures on Naval History*, better known as the "Green Pamphlet." A second and improved version of the pamphlet was published in 1909, entitled *Notes on Strategy*. The two editions are added as appendices to the 1988 edition of Corbett's book *Some Principles of Maritime Strategy*, 305–45.

128. Corbett, 16.

129. Corbett, 15–16.

130. Corbett, 15.

131. On the mass army, see Corbett chap. 2, note 9.

132. Corbett, 19–27.

133. Corbett, 52–59.

134. Corbett, 77.

135. Corbett, 91.

136. Corbett, 94.

137. Corbett, 100–104.

138. Corbett, 104.

139. Corbett, 105.

140. Corbett, 105.

141. Corbett, 72–73.

142. Corbett, 91–92.

143. Corbett, 74.

144. Corbett, 76, 86.

145. Corbett, 97.

146. Corbett, 93.

147. Corbett, 155–56.

148. Corbett, 129.

149. Corbett, 36–114, 117.

150. Corbett, 134.

151. Corbett.

152. Corbett, 152.

153. Corbett, 138.

154. Regarding the claim that most scholars viewed Corbett's work as a kind of synthesis of Clausewitz, see Widen, "Sir Julian Corbett," 126.

155. Mahan, the post-WWI British Admiralty, and Naval historian Sir John Laughton argued that Corbett's claim, per which the naval struggle focuses mainly around enabling naval trade and communications, is a narrow and cowardly one. They argued instead that the aim of naval strategy is the defeat of the enemy navy. For more, see English, "Trafalgar Syndrome: Jutland and the Indecisiveness of Modern Naval Warfare," 60–61.

156. On criticism of Corbett's argument against concentration of naval forces for decisive effect, to the point of minimizing the importance of combat in naval strategy, see Handel, *Clausewitz Bemivchan Hatemurot Hetchnologiyot*, 314–15.

Chapter 4

The Theoreticians and Their Thoughts

Between the Two World Wars

This chapter focuses on the thinkers operating in the period between the two world wars (1918–39). The delineation of the period is based on the coalescence of the different axes. The five theoreticians presented in this chapter are Douhet, Liddell Hart, Isserson, Fuller, and Mao.

In general, it is worth noting a few points regarding the period under discussion. First, WWI left its mark on all the theoreticians mentioned above, even though each experienced it differently, directly or indirectly, as a source of inspiration or as a negative factor, something to be ignored and not learned from when it comes to how to wage war. Second, the thought of these five theoreticians is clearly placed in the understandings that developed in the wake of the Second Industrial Revolution, which began in 1870. These understandings also regard the character of society and politics of this period, which were directly influenced by this revolution. Third, the direct product of the industrial revolution required a reinterpretation of the phenomenon of war in two central ways: the first is the speeding up or shortening of the time factor (depending on your perspective) on the battlefield. The second is the size and scope of the phenomenon of war itself, whether regarding physical and geographical contexts of the battlefield or the phenomenon's effect on fields not limited to the battlefield alone.

The central experience characterizing the period in question is, per the understanding of the theoreticians, the mechanization and industrialization of tools and means of warfare on land, air, and sea. Noting these general points is not meant to replace the detailed analysis we need to conduct in order to extract the components of the general theory of war.

Douhet: *The Command of the Air* (1921)

Giulio Douhet (1869–1930) was born in Caserta, Italy, and started his military career in the artillery. His education was varied: He began his studies at L'Accademia Militare di Modena and continued to Il Politecnico di Torino. Among his roles in the military was service as

a commander of an air battalion in WWI. During his service, he became a highly influential officer in the Italian general staff, even if his views were not always viewed favorably. Douhet is considered one of the first theoreticians to support airpower. He strongly argued that airpower would bring about a revolution in how war was conducted. He therefore spent his entire military career promoting the use of airpower and developing ideas regarding the establishment of an air arm separate from the rest of the army.

Douhet's writing was greatly influenced by the harsh realities of WWI. He believed the stalemate emerging on the battlefield came because of static trench warfare. The long duration of the war and its large number of casualties convinced him that proper exploitation of airpower, which began to develop in the civilian field of air mechanics, could lead to victory in a future war without the need for a long war of attrition. In his book *Il Domino dell'Aria* (*The Command of the Air*), Douhet analyzed the ability of airpower to decide any future war.[1]

Douhet's Theoretical Concepts

Aerial supremacy. Douhet argued that "aerial supremacy" means achieving two goals in the same theater: denying the enemy the ability to fly while retaining the attacking power's ability to fly.[2] In his writings, he argues that such aerial control can have a decisive effect on war and lead to victory therein.[3] He also notes that defeat in the air means defeat in the war, meaning surrender and accepting any terms the enemy sees fit to impose.[4] Douhet argued that the enemy's air force should be defeated by destroying his land installations and factories, as the main goal of an aerial attack is paralyzing the enemy's ability to use his army and his will to keep fighting. He argues that in the future, one of the main tasks of land armies during an aerial attack will be the occupation of enemy military industries and airports; to deny the enemy aerial control and to limit his ability to fly, his means of doing so must be destroyed.[5]

According to Douhet, control of the air is not solely about the air domain, as it also affects the other domains and contributes to their defense. For instance, control of the air contributes to the controller's ability to protect his land and sea areas from enemy air attack. This control also secures the state and people's ability to hold out materially and in terms of morale in the face of direct, "terrifying" enemy attacks. In addition, control of the air leads to the enemy's territory being

exposed to attacks by the controller's air force. In analyzing the aerial capacity and the way to exploit it to ensure victory in war, Douhet explained that airpower makes it possible to shorten the duration of a war. In other words, it is possible to shorten the duration of the stalemate and slaughter typical of WWI in future wars. Moreover, the threat of future mass bombing raids is apparent to all, in his view, and sufficient to deter the other side from even starting a war.[6]

Douhet believed that shortening the war meant making it humane, reducing losses among civilians, as well. As he wrote on this issue,

> Tragic, too, to think that the decision in this kind of war must depend upon smashing the material and moral resources of a people caught up in a frightful cataclysm which haunts them everywhere without cease until the final collapse of all social organization. Mercifully, the decision will be quick in this kind of war, since the decisive blows will be directed at civilians, that element of the countries at war least able to sustain them. These future wars may yet prove to be more humane than wars in the past in spite of all, because they may in the long run shed less blood. But there is no doubt that nations who find themselves unprepared to sustain them will be lost.[7]

The destruction or weakening of the enemy's military-economic potential. In an attempt to analyze the air domain, Douhet insisted that one of the main tasks of a military force in war is to destroy the enemy's ability to maintain and use his forces on the battlefield, a goal later identified with the destruction or weakening of the enemy's military-economic potential. Such destruction or weakening was tied indelibly from the first with the bombing of the civilian population, with the aim of crushing the enemy's morale and repressing his desire to fight. In Douhet's view, airplanes are incomparably destructive tools, and no effective defense against them is possible. He insisted that in future wars, there would be no distinction between combatants and noncombatants. He was also convinced that the morale of the enemy's civilian population would collapse after the bombing of its population centers. In his view, the first target of an aerial attack should not be military installations but industry and population centers far from the fighting forces.[8] He claimed that a nation must launch an air attack the moment a war starts to crush the enemy's morale and not leave them any choice but to plead for peace and a cease-fire. This task requires

independent air forces, including long-range bombers that would be on constant, combat-ready alert.[9]

Douhet applied his theory of war to the entire theater but effectively focused on one kind of plane that could be a game-changer: the strategic bomber, which can defend itself even while flying toward its targets. Douhet's approach derived from his desire to provide an operational-strategic solution for the phenomenon of war, bringing him closer to the idea that the air arm needs to be independent and the equal of the land army and sea fleet, not an auxiliary or assisting force.[10]

This idea is itself an interesting point because there was no mass use of airpower in Douhet's time, meaning that he was engaging in new thinking or the development of a new theory. And indeed, one can argue in retrospect that the efforts made during WWI in terms of airpower did not decide the war; the use of strategic bombers, as Douhet recommended, was not significant, either.

Douhet had a clear view of the industrial and technological character of modern war. He argued that modern armies are the armor and shield protecting wartime nations preparing the means appropriate for feeding the war machine. The strategic bomber can pass over armor and strike at the enemy itself, its centers of production, and its supply lines running from the enemy's heartland all the way to army concentrations. Therefore, there is no better weapon than the plane for dealing a lethal blow, which would hit not only the enemy's cities but also the heart of its citizens.[11]

According to Douhet's calculations, the priorities of an air attack should be as follows: (1) destroy the enemy's manufacturing means, property, resources, and the morale of its population; (2) cut the supply lines of the enemy army and isolate it from any supply or reinforcement; (3) destroy the enemy's rear areas; and (4) attack the enemy located on the front.[12]

To realize such military capabilities, Douhet believed that a large number of planes was required. In his view, planes needed to attack in waves, each of which would involve a thousand planes. Though these numbers seem high, it was clear to Douhet that such an effort was achievable and merely a question of national preparedness. To prove his point, he presented the example of "Italy can afford a Fiat; America can afford a Ford."[13] That is, if companies like Fiat or Ford could mass produce different kinds of land vehicles, then the same could be done for manufacturing planes.

Douhet was impressed by the ability of air forces to bypass the front, since they were not limited by trenches, barbed wire, and minefields or the topography and geography of battlefields and land warfare.[14] In the wake of the lessons of WWI, he believed that technological development of land forces led to the conclusion that a force larger than the defending force was needed to defeat the latter in offensive operations. In other words, the defender had an advantage over the attacker, which was here to stay. But since war can only be won through offense, then victory will ultimately come thanks to airpower. During Douhet's era, the absence of antiaircraft artillery meant that airpower remained unchallenged, therefore airplanes could reach anywhere and not be stopped, to say nothing of the fact that they could approach the target from many directions. In Douhet's view complete aerial supremacy must be achieved—a concept that became the primary doctrinal principle in his approach as he presented it in *Command of the Air*—which means gaining victory in war.[15] To realize this strategic capability, control of the air cannot derive from an ongoing presence in the air (as is the case on land) but through the destruction of the enemy's aerial capabilities. According to this approach, an air force must launch a surprise attack on the enemy's airports, then focus on systematic bombing of his population and industrial centers.[16]

Douhet included all his ideas in *Command of the Air,* in which he concentrated his insights on the war he himself experienced, especially the conclusion that airpower is the ultimate offensive weapon. In addition, he noted in his book that if the civilian population once enjoyed the protection of the army, the airpower of his time now exposed them to attacks. As such, industrial, transport, and government centers of the modern state can and should be destroyed relatively quickly and easily, maybe within days and even hours, and done with the aid of fleets of bombers of medium speed and large bomb loads. In practice, there is no defense against such an attack, as the attacker is always free to choose the time and place to strike. The only possible defense is a preemptive strike aimed at achieving air supremacy through the destruction of the enemy's air force while still on the ground. Douhet did assign a secondary goal for the air forces (aiding the land army and sea army), but in practice he argued that the role of these arms was steadily narrowing and that their role should be steadily reduced, while the air force's power was increased. The latter needed to be built up as an independent service and factor, with its

own government ministry, responsible for developing both military and civilian air capabilities.

Douhet wrote that military technology allows the use of multi-engine planes with a load capacity of a ton to a ton and a half. These can hit targets hundreds of miles away from the front lines—at the heart of the enemy's vital industrial centers on which the state's power to wage modern war depends. The secret of success lies in the massive concentration of all resources at the point of decision, meaning a massive air attack. A large force must be assembled, numbering 500 planes, each of which carries a 200 kg explosive and can fly up to 300–500 km. This force will be launched to attack weapons depots, ports, warehouses, industrial plants, military centers, banks, and government offices, dealing the enemy irreparably heavy damage. According to Douhet's calculations, the whole affair is not that expensive: planes of the needed type already existed in the form of the Caproni 300, and the needed strategy only required making the strategic decision to devote resources for mass production of that plane.

Douhet's Contribution to the General Theory of War

Douhet believed that WWI was a failed war by virtue of it not resulting in the decisive victory of any side. As he put it, "The World War was a long-drawn-out war which almost completely exhausted both victor and vanquished. This was owing to the technical aspects of the conflict more than to anything else—that is, to new developments in firearms which strongly favored the defensive over the offensive, and, to a lesser degree, to a psychology which could not grasp immediately the advantage conferred on the defensive by the improvement in firearms."[17]

This statement by Douhet points to his and many others' great frustration at WWI, specifically the inability of any side to win on the battlefield.[18] Douhet thought the way to bypass this situation was to cause a national collapse the moment the war started, which could be achieved by extensive strategic bombing of rear areas, especially urban centers containing industry and government institutions. In addition, the enemy nation could be defeated via bombing raids that would harm the enemy's morale and its desire to keep fighting. In Douhet's view, extended fighting on land and millions of dead at the front could be spared at the start of the war if the enemy's morale and his economic and social ability to continue the fight was mortally wounded.

Hence, Douhet's contribution to the general theory of war is the principle seeking to connect three components: (1) the air domain, (2) developing technology, especially war planes, and (3) the phenomenon of war itself. That is, connecting the axis of industrial and technological revolutions in terms of the developing plane and the air domain allows one to physically leap over the carnage of the battlefield on land and thus change the nature of war itself.

In this sense, the experience acquired in past wars served him only to describe principled issues or partial experiences of the war. He was not interested in detailed facts, since he sought to use his theory to offer a different kind of war—one in which it was possible to directly affect the enemy population, bypassing its leaders and neutralizing its will and support for the continuation of the war. Thus, via the air domain and the technological invention of the plane, it was now possible to bring the horrors of the battlefield to the attention of the population shortly after the war begins. Douhet's need for tactical explanations, such as the number and weight of the bombs, was due to his need to point to the practicality of his approach and to prove the ability of his new strategy to bring victory in war.[19]

Douhet therefore connected the three components—the air domain, the technology of the plane, and the phenomenon of war—via the approach he proposed: bombing enemy cities. In his theory, he focused on strategy as the bridge connecting the aerial domain with the technology of the plane, allowing both to affect the phenomenon of war to the point of bringing victory.

Liddell Hart: *The Decisive Wars of History* (1929)

Basil Henry Liddell Hart (1895–1970), son of an English Methodist family, was born in Paris. He was accepted as a history student at Cambridge University but left his studies with the outbreak of WWI and served as an officer in the British army. He fought in France and was even decorated for his service in combat. Liddell Hart personally experienced the power of chemical warfare and, after being wounded, went to serve in the rear. He served until 1927, when he retired from active duty. He then served for a few years as the military correspondent for the *Daily Telegraph* and then as the military advisor of the London *Times*. In 1937–38 he was the personal advisor of Leslie Hore-Belisha (1893–1957), secretary of state for war (1937–40).

Liddell Hart was known for coining the concept of the "indirect approach." Research and writing on this strategy helped him live well throughout his life. The popularity of his writing can be seen with the repeated publication of new editions of his 1929 book, *The Decisive Wars of History*, under different names and with changes to the structure of the chapters or appendices. However, the conclusions chapter and the practical recommendations chapter hardly changed throughout the years. It is the edition published in 1954 entitled *Strategy: The Indirect Approach* that is most remembered by readers and indelibly linked to Liddell Hart.[20]

Liddell Hart's Theoretical Concepts

Historical proof of the superiority of the indirect approach strategy. Liddell Hart relied on a historical survey from the battle of Marathon in 490 BC to the beginning of WWI in 1914—2,404 years in all—to validate his arguments.[21] He examined 27 wars including 240 military campaigns, from the Greek battle against the Persians at Marathon to the Japanese annexation of Korea in 1910.[22] He found that only in six campaigns was victory secured through the direct approach. He thus wrote, "These six campaigns, are, surely, slender justification for the complaisant adoption of a direct strategy by anyone entitled to be called a general?"[23] The rule, for him, lay elsewhere; since the direct approach worked in just six of 240 campaigns, this means that 234 were won using the indirect approach. Consequently, an empirical examination of the history of wars showed that the indirect approach, and not the direct approach, was the leading rule of thumb in securing victory in war. Lest the reader have any doubt, and since the finding was so dramatic, Liddell Hart was prepared to compromise a bit on the stridency of his conclusion: "Our survey has revealed twenty-six campaigns in which both the decisiveness and the indirectness of approach are manifest beyond dispute."[24] If it may be difficult to accept that victory in 234 of 240 campaigns was secured by use of the indirect approach, then it is easier to accept that 26 campaigns demonstrated the success of the indirect approach. And this result was sufficient empirical proof in the face of the mere six wins brought about by the direct approach.

As we can see, Liddell Hart's approach to the act of war is fundamentally complicated. While the positive description of the removal of physical threats and the defeat of armies is simple and understand-

able, the strategy of the indirect approach requires complex thinking: How can these achievements be realized (removal of the physical threat by the defeat of the enemy army) by avoiding direct contact? The dilemma he faced was how to explain the indirect approach and its advantages without ruling out the idea of those seeking to conceive and apply a strategy that would best fit the present conditions. To this end, Liddell Hart made use of two techniques: The first, though it seems marginal, lay in the title of his book—*The Decisive Wars of History.* Although such a title seems like a marketing ploy, Liddell Hart likely considered it to be essential, meaning he was searching for how to locate and cultivate determined, victorious generals on the battlefield as opposed to defeatists, who won wars only by sheer luck. The second technique he used involved the content itself: Liddell Hart pointed to the connection between the aims of war and the goals to be secured on the battlefield for the sake of realizing the indirect approach. According to him, the real goal of the commander was "not so much to seek battle as to seek a strategic situation so advantageous that if it does not of itself produce the decision, its continuation by a battle is guaranteed to do so."[25] He added, "Further, history shows that rather than resign himself to a direct approach, a Great Captain will take even the most hazardous indirect approach—if necessary over mountains, deserts or swamps, with only a fraction of force, even cutting himself loose from his communications."[26] His justification was that "natural hazards, however formidable, are inherently less dangerous and less uncertain than fighting hazards. All conditions are more calculable, all obstacles more surmountable, than those of human resistance."[27]

A superficial reading might suggest that adopting the indirect approach means nothing more than a physical challenge and that in this approach, anyone can succeed with a physical action. But such is not the case. In Liddell Hart's understanding, the most significant component needed is mental-psychological. The aim of the physical movements is to create a mental-psychological situation for the enemy that will lead him to defeat and even outright surrender even before any need to engage in some tangible action on the battlefield. As he put it, "During this survey one impression grew ever stronger—that throughout the ages decisive results in war have only been reached when the approach has been indirect. In other words, that in strategy the longest way round is the shortest way there."[28] Moreover, "in contrast, an examination of military history, not of one period but of its whole course, points to the fact that in all the decisive campaigns

the dislocation of the enemy's psychological and physical balance has been the vital prelude to a successful attempt at his overthrow. This dislocation has been produced by a strategic indirect approach, intentional or fortuitous."[29]

Liddell Hart therefore stressed that methods of war have no importance in themselves and that their significance derives solely from their ability to affect the enemy's mental state. As far as Liddell Hart was concerned, those considering adopting a direct approach not only erred in thinking it would weaken the enemy but were making a serious mistake in that they were empowering him in every possible way. The direct approach, which is "to move along the line of natural expectation," he wrote, "consolidates the opponent's equilibrium, and, by stiffening it, augments his resisting power."[30] The reason lies in the fact that the aims of the war and its goals are clear to all sides; there is no difficulty in defining them or in either side concentrating efforts to face their rival. The direct approach empowers enemies and allows them to enlist great resources of morale, which can only rarely be predicted or their strategy prevented.[31]

To help convey the meaning of his proposals, Liddell Hart summarized his arguments in two simple, practical lessons taught to us by history:

> The art of the indirect approach can only be mastered, and its full scope appreciated, by study of and reflection upon the whole history of war. But we can at least crystallize the lessons into two simple maxims, one negative, the other positive. The first is that in face of the overwhelming evidence of history no general is justified in launching his troops to a direct attack upon an enemy firmly in position. The second, that instead of seeking to upset the enemy's equilibrium by one's attack, it must be upset before a real attack is, or can be successfully, launched.[32]

Liddell Hart did not stop with a theory founded on historical research pointing to the path to victory through the realization of an indirect approach strategy; he also sought to present clear principles for realizing this theory. He divided these principles into five cognitive and physical pillars and recommended "dos" and "don'ts" for professionals, those seeking to apply the indirect approach in planning or execution.

The conceptualization and construction of ways to realize the strategy of the indirect approach. Liddell Hart extracted his indirect approach strategy from historical study, but it was clear to him that to

grant it validity and make it applicable in his time, he had to take a cognitive leap. He needed to note what was theoretically and practically required to apply his strategy in the early twentieth century. Therefore, Liddell Hart had to not only reconceptualize how war should be observed but also construct what he considered the proper methods of application that would lead to decision on the battlefield and victory in war. This cognitive leap included two central umbrella concepts: the levels of strategy (the breakdown into grand strategy, military strategy, and tactics) and strategic dislocation (the integration of the physical and psychological worlds), a combination needed for realizing the indirect approach.

Planes of strategy. Through "planes of strategy," Liddell Hart meant to point to the difference between grand strategy, military strategy, and tactics. In his view, grand strategy was a term meant to create the sense of "policy in execution."[33] This initial effort ostensibly allows for removing the political element from the world of war and observing war itself as though it were a separate physical element: "We can now crystallise our thought into a shorter, simpler, and perhaps more exact definition of strategy as – 'the distribution and transmission of military means to fulfil the ends of policy.' For strategy is concerned not merely with the movement of armies—as its role is often defined—but with the effects. When the application of the military instrument merges into actual fighting, the dispositions for and control of such direct action are termed 'tactics.' "[34]

Despite the definition and distinction between the various levels, Liddell Hart sought to stress that these classifications were for the purpose of convenience, including scholarly convenience. In reality, defining where strategy ends and application begins is difficult: "The two categories, however, although convenient for discussion, can never be truly divided into separate compartments because each not only influences but merges into the other."[35] Moreover, "as tactics is an application of strategy on a lower plane, so strategy is an application on a lower plane of grand strategy."[36]

In Liddell Hart's view, although tactics are at the lowest level, their uniqueness derives from granting tangibility to war, realizing it in a physical sense, and thus serving as a reference point for examining the degree of a strategy's success. Put simply, tactics leads to victory in the campaign.

Strategic dislocation. Liddell Hart considers this to be the practical ruse for realizing the indirect approach. His use of the word "dis-

location" was no coincidence, as dislocation is a point which the attacker must strive to force his enemy to occupy, physically and psychologically:

> How is the strategic dislocation produced? In the physical, or "logistical," sphere it is the result of a move which (a) upsets the enemy's dispositions and, by compelling a sudden "change of front," dislocates the distribution and organization of his forces; (b) separates his forces; (c) endangers his supplies; (d) menaces the route or routes by which he could retreat in case of need and re-establish himself in his base or homeland. A dislocation may be produced by one of these effects, but is more often the consequence of several.[37]

The four physical—or logistical, as Liddell Hart called them—effects lie in the very military act itself, meaning in battle. Liddell Hart stressed the necessary distinction between the different goals of battle (e.g., physical contact) with the enemy (and not the methods used against him). In this sense, there are two basic goals for contact with the enemy: battles in the front area with the enemy that are of limited utility, according to Liddell Hart, and battles in the area of his rear forces whose benefit is greater in that "a move directed towards the enemy's rear tends to combine these effects."[38]

Liddell Hart did not show himself to have any preference for one over the other, instead emphasizing that goals differ based on the type of battle. His aim was to allow the strategist seeking to apply this principle in a conscious and deceptive manner both options—at the stage of planning the war and of applying the planning. He believed the result of strategic dislocation was marked on the psychological level defining the true meaning of the realization of the strategy of the indirect approach:

> In the psychological sphere dislocation is the result of the impression on the commander's mind of the physical effects which we have listed. The impression is strongly accentuated if his realization of his being at a disadvantage is sudden, and if he feels that he is unable to counter the enemy's move. Psychological dislocation, indeed, fundamentally springs from this sense of being trapped. This is the reason why it has most frequently followed a physical move on to the enemy's rear. An army, like a man, cannot properly defend its back from a blow without turning round to use its arms in the new direction. "Turning" temporar-

ily unbalances an army as it does a man, and with the former the period of instability is inevitably much longer. In consequence, the brain is much more sensitive to any menace to its back.[39]

In Liddell Hart's view, there is a direct relationship between the power of the indirect approach and the penetration of the component of psychological dislocation. The use of the term "trap" expresses the connection of physical actions on the battlefield to their psychological consequences in the mind of the commander, more than anything, as well as the possible achievements from this connection. Liddell Hart believed that the idea of strategic dislocation was connected to a critical strategic result: destroying the enemy's equilibrium in as efficient a manner as possible. Dislocation on this scale, both physical and psychological, can affect all levels of strategy to the point that, according to Liddell Hart, it can paralyze the enemy's entire fighting force.[40]

Despite the coherent approach between the strategic planes and strategic dislocation, Liddell Hart left considerable room for interpretating the application of his theory, as he was aware that the psychological aspect deriving from the physical world was not uniform and was in the hands of the commander, for better or worse. He noted this caveat recurringly, as in when he states, "To be effective, such a menace must usually be applied at a point closer, in time and space, to the enemy's army than a menace to his communications, and thus in early warfare it is often difficult to distinguish between the strategical and tactical manoeuvre . . . . Their respective influence, however, varies and has varied throughout history according to the size of armies and the complexity of their organization."[41]

Liddell Hart's Contribution to the General Theory of War

Liddell Hart considered the indirect approach to be a strategic principle for those seeking to win when dealing with the phenomenon of war.[42] He also considered war itself to be the cornerstone of his theory, and its understanding via historical study is what grants the scholar the empirical understanding that only those who use the indirect approach at the strategic level will win the war. In this sense, Liddell Hart's recommendations are not tactical, even though they can sometimes be interpreted as helping the junior commander in the field; they are in fact recommendations for commanders and leaders, hence Liddell Hart's insistence on the distinction between the levels of strategy (as it is there that policy aligns with military actions). This coales-

cence does not just involve vague war aims but also, and even primarily, tangible physical goals to be achieved during the campaign.

The idea that there is only one way to realize grand strategy is, in Liddell Hart's view, entirely absurd, creating an illusion that often leads to a strategy of direct approach, which succeeded in just six of the 240 campaigns he reviewed in his historical studies.[43] This insight led Liddell Hart to view the technologies offered by the industrial revolution of his time as the answer for the needs of strategy. The Second Industrial Revolution, which brought the internal combustion engine, driving tanks and planes alike, and which allowed their production in large quantities, is what he believed to also enable the application of the indirect approach.

In his view, tanks and planes were the practical tools of the commander in his efforts to drive home the idea that the enemy should surrender before the fight even starts. The support of the air domain in the activity carried out on the land domain, that is, the assistance of the plane to the tank, is not only physics; the two can, by their physical means, harm the consciousness of the enemy in his front and in the depth of his territory. In Liddell Hart's theory, the domains of land and air are redefined at the operational-strategic levels as areas granting strategists the freedom of action to realize the indirect approach, choosing their objectives and goals during the campaign and achieving them from unexpected spaces and at changing speeds. The purpose of this approach is to knock the enemy off balance and lead to his surrender.

Liddell Hart considered the strategy of indirect approach to be the perfect act of war, connecting those responsible for grand strategy and those responsible for military strategy. His theory offers commanders a strategic-level tool that can provide a primary response for dealing with the phenomenon of war. Due to the size and scope of this phenomenon, when it occurs, this kind of complex vision is needed to form the strategy of indirect approach to execute it and win the war.[44]

Isserson: *The Evolution of Operational Art* (1932)

Georgii Samoilovich Isserson (1898–1976) was born in the city of Kovno in Lithuania. In 1916, he graduated high school in Petrograd and was registered to study law. At the same time, he learned to play music at one of the conservatories in town.

Isserson's draft into the army was part of an effort to fill the echelons of the Russian army after the heavy losses it suffered in WWI. Thanks to his education and capabilities, he was sent to training and was made an officer in September 1917. The collapse of the government in the wake of the Bolshevik revolution led to his leaving the army, and once the government reorganized, he voluntarily reenlisted in June 1918 in the Bolshevik Workers and Farmers Army. Isserson did not serve in core positions in the army, even though he rose in the echelons.

His command positions allowed him to form and hone his insights and contributed to his capabilities, especially when he was involved in instruction at the Russian army's command and staff school. The teaching positions he filled over the years allowed him to write down his ideas and convey them to generations of young officers, who would eventually become the Soviet military elite influencing events during and after WWII.

Post-WWI Russia, and the USSR during WWII and after, were not easy places for various elites. Isserson was also unlucky: He was arrested in June 1941 on the grounds of not operating according to party principles, and he spent the next 15 years in jail and exile in Siberia. It was only in 1955 that his name was cleared, and he was granted the rank of colonel in the Red Army.

Isserson's most well-known book, *The Evolution of Operational Art*, was published in 1932, where he summarized his primary insights on war and the military revolution needed to win it.[45]

Isserson's Theoretical Concepts

Deep battle. In *The Evolution of Operational Art*, Isserson lays out his insights for how tactics and strategy can lead to needed success in wars. He relied on a personal study he conducted focusing on the reasons for victory and defeat in wars from Napoleon onward. His study does not deal solely with history but also with the means armies in his time had at their disposal, especially motorized forces and the tank, as well as air forces starting to form then, particularly bombers. This connection between historical observation and the developing weapons at the disposal of contemporary armies led Isserson to some central insights. He observes, for instance, that

> before the World War, military art admitted only two main elements: strategy as teaching on war, and tactics as teaching on battle. This bifurcated understanding only demonstrated once

again how far military theory lagged behind practice. Even in the second half of the nineteenth century, the evolution of the forms for armed combat exceeded the bounds of this understanding of strategy and tactics. Armed conflict gave birth to a whole chain of combat actions that stretched across a front line and were distributed in depth. These actions exceeded the limits of battle and therefore could not be subsumed into tactics. Because these actions did not embrace the phenomenon of war as a whole, they could not be treated as the teaching of strategy on war.[46]

Per Isserson's understanding, the art of operation is an entirely new doctrine. The origins of its essential foundations lie in the period after WWI, when this art acquired an independent status. Before WWI, the art of war comprised two basic branches: strategy as an expression of war and tactics as an expression of battle. The challenge facing commanders and theoreticians was breaking free of the Napoleonic paradigm of one decisive battle on the battlefield leading to the desired strategic result. According to Isserson, technological and social development now ruled out that template as an option for those engaged in war: "A modern operation does not constitute a one-act operational effort in a single locale. Modern deep operational deployments require a series of uninterrupted operational efforts that merge into a single whole. In operational terminology, this whole is known as a series of successive operations. However, this understanding is essentially incorrect. *A series of successive operations is a modern operation.* Without depth, an operation is deprived of its essence and becomes historically conservative, failing to correspond with the new conditions that define it" (emphasis in original).[47]

Thus, those dealing with war in the modern reality are challenged with creating the system enabling the art of war, or as Isserson put it,

> The challenge to operational art as instruction about the conduct of operations was how to link separate, tactically independent combat efforts in space along a front and in time, i.e., throughout the depths, in order to achieve the general aim. In other words, the challenge was to make the chain of combat efforts a highly efficient system coordinated purposefully and sequentially along the front and throughout the depths to bring about the enemy's defeat. For operational art, the solution for this problem involved contending with the new and complex problem of controlling armies deployed as a continuous front along a single line.[48]

The deployment needed to realize the art of war. Isserson did not stay at the level of theory and even recommended schematic plans for battlefield deployment to realize the idea of operational art. Not a few conservative officers considered these schematics absurd since the ranges and numbers they noted seemed technologically fantastical in Isserson's time. The schematic in figure 6, taken from Isserson's book, demonstrates the importance of his approach.
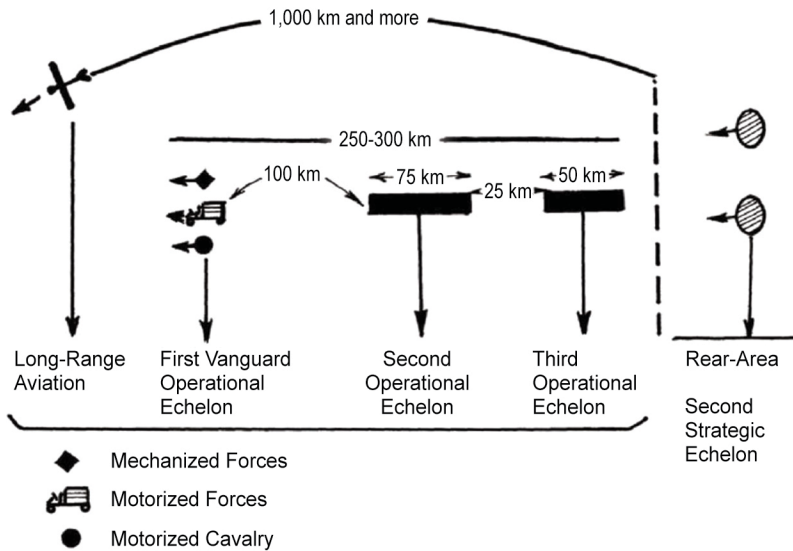

Figure 6. **Deployment of operational forces and combat into deep areas in operational perspective.** (Adapted with permission; Georgii S. Isserson, *The Evolution of Operational Art*, trans. Bruce W. Menning [Fort Leavenworth, KS: Combat Studies Institute Press, US Army Combined Arms Center, 2013], 64.)

Figure 6 shows a schematic description of the deployment of central military formations, broken down into echelons and ranges. From left to right, we can see the first operational echelon including the action of the long-term air actions deep in enemy territory alongside action at the enemy's front, with the echelon of the first operational vanguard supported by the second and third operational echelons to maintain the continuity of battle. The first strategic echelon is supported by the second strategic echelon, the rear area, appearing on the right side of the schematic. This schematic portrays the operational forces required for the scope of action and the time needed to reach rear areas and

achieve the needed operational results. Two examples that were a breakthrough in Isserson's time emerge from the schematic:

1. Reorganizing of the air arm. Moving from an auxiliary force to an independent one, which participates in the campaign as a whole. Isserson insisted that the planes should be organized into organic battle groups capable of carrying out independent actions a thousand km deep to relieve those fighting at the front, while making full use of land-based operational forces in rear areas.

2. Reorganizing distinct echelons based on designated roles. Isserson understood that there is no one point on the battlefield that can bring about the desired operational result, as was the case in Napoleon's time. Therefore, there is a need to organize and deploy in echelons. What makes this deployment unique is that it is possible at any given moment to exhaust their potential on the battlefield and avoid the linear wearing out forced on armies during WWI.[49]

The revolutionary thinking characterizing Isserson's ideas and the criticism he received can only be understood based on the period in which he lived and wrote—the interwar years—and given his residence in the Soviet Union, which was in the midst of a political and industrial revolution. The ability to realize the potential of operational art, as Isserson proposed, required a reform of military equipment on a national scale. According to Isserson, the move from an infantry army to a mechanized one, amounting to thousands of vehicles of varying types, could not just be a caprice of the army; such a change could occur only if the state, with its resources, enlisted in the effort. This issue was at the heart of fierce debates within the Russian army itself, but in the end Isserson's views were adopted in full, even if only during WWII itself owing to the constraints the war imposed. Thus, it should come as no surprise that although Isserson was recognized as a theoretician, allowing him to say things outside the consensus, he was exposed to abuse from the military and political establishment of his time to the point that he was removed from the army.[50]

The Concept of Depth and Its Place in Operational Art

According to Isserson, depth is what makes operational aspects matter. Armies tend to only see the front lines, meaning what they see in front of them. The front line blinds commanders to the true nature

of war, leading them to focus too much on the opening tactics of battle. As Isserson made clear, this approach is an error to be avoided, as the front line is only the first image before the clash; the true aim is the deeper areas, which allow one to grapple with the enemy across and throughout his deployments and defeat him on the battlefield. Isserson therefore called for defeating the enemy through continuous and regular action in the deeper areas rather than the front, as opposed to how armies operated during WWI. In his view, only actions in the enemy's rear area could bring about his strategic defeat, as this is where his true power lies: "Under present conditions, we must refer not to a series of successive operations, but to a series *of successive strategic efforts, and to a series of separate campaigns in a single war.* This understanding is historically fundamental to the evolving nature of the operation and its changing forms and methods of conduct. The blunt facts are that we are facing a new epoch in military art, and that we have to shift from a linear strategy to a deep strategy" (emphasis in original).[51]

Thus, in the modern age, enemy armies can only be defeated through a strategy allowing for continuous actions meant to reach the operational rear of the enemy and act against him there:

> The challenge to operational art as instruction about the conduct of operations was how to link separate, tactically independent combat efforts in space along a front and in time, i.e., throughout the depths, in order to achieve the general aim. In other words, the challenge was to make the chain of combat efforts a highly efficient system coordinated purposefully and sequentially along the front and throughout the depths to bring about the enemy's defeat. For operational art, the solution for this problem involved contending with the new and complex problem of controlling armies deployed as a continuous front along a single line.[52]

Isserson clarified that modern military action does not begin and end with one action in one place: "Modern deep operational deployments require a series of uninterrupted operational efforts that merge into a single whole."[53] He even stressed that in the conditions of his time, one should speak not of a series of successive actions but of a series of successive strategic efforts and a continuum of separate battles within one war.[54]

In the second part of his book, Isserson made the connection between operational operations and strategy: "A modern deep break-

through essentially requires two operational assault echelons: an attack echelon for breaching a front tactically; and a breakthrough echelon for inflicting a depth-to-depth blow to shatter and crush enemy resistance through the entire operational depth."[55] Isserson added, "During the epoch of deep strategy, a deep multi-act, multi-level main battle incorporating all an operation's phenomena will lie from beginning to end within modern operational art's sphere of competence. Otherwise there absolutely cannot be any operational art."[56]

Isserson's Contribution to the General Theory of War

Isserson pointed to the need to distinguish between the levels of war and their different expressions on the battlefield itself. The distinction at the operational level, establishing it theoretically and practically, and connecting it to tactics and strategy is at the heart of Isserson's theory. But Isserson also stressed the need to translate this distinction into action: military deployment on a future battlefield that did not yet exist.

As often happens in war, the battlefield at the operational level is dynamic and ongoing, and it is not possible to achieve things in a day that were possible in previous eras. To control the phenomenon of war and win, a belligerent needs operational breathing room in the form of the different operational echelons; these are what grant ongoing vitality to the battlefield in moments when it stagnates.

Based on these insights, Isserson stated that the way to exhaust all domains in war is their full industrialization—not just one plane, but thousands, and the same with tanks. In this sense, it was clear to him that a significant mass was needed to succeed and win in war. It was not a matter of one or two technological items but myriad tools and means of war. It was also not a matter of being able to deal one decisive blow on the battlefield; rather, a number of blows were needed to defeat the enemy at the operational and strategic levels.[57]

There is no historical support for Isserson's claim that conceptual and practical organization can bring victory. Armies armed and equipped at the scale he required did not exist in WWI. Moreover, even when leaders tried to apply his approach during the Soviet war with Finland, with Isserson himself present on the battlefield in December 1939, it ended in complete failure.[58]

It would seem that the main difficulty in proving "deep battle" theory is Isserson's overly mechanical approach to the battlefield. Iss-

erson was aware of this predilection and even tried to integrate the phenomenon of war and the technology made available by the Second Industrial Revolution in a kind of thought experiment in the future organization of military technology within war, connected to a vision through theory. But Isserson failed in not presenting the dilemmas military commanders would face in trying to realize his approach on the battlefield. In this sense, his insights regarding the phenomenon of war are relatively poor, and as mentioned, he neither helped the commanders in the field nor indicated the way to maximize the potential of the proposed deployment on the battlefield. These issues remain obscure, which emphasizes them even more precisely due to his lack of reference to them.[59]

Despite his sparse attention to what actually happens on the battlefield. Isserson clarified that anyone who wants to win in war cannot do so without a deep battle approach and its accompanying operational mode of thinking. In this sense, this strategy combined with technology is the first potential factor needed to begin to think of victory. Victory itself will be achieved by the people fighting on the battlefield. This insight attests to Isserson not considering his diagnosis to be a guaranteed recipe for success but merely a necessary first step commanders need to adopt and exhaust if they wish to win.

Fuller: *Memoirs of an Unconventional Soldier* (1936)

John Frederick Charles Fuller (1878–1966) was born in Chichester, England. He was known as an autodidact, and although he was raised in a religious home, his independent approach led him to becoming an agnostic.[60] At age 19 he began a military career track in the British army and was sent to the Royal Military College in Sandhurst. He did most of his service in the light infantry.[61] After studying in various command courses, he was appointed in 1916 as operations officer for a tank corps. Although he played no role in inventing the tank, he quickly established himself, developing the corps's tactical doctrine and the operational framework which guided its moves during WWI in 1917–18.[62]

During his military service, Fuller wrote many memos that were received favorably by the British army, but their being classified denied him publicity or a broader audience. It was only in 1938 that Fuller published his book *Memoirs of an Unconventional Soldier*, in which

he collected many of his professional memos and articles.[63] Its publication led to his theory becoming widespread knowledge outside professional military circles, and his memoirs thus became the book in which Fuller laid out his theory of war.

Fuller's Theoretical Principles

During WWI, the British army's tank corps and other units were occupied with the question of the best way to integrate tanks in battle against the German fortifications on the Western Front. Since this army did not yet have experience of large-scale tank warfare, it often needed to invent the tactical methods for cooperation between the tank corps and the infantry, artillery, and planes; form procedures for supply and communications; and constantly hone all these based on accumulated experience.[64]

The staff documents appearing in Fuller's memoirs point to how his approach regarding mass tank warfare developed from 1917 on. The arrival of the first tanks on the battlefield led Fuller to form the approach that the tank corps needed to break through enemy fortifications. This strategy can lead to the exploitation of success to the point of pursuing the enemy with tanks. It effectively represented the idea of the offensive, as applied at Cambrai in November 1917, where the tank witnessed its first success.[65]

In preparation for the later, decisive offensive, Fuller gradually developed an operational framework whose final version appeared in his famous Plan 1919 from May 1918 (see below for more on Plan 1919). The framework Fuller proposed was based on an army of a thousand tanks, divided into three echelons:

> The first echelon was meant to engage in a frontal, combined arms assault on the enemy's defensive line.
>
> The second echelon was meant to break through directly into the enemy's command area deep in his rear to bring about paralysis, panic, and complete lack of control. This stage was meant to hit the enemy's "brain" and "nerve center."
>
> The third echelon was meant to ensure a strategic pursuit on a large scale, to turn the enemy's defeat into a total collapse.[66]

Fuller formed this approach—conducting an offensive with broad goals and with three echelons—out of a deep recognition of the far-reaching consequences of the age of machines, the product of the

Second Industrial Revolution. He focused on the contribution of the internal combustion engine in particular:

> The one thing to realise is, that mechanical warfare is going to supersede muscular warfare. That is to say, more and more is war going to depend on the engine than on man's legs. In the administrative services this war has already largely replaced horse traction by motor traction.
>
> Except for the armoured car, the tank is the first application of this means of movement to the fighting units. The tank today carries forward the riflemen, of the future. These riflemen, or machine gunners, must be supported by tank artillery and by tank bayonet-men, so as to occupy and make good what the tank riflemen render possible.
>
> If this is sound reasoning, then we should forthwith prepare to raise the mechanical army we shall require, and to select a theatre of operations suited to its tactics.[67]

To demonstrate this approach, Fuller relied on the revolution that had already occurred at sea with the move from steamships to gasoline-based ships as well as developments occurring in the field of industrial production: "The application of petrol to land warfare will prove as great a step in tactics as that of steam in naval warfare . . . [in] that the application of machinery to land warfare is as great a saver of manpower as its application to manufacture."[68] Fuller stressed the declining role of weapons then in use and the rise in importance of mechanized warfare: "To continue to think in terms of rifle and cannon, in terms of man-carried weapons and horse-drawn guns in place of mechanically-propelled or carried weapons, is to abrogate common sense."[69]

Plan 1919

Fuller's most famous memo was Plan 1919.[70] This memo is probably what made his book so popular, in no small part thanks to his detailed tactical description of the use of tanks in future battlefields after WWI. The memo allowed many of the professional ranks, whether army officers or political leaders, to try to interpret and expand on Fuller's proposal. However, there was no broad consensus on its strategic context or tactical contribution to the organization of the British army after the war.

In the first part of the memo, Fuller described the tank's effect on the tactics of warfare: "(i) It increases mobility by replacing muscular by mechanical power. (ii) It increases security by using armour plate to cut out the bullet. (iii) It increases offensive power by relieving the soldier from having to carry his weapons, and the horse from having to haul them, and it multiplies the destructive power of weapons by increasing ammunition supply."[71]

Fuller examined the effect of the tank on strategy, stating that strategic change is based on the revolution in mobility; the ability to cut loose from roads and rail lines and move over any sort of terrain is the very heart of the change: "The possibility to-day of maintaining supply and of moving weapons and munitions over the open, irrespective of roads and without the limiting factor of animal endurance, introduces an entirely new problem in the history of war. At the moment he who grasps the full meaning of this change, namely, that the earth has now become as easily traversable as the sea, multiplies his chances of victory to an almost unlimited extent. Every principle of war becomes easy to apply if movement can be accelerated and accelerated at the expense of the opposing side."[72]

To demonstrate, Fuller compared the revolution in mobility to the naval revolution (of sail to engine ships): "To-day, to pit an overland mechanically moving army against one relying on roads, rails and muscular energy is to pit a fleet of modern battleships against one of wind-driven three-deckers."[73] Later, Fuller pointed to the mistaken method for tactical use of the tank then being followed, writing that:

> The Present Tank Tactical Theory: Up to the present the theory of the tactical employment of tanks has been based on trying to harmonise their powers with existing methods of fighting, that is, with infantry and artillery tactics. In fact, the tank idea, which carries with it a revolution in the methods of waging war, has been grafted on to a system it is destined to destroy, in place of being given free scope to develop on its own lines. This has been unavoidable, because of the novelty of the idea, the uncertainty of the machine and ignorance in its use.
>
> Knowledge can best be gained by practical experience, and at first this experience is difficult to obtain unless the new idea is grafted to the old system of war. Nevertheless, it behoves us not to forget that the tank (a weapon as different from those which preceded it as the armoured knight was from the unarmoured

infantry who preceded him) will eventually, as perfection is gained and numbers are increased, demand a fundamental change in our tactical theory of battle.[74]

In Fuller's view, the use of tanks was a strategic matter, not a tactical one; the strategy lay in the speed with which one could realize given aims on a battlefield:

> The brains of an army are its Staff—Army, Corps and Divisional Headquarters. Could we suddenly remove these from an extensive sector of the German front, the collapse of the personnel they control would be a mere matter of hours, even if only slight opposition were put up against it. Even if we put up no opposition at all, but in addition to the shot through the brain we fire a second shot through the stomach, that is, we dislocated the enemy's supply system behind his protective front, his men will starve to death or scatter.
>
> Our present theory, based on our present weapons, weapons of limited range of action, has been one of attaining our strategical object by brute force; that is, the wearing away of the enemy's muscles, bone and blood. To accomplish this rapidly with tanks will demand many thousands of these machines, and there is little likelihood of our obtaining the requisite number by next year; therefore let us search for some other means, always remembering that probably, at no time in the history of war, has a difficulty arisen the solution of which has not at the time in question existed in some man's head, and frequently in those of several. The main difficulty has nearly always lurked, not in the solution itself, but in its acceptance by those who have vested interests in the existing methods.
>
> As our present theory is to destroy "personnel," so should our new theory be to destroy "command," not after the enemy's personnel has been disorganised, but before it has been attacked, so that it may be found in a state of complete disorganisation when attacked. Here we have the highest application of the principle of surprise—surprise by novelty of action, or the impossibility of establishing security even when the unexpected has become the commonplace.
>
> Compared to fighting men there are but a few Commanders in the field; therefore the means required to destroy these Com-

manders will be far less than those normally required to destroy the men they control.[75]

Later, Fuller connected between technology and the ability to bring it to strategic expression on the battlefield:

The Suggested Solution: In order to render inoperative the Command of the German forces on any given front, what are the requirements?

From the German front line the average distance to nine of their Army Headquarters is eighteen miles; to three Army Group Headquarters forty-five miles; and the distance away of their Western G.H.Q. is one hundred miles. For purposes of illustration the eighteen-mile belt or zone containing Army, Corps and Divisional Headquarters will prove sufficient.

Before reaching these Headquarters elaborate systems of trenches and wire entanglements, protected by every known type of missile-throwing weapon, have to be crossed.

To penetrate or avoid this belt of resistance, which may be compared to a shield protecting the system of command, two types of weapons suggest themselves:

(i) The aeroplane.

(ii) The tank.

The first is able to surmount all obstacles; the second to traverse most.

The difficulties in using the first are very great; for even if landing-grounds can be found close to the various Headquarters, once the men are landed, they are no better armed than the men they will meet; in fact, they may be compared to dismounted cavalry facing infantry.

The difficulties of the second are merely relative. At present we do not possess a tank capable of carrying out the work satisfactorily, yet this is no reason why we should not have one nine months hence if all energies are devoted to design and production. The idea of such a tank exists, and it has already been considered by many good brains; it is known as the "Medium D tank."[76]

To strengthen his arguments, Fuller carefully listed the traits of the new tank and how it would be used in battle:

The Tactics of the Medium D Tank: The tactics of the Medium D tank are based on the principles of movement and surprise,

its tactical object being to accentuate surprise by movement, not so much through rapidity as by creating unexpected situations. We must never do what the enemy expects us to do; instead, we must mislead him, that is, control his brain by our own. We must suggest to him the probability of certain actions, and then, when action is demanded, we must develop it in a way diametrically opposite to the one we have suggested through our preparations.

Thus, in the past, when we massed men and guns opposite a given sector, he did the same and frustrated our attack by making his own defences so strong that we could not break through them, or if we did, were then too exhausted to exploit our initial success. At the battle of Cambrai, when our normal method was set aside, our blow could not be taken advantage of, because the forces which broke through were not powerful enough to cause more than local disorganisation. The enemy's strength was not in his front line, but in rear of it; we could not, in the circumstances which we and not he had created, disorganise his reserves. Reserves are the capital of victory.[77]

At this stage, the tank was not left alone on the battlefield, and Fuller tied it in with the general operational story and the form of war a belligerent wants to win:

The Medium D Tank Battle: A battle based on the powers of the Medium D tank may in brief be outlined as follows:

A frontage of attack of some ninety miles should be selected, and on this frontage, by the inducement of visible preparation some four or five German armies collected. Then the area lying between the lines connecting up the German Army Headquarters and those linking their Divisional Headquarters will form the zone of the primary tactical objective. Heretofore it has been the area between the enemy's front line and his main gun positions, but this zone will now become the secondary tactical objective. The geographical position of objectives is therefore reversed: the last becomes the first and the first becomes the last. Here is the foundation of surprise.

Once preparations are well in hand, without any tactical warning whatsoever, fleets of Medium D tanks should proceed at top speed by day, or possibly by night, directly on to the various Headquarters lying in the primary tactical zone. If by day, these targets can be marked by aeroplanes dropping coloured smoke,

and if by night, by dropping coloured lights, or by guns firing coloured light shells. As the longest distance to be covered may be taken as twenty miles, the Medium D tanks should reach the German Army Headquarters in about two hours.

Meanwhile every available bombing machine should concentrate on the various supply and road centres. The signal communications should not be destroyed, for it is important that the confusion resulting from the dual attack carried out by the Medium D tanks and aeroplanes should be circulated by the enemy. Bad news confuses, confusion stimulates panic.

As soon as orders and counter-orders have been given a little time to become epidemic, a carefully mounted tank, infantry and artillery attack should be launched, the objective of which is the zone of the enemy's guns; namely, the secondary tactical zone some 10,000 yards deep.[78]

This done, pursuit, the tactical act of annihilation, becomes possible. Pursuit is the dividend of victory; the more reserves we force the enemy to mass, so long as we disorganise them, the greater will be the tactical interest on our capital. With the Medium D tank and the aeroplane there is no reason why we should not receive one hundred per cent interest upon our investments. This represents winning the war in a single battle.[79]

Fuller saw fit to describe the campaign in minute detail with the aim of imagining the future battlefield and trying to demonstrate it to the outside observer, whether statesman, commander, or ordinary soldier. He described the whole of the battlefield, including the tank, because he wanted to separate the tank from its limited image—as being meant solely for tactical use on the battlefield—and to point to its potential. Using this unique perspective, Fuller even used the precise number of tanks needed in the future: "The number of Medium D tanks required by May 1919 is 2,000, and with this number there is every prospect of ending the war."[80]

As we know, this plan was never executed. However, Fuller's memoirs became a formative work of its kind regarding everything related to delivering the message that tanks are a technological revolution in land warfare. The book became what it was thanks to its detailed descriptions of the tank and its capabilities on the battlefield, but also thanks to less successful and well-formed explanations like the physics of the tank and its connection to the strategic level. However, it

would be difficult to believe, certainly after WWI, that only tanks could change the face of war and allow statesmen and commanders to come out of war with the upper hand. Fuller's description of the tank is insufficiently detailed to convince us that the tank is the tool that will bring about the needed strategic achievement as well as victory in war.

Fuller's Contribution to the General Theory of War

Fuller attributed a great deal of importance to the products of the industrial revolution and the technologies they created, translating them into actual operational output on the battlefield.[81] The "stagnation" of the land battlefield in WWI, which could be blamed on a variety of reasons such as a multiplicity of trenches, barbed wire, machine guns, and so on, led Fuller to focus on the tank as the central means of warfare needed for future war. His preoccupation (which sometimes seemed obsessive) with the number of tanks, their different models, and many other technical details, though attesting to his great expertise, was meant primarily to show that he was no fantasist but rather a practical military man. As such, it turned out that he did not really deal with tactics, as he did not describe the activity of the tank during combat for the sake of achieving any goal. He sufficed merely with describing the capabilities of this tool and the number of tanks needed for operational realization of the strategic goal.

In Fuller's view, if this means of warfare is organized in an industrialized manner, meaning a land army of some 2,000 tanks, it can produce the needed strategic output, meaning reaching strategic goals quickly and winning the war. This understanding relies on two predominant aspects the tank represents: the first is mobility, as the tank is a tool that is not limited to dirt or paved roads and can run over obstacles on the battlefield, especially trenches and barbed wire, and the second and more significant aspect is the man-machine relationship on the battlefield. With the aid of machines, fewer people are needed to accomplish strategic goals than in the past and they can do so in a shorter time.

War itself, with its horrors, remained a deep but vague concept for Fuller. He did not treat it as something to be learned from to improve army performance in preparation for the next war. We can explain this perspective by noting that Fuller was present in wars that did not contain mechanized means of warfare on a large scale. The participation of a few tanks in WWI did not attest to their being able to secure

significant success much beyond the tactical level. But this data did not drive Fuller to think differently than he did on the theoretical potential underlying the industrialization of the land domain through mechanized means of warfare on a large scale, those means which would in time overturn the battlefield.

Mao: *On Guerilla Warfare* (1937)

Mao Tse-tung (1893–1976) was born to a farming family in the Chinese province of Hunan. He began his political activity at a relatively young age, becoming one of the founders of the Chinese Communist Party at 28. In 1926, he launched the first farmers' revolt, which was repressed by the Guomindang.[82] He then fled to the hills, founding a revolutionary army in 1928–30, which consisted of his supporters and other groups that had also escaped. This army succeeded in establishing regular bases and establishing them in areas declared as independent communist regions, to the point that they were declared a "Soviet Republic" with Mao as its chairman. Despite these efforts, the struggle for the future of China was far from over, especially when WWII began to make its mark on Chinese soil.

In the wake of the Japanese invasion of China, Mao and the Guomindang government declared a truce in 1937 and decided to work together against their common enemy. Mao's Eighth Route Army became a unit that worked together with the army of Chiang Kai-shek (1887–1975) in fighting the Japanese invaders. After the Japanese were defeated in WWII, Mao and his communist forces renewed the Chinese Civil War and in 1949 took over the entire territory of China, declaring the establishment of the Chinese People's Republic.

The era of struggle against the Japanese served as the background for Mao writing his *On Guerilla Warfare*.[83] The book reflects his main insights regarding war and, moreover, how to organize and conduct it, from the broader political context to the level of the individual soldier. In his book, Mao laid the foundation for his ideas and teachings, as reflected in his later lectures.

Mao's Theoretical Concepts

War and politics. Mao considered war to be an inherent part of politics. Indeed, he did not think the two were separable; without politics, war is nothing more than empty violence. What turns mere

violence into war is only politics. According to him, "Lenin, in *On Guerrilla Warfare*, said: 'As regards the form of fighting, it is unconditionally requisite that history be investigated in order to discover the conditions of environment, the state of economic progress, and the political ideas that obtained, the national characteristics, customs, and degree of civilization.' "[84]

In his view, the result of a political move is the same as a military move, even if the path to securing each is different—one speaks, the other holds a rifle: "There are some militarists who say: 'We are not interested in politics but only in the profession of arms.' It is vital that these simpleminded militarists be made to realize the relationship that exists between politics and military affairs. Military action is a method used to attain a political goal. While military affairs and political affairs are not identical, it is impossible to isolate one from the other."[85]

The priority of policy over war can be seen in the relationship between the party and the army. The leadership is in the hands of the party directing the fighting, while policy is realized by the military command. In the prerevolutionary stage, the party is the state-in-being, and the army is a tool at the disposal of the party: "There is no reason to consider guerrilla warfare separately from national policy. On the contrary, it must be organized and conducted in complete accord with national anti-Japanese policy. It is only those who misinterpret guerrilla action who say . . . 'the question of hostilities is purely a military matter and not a political one.' Those who maintain this simple point of view have lost sight of the political goal and the political effects of guerrilla action. Such a simple point of view will cause the people to lose confidence and will result in our defeat."[86]

The idea of a revolutionary guerrilla army originated with Mao, this despite the indoctrination he received in Russia regarding how to lead the communist revolution. Mao understood that the classic Marxist scheme of proletarian revolution in the cities was not applicable to China, as the power of the Chinese Communist Party lay in organizing the farmers as an army. In his view, the farmers, considered marginal in classical Marxist thought, could in the right context or circumstances be the bearers of the revolution: "There are those who say: 'I am a farmer,' or, 'I am a student'; 'I can discuss literature but not military arts.' This is incorrect. There is no profound difference between the farmer and the soldier. You must have courage. You simply leave your farms and become soldiers. That you are farmers is of no difference, and if you have education, that is so much the better. When you take

your arms in hand, you become soldiers; when you are organized, you become military units."[87]

Mao understood that communist efforts need to fit the character of the citizens and study their national consciousness and identification: "The political goal must be clearly and precisely indicated to inhabitants of guerrilla zones and their national consciousness awakened. Hence, a concrete explanation of the political systems used is important not only to guerrilla troops but to all those who are concerned with the realization of our political goal."[88]

This insight of Mao's reflects his thought in depth, as even if the phenomenon of war has ostensibly universal outlines, these cannot be adopted without properly understanding the unique conditions in which war takes place. In his view, war is not solely about the supreme commander but a distinction applying to the entire leadership leading the war effort. All can become part of the revolutionary army at its different levels, so long as they invest the proper political-educational resources. Only thus can the war be won:

> Guerrilla warfare is neither a product of China nor peculiar to the present day. From the earliest historical days, it has been a feature of wars fought by every class of men against invaders and oppressors. Under suitable conditions, it has great possibilities. The many guerrilla wars in history have their points of difference, their peculiar characteristics, their varying processes and conclusions, and we must respect and profit by the experience of those whose blood was shed in them.
>
> Historical experience is written in iron and blood. We must point out that the guerrilla campaigns being waged in China today are a page in history that has no precedent. Their influence will not be confined solely to China in her present anti-Japanese war but will be world-wide.[89]

Therefore, despite the universal aspects of guerilla warfare, which are an inherent part of the phenomenon of war, its place derives solely from the local context in which it is conducted. Mao described this approach in detail, noting historical test cases throughout the third chapter of his book.[90] He argued that it would be a mistake to place the Chinese guerilla struggle in the same category as national guerilla struggles. His position was that "if we do not make an estimate of the characteristics peculiar to our anti-Japanese guerrilla war, but insist on applying to it mechanical formulas derived from past history, we

are making the mistake of placing our hostilities in the same category as all other national guerrilla struggles. If we hold this view, we will simply be beating our heads against a stone wall and we will be unable to profit from guerrilla hostilities."[91]

The Three Stages of Guerilla Warfare as Part of the Phenomenon of War

Mao formed a plan in which guerilla fighting would be conducted in three stages. These stages were meant to show how victory is possible despite poor starting conditions. A long war is not something to look forward to, and it is therefore important to show how actions during war lead to victory, even if the connection between them is not always obvious. When these actions are presented to the people, it is natural and obvious to show them the developing dynamic of warfare on the ground and the odds of a resolution.

It would seem this breakdown into stages was a psychological means of maintaining the nation's and soldiers' morale more than an analytical framework. His theory of stages was also meant to point to the limits of guerilla warfare, effectively conceding that victory cannot be achieved in war solely through this method of warfare. In other words, guerrilla warfare is only a transitional stage in war: "During the progress of hostilities, guerrillas gradually develop into orthodox forces that operate in conjunction with other units of the regular army. Thus, the regularly organized troops, those guerrillas who have attained that status, and those who have not reached that level of development[,] combine to form the military power of a national revolutionary war. There can be no doubt that the ultimate result of this will be victory."[92]

He later listed the ways to be chosen to ensure victory:

All guerrilla units start from nothing and grow. What methods should we select to ensure the conservation and development of our own strength and the destruction of that of the enemy? The essential requirements are the six listed below:

Retention of the initiative; alertness; carefully planned tactical attacks in a war of strategical defense; tactical speed in a war strategically protracted; tactical operations on exterior lines in a war conducted strategically on interior lines.

Conduct of operations to complement those of the regular army.

The establishment of bases.

A clear understanding of the relationship that exists between the attack and the defense.

The development of mobile operations.

Correct command.[93]

In the seventh chapter of his book, which deals with guerilla warfare against Japan, Mao described the three primary stages of extended warfare. The first includes the period in which the enemy is conducting a strategic offensive, while the Chinese are on the strategic defensive. The second stage is the period in which the enemy is in strategic withdrawal, and the Chinese are conducting a strategic counteroffensive.[94] Mao put it this way: "We must unite the strength of the army with that of the people; we must strike the weak spots in the enemy's flanks, in his front, in his rear. We must make war everywhere and cause dispersal of his forces and dissipation of his strength. Thus the time will come when a gradual change will become evident in the relative position of ourselves and our enemy, and when that day comes, it will be the beginning of our ultimate victory over the Japanese."[95]

In his view, guerilla warfare is a strategy, meaning the main part of war and not just a means or way to assist the main effort. The stages he listed mark a gradual and controlled escalation of violence in guerilla actions, a reversal of the balance of power. It is a process of advancing from a less formal structure of guerilla fighting to a more formal structure of a regular army, from sporadic action to continuous fighting, and from the third level of violence to the second based on the schema of the three levels.[96]

The Relationship Between Strategy, Operations, and Tactics

As noted, Mao examined the strategic problems regarding the guerilla war against the Japanese invaders. He formulated his conclusions in the form of these assumptions:

Before we treat the practical aspects of guerrilla war, it might be well to recall the fundamental axiom of combat on which all military action is based. This can be stated: "Conservation of one's own strength; destruction of enemy strength." A military policy based on this axiom is consonant with a national policy directed towards the building of a free and prosperous Chinese state and the destruction of Japanese imperialism. It is in furtherance of this policy that government applies its military strength.

Is the sacrifice demanded by war in conflict with the idea of self-preservation? Not at all. The sacrifices demanded are necessary both to destroy the enemy and to preserve ourselves; the sacrifice of a part of the people is necessary to preserve the whole. All the considerations of military action are derived from this axiom. Its application is as apparent in all tactical and strategical conceptions as it is in the simple case of the soldier who shoots at his enemy from a covered position.[97]

Based on this understanding, Mao formed his instructions for operations. In this context, he explained the place of guerilla warfare in general within the framework of the phenomenon of war, as well as its place as combat beyond the strategic dimension:

While it is improper to confuse orthodox with guerrilla operations, it is equally improper to consider that there is a chasm between the two. While differences do exist, similarities appear under certain conditions, and this fact must be appreciated if we wish to establish clearly the relationship between the two. If we consider both types of warfare as a single subject, or if we confuse guerrilla warfare with the mobile operations of orthodox war, we fall into this error: We exaggerate the function of guerrillas and minimize that of the regular armies. If we agree with [he] . . . who says, "Guerrilla warfare is the primary war strategy of a people seeking to emancipate itself," or with . . . [he] who believes that "Guerrilla strategy is the only strategy possible for an oppressed people," we are exaggerating the importance of guerrilla hostilities.[98]

After issuing operational instructions in the general strategic context, he moved on to send innumerable instructions at the tactical level to ensure that operations were carried out within that context. These instructions are sometimes seen as incomprehensible if not read within the context of operations and strategy. To this end, Mao laid down a series of guidelines, listed below.

Guidelines of command. According to Mao, "When the situation is serious, the guerrillas must move with the fluidity of water and the ease of the blowing wind. Their tactics must deceive, tempt, and confuse the enemy. They must lead the enemy to believe that they will attack him from the east and north, and they must then strike him from the west and the south. They must strike, then rapidly disperse.

They must move at night."[99] Moreover, the skill in conducting guerilla warfare does not necessarily derive from an understanding of the issues discussed above but rather their practical application on the battlefield: "The quick intelligence that constantly watches the ever-changing situation and is able to seize on the right moment for decisive action is found only in keen and thoughtful observers."[100]

Guidance regarding the dividing of forces. Mao provided clear conditions for splitting up fighting forces:

> In general, guerrilla units disperse to operate:
> When the enemy is in overextended defense, and sufficient force cannot be concentrated against him, guerrillas must disperse, harass him, and demoralize him.
> When encircled by the enemy, guerrillas disperse to withdraw.
> When the nature of the ground limits action, guerrillas disperse.
> When the availability of supplies limits action, they disperse.
> Guerrillas disperse in order to promote mass movements over a wide area.[101]

Even when required to disperse forces, he proposed using judgment in doing so:

> Regardless of the circumstances that prevail at the time of dispersal, caution must be exercised in certain matters:
> A relatively large group should be retained as a central force. The remainder of the troops should not be divided into groups of absolutely equal size. In this way, the leader is in a position to deal with any circumstances that may arise.
> Each dispersed unit should have clear and definite responsibilities. Orders should specify a place to which to proceed, the time of proceeding, and the place, time, and method of assembly.[102]

Guidance regarding operating within and alongside the population. The connection between guerilla activity and the local population is also discussed by Mao. These are his guidelines on this issue:

> There is also a unity of spirit that should exist between troops and local inhabitants. The Eighth Route Army put into practice a code known as "The Three Rules and the Eight Remarks," which we list here:
> Rules:
> 1. All actions are subject to command.

2. Do not steal from the people.
3. Be neither selfish nor unjust.

Remarks:
1. Replace the door when you leave the house.
2. Roll up the bedding on which you have slept.
3. Be courteous.
4. Be honest in your transactions.
5. Return what you borrow.
6. Replace what you break.
7. Do not bathe in the presence of women.
8. Do not without authority search the pocketbooks of those you arrest.

The Red Army adhered to this code for ten years and the Eighth Route Army and other units have since adopted it.[103]

Guidelines regarding organizing the region. The need to define the guerilla units' area of activity required precise instructions: "A guerrilla base may be defined as an area, strategically located, in which the guerrillas can carry out their duties of training, self-preservation and development. Ability to fight a war without a rear area is a fundamental characteristic of guerrilla action, but this does not mean that guerrillas can exist and function over a long period of time without the development of base areas."[104]

By "base areas" Mao meant to express the tension between the regular need of guerilla forces to be in a state of mobility and the need for a fixed geographical or base area, where they could equip themselves, rest, and organize for continued operational activity needed to complete their mission. This tension is magnified by the principle that a situation where the enemy can attack the guerilla forces directly and in an orderly fashion must be avoided. To respond to this tension, base areas were defined—large geographic spaces, including villages and settlements—between which forces could move, equip themselves, and rest. Still, these areas were deep inside the territory, meaning that enemy movement toward these settlements cannot take place for long without being noticed. Thus did Mao's guerilla forces succeed in maintaining mobility over time and preventing the enemy from gaining the opportunity to directly attack them in the field.

According to him, in every given area, one of the following three situations will occur: the area will remain under Chinese control, fall into Japanese hands and become a puppet government, or be divided

among the fighting forces. Guerilla leaders need to do everything they can to ensure the first or third case: "Our activities must be extended over the entire periphery of the base area if we wish to attack the enemy's bases and thus strengthen and develop our own. This will afford us opportunity to organize, equip, and train the people, thus furthering guerrilla policy as well as the national policy of protracted war."[105]

Guidance regarding flexible combat. Base areas serve as an anchor in the geographic region and a starting point for guerilla forces moving around the area, allowing for tactical operations to be guided accordingly: "Let us revert to alertness. To conduct one's troops with alertness is an essential of guerrilla command. Leaders must realize that to operate alertly is the most important factor in gaining the initiative and vital in its effect on the relative situation that exists between our forces and those of the enemy. Guerrilla commanders adjust their operations to the enemy situation, to the terrain, and to prevailing local conditions. Leaders must be alert to sense changes in these factors and make necessary modifications in troop dispositions to accord with them."[106]

Mao summarized his proof regarding the difference between regular and guerilla warfare, including the flexibility characterizing the latter: "The strategy of guerrilla warfare is manifestly unlike that employed in orthodox operations, as the basic tactic of the former is constant activity and movement. There is in guerrilla warfare no such thing as a decisive battle; there is nothing comparable to the fixed, passive defense that characterizes orthodox war."[107]

Mao's Contribution to the General Theory of War

As opposed to other commanders mentioned here, Mao did not have a regular army at his disposal, one he could lead and use to impose the new revolutionary order. To the contrary, he needed to create his army and pour unique content into it to achieve his political aims. In the face of a challenge of this magnitude and recognizing that the Soviet model could not be realized in China, Mao was forced to reorganize his theoretical approach. In this context, he developed his theory on guerilla war—organizing the people into military forces operating along guerilla lines, according to guerilla rules, and effectively according to laws that contradict ideas of clashes between regular armies as the only way to win a decisive victory.[108]

Mao recognized that there are universal laws of war whose expression is local, that is, unique to the time, place, and people engaged in

the act of war. This recognition allowed him to identify the poor peasants of China as the bearers of the revolution he sought to lead, a revolution to be realized differently than the Soviet model, which sought first and foremost to enlist the city-dwelling proletariat.

In his view, the uniqueness of guerilla action derived from the supreme political needs of the guerilla leaders. This view led him to determine the guerilla rules from the level of the party—the supreme political level for forming policy—to the strategy for use of force and its application at the tactical level. In this sense, every action in war has a unique context. This context is what creates the variety and logic of operational actions in the field leading to victory on the battlefield. Based on this hierarchical view, Mao could demand the individual guerilla fighter obey and be committed to the entire effort—the individual guerilla fighter cannot do whatever he wants on the way to victory on the battlefield, as even he is obligated by a certain code of conduct deriving from a view of the ultimate political needs.

His proposal of a holistic view of violence in war is his contribution to the general theory of war.[109] Only this kind of perspective—moving from the level of politics down through the strategic, operational, and tactical level to the ordinary soldier—can ensure victory in war through guerilla tactics.

Mao attributed little, if any, importance to the domains of warfare and existing technology in achieving the needed goals. But this does not mean he was dismissive of military technology as such, whether it came to artillery on land, ships at sea, or planes in the air. In truth, he concluded that politics and strategy outline the parameters of the violent act, its tempo, and its goals. In his approach, he sharpened the way we view the different layers of war and the ability to organize violent activities within it to ensure a tangible political achievement and overall victory.

Notes

1. A first edition of the book came out in Italian in 1921. In the 1927 edition, Douhet added a chapter dealing with future war. In this volume, I relied on the English translation from 1983.

2. Douhet, *Command of the Air*, 23.

3. Douhet, 192.

4. Douhet, 28.

5. Douhet, 191.

6. Douhet, 136.

7. Douhet, 61.

8. Douhet, 20.

9. Douhet, 22–23.

10. Douhet, 5, 59, 94–96.

11. Douhet, 185.

12. Douhet, 204, 225, 227, 258.

13. Douhet, 237.

14. Douhet, 9.

15. Douhet, 25.

16. Douhet, 20.

17. Douhet, 10.

18. WWI ended because of the weakness of Germany as a nation and not because of the defeat of the German army on the battlefield. Its defeat was significantly helped by America's entry into the war in 1917. The German leadership understood that maintaining the country's territorial integrity meant suing for an armistice.

19. On the deficiencies and gaps in this approach regarding victory from the air, see Luttwak, *Strategy: The Logic of War and Peace*, 176, 204–5; regarding the inability of air forces to win wars on their own, tactically or strategically, see Hippler, *Bombing the People*, 160–66.

20. The following is a partial list of the original book and its various titles over the years: Henry Basil Liddell Hart, *The Decisive Wars of History* (London: G. Bell & Sons, 1929); *The Strategy of Indirect Approach* (London: Faber and Faber, 1941); *The Way to Win Wars* (London: Faber and Faber, 1943); *The Strategy of Indirect Approach* (London: Faber and Faber, 1946); *Strategy: The Indirect Approach* (London: Faber and Faber, 1954); and *Strategy: The Indirect Approach* (London: Faber and Faber, 1967). The editions containing the bulk of his important ideas are from 1929 and 1946, not necessarily the book's last edition from 1967; it contains additional appendices and a more updated language, but these are not of interest for this study. This book therefore uses the 1929 edition for all future references.

21. Liddell Hart did not include WWI, which took place from 1914 to 1918, in his book because he believed not enough time had passed to make unequivocal conclusions on the event. The book's conclusions therefore primarily rely on the survey provided in its first part—from the battle of Marathon in 490 BC to the beginning of WWI—covering 2,404 years. Liddell Hart, *Decisive Wars of History*, 159.

22. Liddell Hart, 8, 140, 141.

23. Liddell Hart notes six battles in his book as the only ones in which the direct approach secured victory:

Issus, between the Greeks commanded by Alexander the Great and the Persians commanded by Darius III in 333 BCE, ending in a Greek victory.

Gaugamela, known also as Arbela, between the Greeks under the command of Alexander the Great and the Persians under the command of Darius III in 331 BCE, ending in a Greek victory.

Friedland, between Napoleon's French army and the armies of the Russian Empire commanded by Count von Bennigsen in 1807, ending in a French victory.

Wagram, between Napoleon's French army and the Austrian army commanded by Archduke Charles of Austria-Teschen in 1809, ending in a French victory.

Königgrätz/Sadova, between the Prussian army commanded by Moltke the Elder and the Austrian army commanded by Ludwig von Benedek in 1866, ending in a Prussian victory.

Sedan, between Napoleon III's French army and Moltke the Elder's Prussian army in 1870, ending in a Prussian victory.

Liddell Hart, *Decisive Wars of History*, 141.

24. Liddell Hart, 141–42.
25. Liddell Hart, 154.
26. Liddell Hart, 143.
27. Liddell Hart, 144.
28. Liddell Hart, 4.
29. Liddell Hart, 5.
30. Liddell Hart.
31. Liddell Hart, 5–7.
32. Liddell Hart, 145–46.
33. Liddell Hart, 150.
34. Liddell Hart.
35. Liddell Hart.
36. Liddell Hart.
37. Liddell Hart, 154.
38. Liddell Hart.
39. Liddell Hart, 155–56.
40. Liddell Hart, 146.
41. Liddell Hart, 154–55.

42. On the criticism that Liddell Hart relied mostly on the ideas of others—Fuller, Colin, T. E. Lawrence, and Corbett—alongside reservations toward this criticism and the argument that the very weaving together of all these ideas and their presentation such that they received greater attention is Liddell Hart's true greatness, see Gat, "Hidden Sources of Liddell Hart's Strategic Ideas," 303–4, 308.

43. On the criticism of Liddell Hart's thesis regarding the "British Way of War," especially his ignoring the entire period between 1815 and 1914 when the British were primarily involved in wars throughout their colonial empire, see Strachan, *Direction of War*, 140.

44. In the last version of his book in 1967, which deals with indirect strategy, Liddell Hart felt confident enough to form the guiding principles of this theory: principles of positive and negative "dos and don'ts." These principles, in his view, could contribute to the success of those dealing in war itself among military and political leaders. The chapter headings of these principles speak for themselves and include both positive and negative principles:

Positive:

Adjust your end to your means.

Keep your object always in mind.

Choose the line (or course) of least expectation.

Exploit the line of least resistance.

Take a line of operation that offers alternative objectives.

Ensure that both plan and dispositions are flexible—adaptable to circumstances.

Negative:

Do not throw your weight into a stroke whilst your opponent is on guard.

Do not renew an attack along the same line (or in the same form) after it has once failed.

There is no doubt that the simplicity of these principles took hold, certainly among military leaders, since they allowed junior and senior commanders to conduct a focused dialog on choosing targets that would allow the realization of the indirect strategy. Although these ideas were written in a manner accessible to all, we need to remember that they contain no benefit if they do not rely completely on the indirect approach. Liddell Hart, *Strategy: The Indirect Approach*, 335–36.

45. Isserson, *Evolution of Operational Art*.

46. Isserson, 13.

47. Isserson, 48.

48. Isserson, 26.

49. Isserson, 100–101.

50. Isserson.

51. Isserson, 48.

52. Isserson, 26.

53. Isserson, 48.

54. Isserson.

55. Isserson, 66.

56. Isserson, 71.

57. On reservations about Isserson's ideas, see Blythe, "History of Operational Art," 46–47. Blythe raises the fear that these ideas increase the gap between strategic and tactical levels. See also Roberts, "Planning for War: The Red Army and the Catastrophe of 1941," 1311. Roberts examines the opposition of Russian general P. S. Klenov to Isserson's ideas regarding the condensing of the time needed to concentrate the main body of the army in preparation for an invasion of an enemy state.

58. In November 1939, the Soviet Union launched an attack on Finland, which came to be known as the Winter War. The offensive was carried out by the Leningrad command under the leadership of General Kirill Meretskov. The Russian forces concentrated for this offensive drew extensively from Isserson's deep strategic theory; some 500,000 soldiers, hundreds of tanks, and more than a thousand planes attacked the Finns' main concentrations and targets along the Mannerheim Line. But it quickly turned out that the offensive failed and that Isserson's doctrine, as applied in the field, did not bring about the desired results. On December 9, 1939, it was decided to bring Isserson himself to the battlefield, and he was appointed Meretzkov's chief of staff and given the command of a division. On December 31, 1939, after just three weeks, Isserson was removed from his post due to repeated failures by the Seventh Army in the face of the Finns, despite its quantitative and qualitative advantage. Harrison, *Architect of Soviet Victory*, 215–27.

59. During the Great Purges of 1937, Isserson and other thinkers in the Russian army were subject to persecution. On the caution he used in articulating ideas to avoid disputes, see Pomiecko, "Review of Isserson, G. S.," 1–3.

60. An agnostic believes that one should not assume or draw conclusions about things whose existence has not yet been proven beyond nature and sense perception.

61. Fuller was made an officer in 1899 in the Oxfordshire and Buckinghamshire Light Infantry. In his time as a young officer in South Africa, the battalion, led by a lieutenant colonel, comprised eight infantry companies and a headquarters. Each company included 100–120 soldiers and was commanded by an officer at the rank of major. Infantry Officer, "Short Plea in Favour of the Present Organization of the Infantry Battalion," 1579–82; General Staff, *Field Service Manual 1914 – Infantry Battalion*; and Risio, *British Military Transformation and Tactical Development*.

62. Gat, *Fascist and Liberal Visions of War*, 13–24.

63. Fuller, *Memoirs of an Unconventional Soldier*.

64. Fuller, 96–98, 122–30.

65. The Battle of Cambrai, from November 20 to December 6, 1917, during WWI, is considered the first large-scale battle involving tanks.

66. Fuller, *Memoirs of an Unconventional Soldier*, 334–46.

67. Fuller, 129–30.

68. Fuller, 228.

69. Fuller, 235.

70. Fuller, 318–41.

71. Fuller, 322–23.

72. Fuller, 323.

73. Fuller, 323–24.

74. Fuller, 324.

75. Fuller, 325–26.

76. Fuller, 326–27.

77. Fuller compares the achievement of destroying the enemy's reserves with the destruction of his capital. *Memoirs of an Unconventional Soldier*, 327–28.

78. Fuller, 329–30.

79. Fuller, 328–29.

80. Fuller, 334.

81. In their respective articles, Keener and Reid discuss Fuller's view that war is both science and art and that science and technique should not be confused with one another. They also discuss how it is only the stages of preparing for war that should be addressed scientifically and not the stage of warfare itself since it is not possible to predict how combat will unfold or what the enemy is thinking. Keener, "Principles of War," 24; and Reid, "Colonel JFC Fuller and the Revival of Classical Military Thinking in Britain," 193.

82. The Kuomintang or Guomindang, the "National People's Party," was founded in 1919 alongside the establishment of the Communist Party. The two parties operated together but also against each other. At the end of the 1940s, the Guomindang set itself up in Taiwan while the Communist Party continued to operate in China. Liebertal, *Governing China: From Revolution through Reform*, 27–39.

83. Mao Tse-tung, *On Guerrilla Warfare*.

84. Mao, 49.

85. Mao, 89.

86. Mao, 43.

87. Mao, 73.

88. Mao, 89.

89. Mao, 58, 65.

90. Mao, 58–65.

91. Mao, 50.

92. Mao, 42.

93. Mao, 96.

94. Mao, 94–114.

95. Mao, 68.

96. Mao, 94–114.

97. Mao, 95–96.

98. Mao, 54–55.

99. Mao, 103–4.

100. Mao, 104.

101. Mao, 102.

102. Mao, 102–3.

103. Mao, 92.

104. Mao, 107.

105. Mao, 111.

106. Mao, 101.

107. Mao, 52.

108. Some claim Mao's approach—the three stages of guerilla warfare—is an overused one meant to serve the ideological aims of the Chinese communists. On this, see Black, *Military Strategy*, 206.

109. However, Grice examines a series of revolts after WWII, showing how Mao's teaching had little or no influence on them and were instead based on the substantial experience accumulated from other revolts throughout the world before him. He therefore states that Mao's writings contain nothing new and that his fame comes from his status as political leader of China. Grice, *Myth of Mao Zedong and Modern Insurgency*.

Chapter 5

The Theoreticians and Their Thoughts
After World War II

This chapter discusses thinkers who wrote after WWII (1945). As we saw, the delineation of the period is based on the coalescence of the various axes. The five theoreticians presented in this chapter are Brodie, Galula, Thompson, Smith, and Petraeus.

A few things characterize the thought discussed in this chapter. First, the geostrategy and geopolitics go beyond the European sphere, the overall focus until now, moving into new and not always familiar areas across the globe. Second, during the post-WWII years until today, the world underwent the Third Industrial Revolution (1969 and after) and the Fourth (2000 and after). The theoreticians discussed here are all of the opinion that the direct result of these two revolutions only increased the phenomena that characterized the previous revolutions. For instance, aspects related to the dimension of time, the size of the phenomenon of war, and its scope are better described in their work. The main reason lies in the change occurring in the component of information within the phenomenon of war; this component, which serves the various levels of leadership dealing with war and keeps them up to date on developments on the ground, has become a component directly serving weapons systems themselves. As noted, these general statements cannot replace the detailed analysis needed to extract the components of a general theory of war.

Brodie: *The Absolute Weapon* (1946)

Bernard Brodie (1910–78) was born in Chicago to immigrant parents from Russia. In his adulthood, he immediately became a part of academic life at the University of Chicago, where he received a PhD in economics in 1940 at the age of 30. During WWII, he served a rear position in Washington in the Office of the Chief of Naval Operations. Despite the name of the office and its title, the role did not involve commanding operational forces in any way, instead focusing on advising the more senior leaders, military and civilian, regard-

ing various issues related to the use of military force and matters of national security.

In his position, Brodie was a witness to the decision-making leading to the dropping of the atom bombs on Japan in 1945, which led to Japan's defeat and the end of WWII in Asia. It was then that he was first exposed to the power of the atom bomb and its consequences. Along with additional scholars from Yale, he was a coauthor of the book *The Absolute Weapon: Atomic Power and World Order*.[1] Since the book came out on February 15, 1946—close to the momentous events of the dropping of the atom bombs on Hiroshima (August 6, 1945) and Nagasaki (August 9, 1945)—it almost immediately became a milestone in understanding the consequences and nature of nuclear weapons and the need to form a strategy regarding the same. In the two chapters Brodie wrote, considered the book's main message, he combines a thorough understanding of the nature of atomic weapons, their power, consequences for the battlefield, and even the technical problems involved in weapons of this kind. Out of a genuine desire to protect human civilization, Brodie saw fit to broaden the discussion of atomic weapons such that the book, which dealt with the question of atomic power and its effect on the global order, would be read by statesmen and others whose decisions and actions could shape the future and welfare of the world.

After the war and influenced by its events, Brodie continued his academic career and focused on the issue of nuclear weapons and their significance for global security and especially American national security.[2] He was even called the "American Clausewitz." Brodie taught at Yale University and the University of California–Los Angeles as a full professor until his death.[3]

Brodie's Theoretical Concepts

The new age of war, now characterized by nuclear weapons, was at the center of Brodie's work. Brodie concentrated primarily on the totality of war in the shadow of these weapons and the slim chance of eliminating them. According to him, "Most of those who have held the public ear on the subject of the bomb have been content to assume that war and obliteration are now completely synonymous." He added that extinction could be "the future fate of nations which cannot resolve their disputes." He expressed his unequivocal view of nuclear weapons: "War with atomic bombs would be immeasurably more destructive

and horrible than any the world has yet known. That fact is indeed portentous, and to many it is overwhelming."[4]

In the second chapter of the book, Brodie discusses the military consequences of the nuclear bomb. He argued that "the aggressor state must fear retaliation" because "it will know that even if it is the victor it will suffer a degree of physical destruction incomparably greater than that suffered by any defeated nation of history." He stressed that "no victory, even if guaranteed in advance—which it never is—would be worth the price."[5]

Despite the terrible destruction wrought by the use of nuclear weapons and the guaranteed retaliation against the aggressor, Brodie did not expect a chaotic situation in the nuclear age but rather the creation of a new world order marked not by war but by a kind of status quo: "If the atomic bomb can be used without fear of substantial retaliation in kind, it will clearly encourage aggression." Brodie contended that we need to use all available means to ensure that the aggressor, who will try to use his atomic weapons, is aware that the bomb can also be used against him and that he is also exposed to its power, even if this, inevitably, means "multilateral possession of the bomb." According to him, so long as those who intend to attack with atomic weapons understand that they would be subject to nuclear retaliation, then "the bomb cannot but prove in the net a powerful inhibition to aggression."[6]

Brodie's overall conclusion on the question of nuclear weapons is that "the first and most vital step in any American security program for the age of atomic bombs is to take measures to guarantee to ourselves in case of attack the possibility of retaliation in kind." Brodie explained the logic of the nuclear age: "Thus far the chief purpose of our military establishment has been to win wars. From now on its chief purpose must be to avert them. It can have almost no other useful purpose."[7]

This statement of Brodie's was at the core of his strategic conception regarding the nuclear age, whose pillar was the inevitable dependence on deterrence. The formula for successful deterrence depends on the rival's belief that his enemy is not only about to launch a nuclear war but intends to win it, despite the cost. Therefore, Brodie argues, "it is necessary . . . to explore all conceivable situations where the aggressor's fear of retaliation will be at a minimum and to seek to eliminate them."[8]

Brodie's words make clear that he also saw fit to discuss the question of what would be left after a nuclear attack: "Thus, our most urgent

military problem is to reorganize ourselves to survive a vastly more destructive 'Pearl Harbor' able to take the offensive than occurred in 1941."[9] He did not settle for just asking the question of what comes after such an attack but also conceived ideas about how to protect the ability to fight back. In his view, the nuclear retaliation reserve "will have to be spread over a large number of widely dispersed reservations, each of considerable area, in which the bombs and their carriers are secreted and as far as possible protected by storage underground."[10]

When it comes to how nuclear weapons should be used, Brodie could not provide a clear and coherent answer. According to his central argument, nuclear weapons should be used against the enemy's forces and strategic means. That is, the bomb should be dropped on the enemy's urban centers since this is where government institutions are located, especially most of the productive population that serves as the reserve and strategic breathing room of the military. It is true that nuclear weapons are "a weapon of indiscriminate destruction," but it would still be proper to drop them on urban centers since the best odds of stopping the war would come from hitting them, as could be seen from the cases of Hiroshima and Nagasaki. According to his secondary approach, Brodie argued that it is possible to use atomic weapons to achieve tactical success on the battlefield—in other words, dropping bombs on distinct concentrations of enemy forces.[11] In practice, at this stage of his writing, a few months after the bombs were dropped on Hiroshima and Nagasaki, Brodie still did not succeed in dealing with a series of issues, such as effective protection against nuclear weapons and the possibility that additional countries would have the bomb within a few years.[12]

A series of statements in *The Absolute Weapon* points to Brodie's dilemma regarding a reality in which an increased proliferation of nuclear weapons will be a fait accompli:

- "Superiority in numbers of bombs is not in itself a guarantee of strategic superiority in atomic bomb warfare."[13]

- "Superiority in air forces, though a more effective safeguard in itself than superiority in naval or land forces, nevertheless fails to guarantee security."[14]

- "Everything about the atomic bomb is overshadowed by the twin facts that it exists and that its destructive power is fantastically great."[15]

- "To be sure, the bomb is so destructive that even a relatively small number (as compared with other bombs) may prove sufficient to decide a war, especially since there will be no such thing as a 'near miss'—anything near will have all the consequences of a direct hit."[16]

- "No adequate defense against the bomb exists, and the possibilities of its existence in the future are exceedingly remote."[17]

If these statements are true, the central challenge Brodie sought to point to, even if in initial form, is not limited to the question of the character of atomic weapons and the consequences of their being dropped on Japan. Brodie sought to take it one step further and imagine the practical consequences of the presence of atomic weapons in the world, with a few countries having them at the same time. This step was meant to point to the practical policy needed for countries that wished to survive in the nuclear age and to clarify that perhaps for the first time in the history of war, conventional weapons had almost no importance due to the power of nuclear arms.

Brodie's Contribution to the General Theory of War

No one doubts that the atomic bomb was and remains a decisive technological breakthrough in the world of war, even though it was used only twice—on the Japanese cities of Hiroshima and Nagasaki—toward the end of WWII. But Brodie addressed this weapon differently than he did any other weapon then in military use.[18] We have already noted how Douhet predicted the phenomenon of strategic bombing. In this sense, the atomic bomb could be considered the sum of conventional bombs dropped on a strategic target and nothing more. But Brodie identified the unique aspect of atomic weapons, meaning their strategic influence and consequences for the phenomenon of war as a whole.

Brodie seemingly considered there to be no difference between the atomic bomb and other known weapons in his time.[19] The physical domains of war (land, air, and sea) grant weapons developed through various technologies the ability to be moved toward strategic goals at great distances. However, atomic weapons require a different approach regardless of how they are delivered to targets.

The uniqueness of atomic weapons comes from the ratio between the enormous damage they cause and the time it takes to occur—fractions of a second—from the moment they are activated. In short, what

makes this weapon unique is its ability to cause massive physical damage within a brief time, alongside the fact that it cannot really be defended against. This characteristic of atomic technology on the battlefield therefore gave the atomic bomb a strategic rather than tactical significance deriving from its character and the power of its use. Brodie believed that this effect increases in magnitude with nuclear technology becoming industrialized, creating a critical mass of atomic bombs and the ability to deliver them in various ways (e.g., submarines, missiles, planes, trucks).

The inability to entirely prevent activity in the air, sea, or land domains or defend against them, along with the damage/time ratio of atomic bomb technology, led Brodie directly to the idea that such war must be prevented from the start, especially thanks to the wreckage both sides of such a war could cause each other.[20]

This premise later developed into the concept of "deterrence" founded on the ability to prove to a rival aggressor that the other side being attacked could launch a "first strike." The concept was meant from the start to deter aggressors from launching a first strike due to the intolerable damage they would suffer afterward.[21] Brodie's idea of war prevention was entirely reliant on this operational-tactical capability—the ability of the side being attacked to retain the power of atomic operational response, even after being hit with the first strike, in a way that would ensure the atomic bomb would reach its destination at any cost. In Brodie's view, this capability required general organization, whether applied in means of warfare or in supporting command-and-control processes. Herein lies the strategic connection between technology and war, clarifying the place of the atomic bomb in the phenomenon of war.

However, Brodie did not contribute insights on war itself, and in his view, these rules did not change even in the atomic age. He did not find that historical experience can provide any new knowledge, aside from measuring the damage and destruction atomic technology wrought on the world. Brodie's main contribution to the general theory of war is therefore his recognition of the strategic significance of atomic technology and the ability of this technology to grant strategic significance to this tactical action.

Galula: *Counterinsurgency Warfare: Theory and Practice* (1964)

David Galula (1919–67) was a French army officer. He was born in Sfax, part of the French protectorate of Tunisia, but grew up in Casablanca, Morocco. In 1939, he completed his studies at the École spéciale militaire de Saint-Cyr. In WWII, he fought in North Africa, Italy, and France. By training he was an infantry officer, and he was stationed in China after the war. He also served as a UN observer in Greece and a military attaché in Hong Kong.

Galula's first study, *Pacification in Algeria, 1956–1958*,[22] was published in 1963.[23] The book is a precisely detailed description of his work, first as a major and then as a commander fighting insurgencies on the ground in two poor rural areas in Algeria in 1956–58. The book's problems derive from it requiring the reader to have prior, extensive knowledge of the background of the war in Algeria, something most American readers would not have had. Still, this book was the beginning of Galula's forming a strategy focused on ensuring the safety of the civilian population while pursuing the guerilla fighters who bothered this populace.

Galula reached the rank of lieutenant colonel in the French army. His more mature military thought, which was widely recognized, is provided in his work *Counterinsurgency Warfare: Theory and Practice*, which he wrote as a research fellow at the Center for International Affairs at Harvard University.[24]

Galula's Theoretical Concepts

Galula occupies a respectable spot on the bookshelf of canonical theoretical works on anti-guerila warfare. He formulated clear instructions for how the forces fighting insurgencies can protect the civilian population (and themselves), earning its support, and also receive information on the identity and location of rebelling forces, leading to the elimination of the insurgency. While the primary challenge of conventional warfare is to increase the firepower at the appropriate time and place to destroy the enemy, the key to success in fighting insurgencies, according to Galula, is gathering extensive intelligence from the local population in order to identify and locate the enemy.

Galula pointed to a basic difference between conventional and unconventional warfare: while conventional warfare is mostly a simi-

lar experience for all involved, those fighting an insurgency are effectively fighting two wars, conducted according to different rules. The insurgent forces usually have few weapons and no organized army. By contrast, they share an ideological bond with at least some of the population, from which they can recruit fighters, allowing them to strike their enemies organized as a regular force.

An insurgency is effectively a competition between insurgents and governments for the support of the civilian population, as Galula noted: "The counterinsurgent cannot achieve much if the population is not, and does not feel, protected against the insurgent."[25] In other words, a population lacking security will not provide the information needed for forces fighting the insurgency: "Intelligence is the principal source of information on guerrillas, and intelligence has to come from the population, but the population will not talk unless it feels safe, and it does not feel safe until the insurgent's power has been broken."[26]

In Galula's view, civilians will not cooperate with government forces fighting insurgents if they fear the insurgents' retaliation. Government forces need to demonstrate sufficient presence in every settlement, one capable of separating insurgents and the civilians they use to establish their power. This is a process to be carried out carefully. First, the citizens and insurgents need to be separated via roadblocks, ID checks, and censuses; as Galula asserts, "a census, if properly made and exploited, is a basic source of intelligence."[27] In the next stage, the anti-insurgent forces need to work to protect the safety of the civilians by training local security forces to this end. Finally, the government needs to act against armed insurgents through focused local information collection based on close, ongoing ties with sources among the population. However, Galula believed that the army, built and adapted for conventional wars, cannot provide sufficient tools for fighting insurgencies. Military intelligence bodies specialize in collecting information on enemy armies but do not know how to draw intelligence information from a civilian population—the central source of information needed for fighting insurgencies.

However, Galula distinguished between two separate goals: the first is protecting the civilian population by establishing local security forces, and the other is fighting insurgent forces with regular army troops. Protection of local residents clearly requires fighting insurgent forces, but regular army forces tend by nature to overly focus on offensive military action, including the killing or capturing of insurgents. While the manner of activity in achieving both aims seems similar,

their goals are utterly different. According to Galula, this dichotomy creates a false hope since, in practice, every insurgent killed or captured will be replaced by one or more insurgents if army forces deal with passive civilians and a passive government presence. Instead, Galula believed it would be better to recognize and organize the political, economic, and security conditions on which the ultimate defeat of the rebellion depends. To win, the authorities need to secure and control the local population.

In Galula's view, the local government, even at the level of the smallest village, controlling what goes on among the population and communicating with it is ultimately more important than the expulsion or elimination of the enemy through military raids. Local government authorities integrated into the local population can operate as intelligence gatherers and analysts, and they hold the key to ultimate victory over the insurgents, particularly when they work alongside professional military forces fighting the insurgency. Galula states, "The aim of the control is to cut off, or at least reduce significantly, the contacts between the population and the guerrillas. This is done by watching the population's activities; after a while, when the counterinsurgent personnel have become acquainted with the population and know each inhabitant, unusual behavior can be spotted easily. The process of getting acquainted with the population may be speeded up if the occupied villages are divided into sections, and each assigned to a group of soldiers who will always work there."[28]

Galula further indicates that "the units must be deployed where the population actually lives and not on positions deemed to possess a military value. A military unit can spend the entire war in so-called strategic positions without contributing anything to the insurgent's defeat. This does not mean that bridges, communication centers, and other vulnerable installations should not be protected, of course, but rather that counterinsurgent forces should not be wasted in traditionally commanding positions, for in revolutionary warfare, these positions generally command nothing."[29]

The information secured by soldiers residing in villages and among the local population cannot be attained through aerial photos or radio surveillance. These means can provide useful information for short-term activity, but intelligence regarding the identity and location of insurgents can be attained only if soldiers and civilians trust each other based on long-standing relationships. Civilians need to believe that the soldiers fighting the insurgency can protect them from the retali-

ation that will inevitably come after providing such critical information. In the end, technology is no replacement for "boots on the ground" and integrating with the local population.

Following this insight, Galula argued that there is importance in numbers in these situations: "An insurgency is a two-dimensional war fought for the control of the population. There is no front, no safe rear. No area, no significant segment of the population can be abandoned for long—unless the population can be trusted to defend itself. This is why a ratio of force of ten or twenty to one between the counterinsurgent and the insurgent is not uncommon when the insurgency develops into guerrilla warfare."[30]

Galula's argument implies that a war against insurgency requires more forces than typically employed despite fewer insurgent fighters compared to forces available to the authorities. Without appropriate forces, the achievements secured during campaigns cannot be retained, nor can the safety and peace of the population against the insurgents be ensured for long. Thus, government forces need to be directed to tasks that allow victory and do not just involve eliminating forces of rebellion but rather "the permanent isolation of the insurgent from the population, isolation not enforced upon the population but maintained by and with the population,"[31] since "the objective is the population"[32] and not the territory.

According to Galula, "disorder—the normal state of nature—is cheap to create and very costly to prevent."[33] But defending a functioning state from insurgents or rebuilding it after these forces cause their damage requires much more resources, time, money, and thought. These resources and conditions stand in inverse relation to the relative ease with which one can bring down governments and cause chaos in the state. Galula believed that conventional armies do not meet the needs of anti-insurgency warfare, as the firepower they take pride in cannot serve as a significant lever against the rebels. Therefore, what is needed is an almost entirely different approach, one in which "a mimeograph machine may turn out to be more useful than a machine gun, a soldier trained as a pediatrician more important than a mortar expert, cement more wanted than barbed wire, clerks more in demand than riflemen."[34] According to Galula, a light armored unit not equipped with translators, intelligence investigators, experts in civilian affairs, and engineers who cannot communicate with the civilian populace is doomed to failure.

Control of intelligence is the insurgents' primary weapon, allowing them to both direct their offensive actions against government forces with a focus on the army and police and against the population they seek to integrate with. Control of intelligence is also a strategically decisive factor in the war against rebellion. The civilian population is the main target of the insurgents, but it is also the battlefield in which warfare takes place, in the sense of the war for their souls and loyalty. It is not the physical space that serves as a key factor in insurgency but the political loyalty of the people populating this area. We need to remember that anti-insurgency warfare is not a "fair fight" between two rivals equal in capability, since "the asymmetrical situation has important effects on propaganda. The insurgent, having no responsibility, is free to use every trick; if necessary, he can lie, cheat, exaggerate. He is not obliged to prove; he is judged by what he promises, not by what he does. Consequently, propaganda is a powerful weapon for him. With no positive policy but with good propaganda, the insurgent may still win."[35]

Those who fight insurgents, even more than in the past, must fight their war on the information battlefield. Galula's unequivocal conclusion is that regular military forces must reorganize as intelligence agencies do (i.e., forces for gathering intelligence, managing agents, and deception and propaganda operations) to be effective in war. However, even an organizational change accompanied by appropriate training and the adapting of the regular armies' equipment, as thorough as it might be, cannot provide the adjustments needed to fight insurgencies. As Galula maintained, "If the forces have to be adapted to their new missions, it is just as important that the minds of the leaders and men—and this includes the civilian as well as the military—be adapted also to the special demands of counterinsurgency warfare."[36]

According to Galula, not every soldier can adapt to fighting guerillas; to the contrary, those who cannot command such operations might end up sabotaging them due to the operational and sometimes strategic consequences they force on others: "A workable solution is to identify those who readily accept the new concepts of counterinsurgency warfare and give them responsibility. Those who then prove themselves in action should be pushed upward."[37]

However, even if it seems that the army is more fit than the state to deal with insurgency, Galula believes this circumstance amounts to a misunderstanding of the character of fighting an insurgency:

The counterinsurgent government is exposed to a dual tempta-
tion: to assign political, police, and other tasks to the armed
forces; to let the military direct the entire process—if not in the
whole country, at least in some areas. The first one cannot be
avoided. To confine soldiers to purely military functions while
urgent and vital tasks have to be done, and nobody else is avail-
able to undertake them, would be senseless. The soldier must
then be prepared to become a propagandist, a social worker, a
civil engineer, a schoolteacher, a nurse, a boy scout. But only for
as long as he cannot be replaced, for it is better to entrust civilian
tasks to civilians. This, incidentally, is what the Chinese Com-
munists have always tended to do . . . . The second temptation—
to let the military direct the entire process—on the other hand,
is so dangerous that it must be resisted at all costs.[38]

Galula clarified that in this context, "essential though it is, the mili-
tary action is secondary to the political one, its primary purpose
being to afford the political power enough freedom to work safely
with the population."[39]

Galula's Contribution to the General Theory of War

Galula proposed conducting a new investigation of the essence of
the phenomenon of war. The need for this effort was due to Galula's
personal failure in Algeria, a functional failure deriving from his regu-
lar army education, which did not fit the circumstances on the ground.[40]

Galula was of the opinion that the domains of warfare and the
military technologies made possible by the industrial revolution dur-
ing his time did not offer any relative advantage in the revolutionary
war he was facing. With this distraction removed, he could focus on
the phenomenon of war itself as he saw it. He sought to focus on exist-
ing relationships within the phenomenon of war to interpret the vio-
lence he was exposed to as scientifically as possible, then try to extract
the components and fixed rules it follows from that interpretation. In
this way, he could form and adopt a positive mode of action that would
grant him victory over his rivals.[41]

Galula's deep recognition of the need for a second look at the phe-
nomenon of war demonstrates its complex uniqueness; a war involv-
ing revolution and actions against insurgency does not contain sufficient
distinction between military and civilian factors and between hostile
and uninvolved parties. This new insight regarding the unique com-

plexity of war allowed Galula to formulate three basic rules: (1) revolutionary war is unfair, as most of its rules favor the insurgents; (2) information is the basis for any action against insurgencies; and (3) when fighting an insurgency, we must recognize that it is a fact and deal with its root causes. These roots can then be relied on and used to create coherent operational patterns of action leading to the needed operational gain.

Galula focused on the tactical and operational levels of war in his writings. In his view, proper action at these levels will ultimately lead to strategic victory. However, strategic clarity, although needed for dealing with insurgency, is no guarantee for victory if it is not accompanied by correct tactical action on the ground (e.g., information gathering from the populace) based on a complementary operational vision. According to Galula, these laws for dealing with insurgency are universal and meant for any who wish to win such wars, known as "anti-insurgency wars."

Thompson: *Defeating Communist Insurgency: Experiences in Malaya and Vietnam* (1966)

Robert Grainger Ker Thompson (1916–92) was born in Stanmore, Middlesex, England. He studied at Marlborough College and later completed a master's degree at Sidney Sussex College, part of Cambridge University. While there, he learned to fly as part of the college's flight program. During WWII, he joined the Royal Air Force. He served in Macau, where he learned Cantonese, but was forced to flee when the Japanese invaded the peninsula. He wandered throughout China until he reached Burma, where he was made liaison for the British special forces in the area, known as the "Chindits." These forces fought in the Burmese campaign against the Japanese; Thompson even joined two campaigns led by Orde Wingate (1903–44), who commanded the Chindits. Later in the British campaign in East Asia, Thompson served as a pilot in a Hawker Hurricane and was made a squadron commander in 1945.

In 1946, he joined the state service in Malaya (today part of the state of Malaysia), first serving as the assistant of the labor commissioner of the state of Perak. He then studied at the Joint Services Staff College at Latimer in Britain and was integrated into a civilian-military operational team led by Lieutenant General Harold Briggs and later by

General Gerald Templer, who helped the Malay government deal with the insurgency of guerilla forces in Malaya.

The years 1946–60 formed Malaya's political character as well as Thompson's personal experiences and his worldview regarding how to deal with the phenomenon of insurgency. Malaya was the arena where Britain secured a key victory against insurgencies led by communist groups.[42] This victory granted validity to the success of the British method in this field, as described in Thompson's writings.

Thanks to his expertise and achievements in putting down the rebellion in Malaya, Thompson was invited to aid the Vietnamese government in dealing with the insurgency of communist groups in South Vietnam. In 1961, he was appointed to head the British Advisory Mission or BRIAM in Vietnam. Among other things, he worked closely with the John F. Kennedy administration, advising on how to deal with the communist guerilla forces in Vietnam. Thompson was later appointed the personal adviser of President Richard Nixon on matters related to the war.[43] Thompson attributed America's lack of success in Vietnam to many factors. However, he indicated that the primary one was the American forces' lack of patience needed to deal with a protracted guerrilla war of the sort that was waged in Malaya and Vietnam.[44]

Thompson's book *Defeating Communist Insurgency: Experiences in Malaya and Vietnam* came out in 1966 and became a widespread hit, thanks to how it clearly articulated the difficulties in dealing with insurgency and the desired solutions for such a war.[45]

Thompson's Theoretical Concepts

What makes Thompson's theory unique is how he points to the government as the source of policy, authority, and commitment and, above all, his emphasis on the moral aspect of war against insurgency. Thompson's approach derived from his practical observation of war during tours he conducted in Malaya. These trips led him to conclude that insurgency is first and foremost a political phenomenon living within the civilian space of the state; an insurgency is not the product of an enemy outside the state's borders but rather an enemy within the state itself. This pattern of a political enemy living within the state and among its citizens creates a complex situation, making it difficult to distinguish between friend and foe and to diagnose and decipher the ongoing situation and various achievements secured in the campaign. Thompson saw fit to interpret this complex scenario by formulating

five principles. He developed these principles in the form of clear calls for action to present the tension existing in this sort of war between not only the government and the forces operating within it and the citizens but also between the war and the insurgents themselves.

Thompson's Five Principles

Thompson's first principle, as it appears in his book, is directed straight at the government—the need for a positive vision for its citizens:

> **First principle**. The government must have a clear political aim: to establish and maintain a free, independent and united country which is politically and economically stable and viable.
>
> It may be contended that this is rather too broad, if desirable, an aim; but in newly independent or underdeveloped territories it is essential to recognize that an insurgent movement is only one of the problems with which such governments are faced. The insurgency may demand priority, but it cannot be treated in isolation.
>
> An insurgent movement is a war for the people. It stands to reason that government measures must be directed to restoring government authority and law and order throughout the country, so that control over the population can be regained and its support won. This cannot be done unless a high priority is given to the administrative structure of government itself, to its institutions and to the training of its personnel. Without a reasonably efficient government machine, no programmes or projects, in the context of counter-insurgency, will produce the desired results.[46]

Realizing a positive vision for the citizenry cannot therefore be achieved through negative means. Thus, the legal aspect and acting according to the law express the government's moral approach both politically and in terms of the action's legitimacy. In this sense, political government, as opposed to military achievement, is measured in the time dimension and expresses the legitimacy of the political leadership and its ability to be a valid factor over time vis-à-vis the citizens of the state, something no military achievement can do by itself.

In the second principle, Thompson emphasized the importance of law and the government acting according to the law even in the face of terrorism and guerilla action:

Second principle. The government must function in accordance with law.

There is a very strong temptation in dealing both with terrorism and with guerilla actions for government forces to act outside the law, the excuses being that the processes of law are too cumbersome, that the normal safeguards in the law for the individual are not designed for an insurgency and that a terrorist deserves to be treated as an outlaw anyway. Not only is this morally wrong, but, over a period, it will create more practical difficulties for a government than it solves. A government which does not act in accordance with the law forfeits the right to be called a government and cannot then expect its people to obey the law. Functioning in accordance with the law is a very small price to pay in return for the advantage of being the government.[47]

Here, Thompson was full of details, pointing to the simplest actions capable of violating this principle. For instance, he noted the arbitrary arrest policy of the government against its opponents as a tool that ultimately seriously undermines the legitimacy of the political leadership. The result is total mistrust between the government and its citizens to the point of cancelling out the military successes that have been secured in the campaign against the insurgency.[48]

In the third principle, Thompson stated that acting against insurgencies requires a synchronization of all efforts—political, civilian, and military—into a combined force deployed by the government and its various branches. This principle also derived from Thompson's belief that military victories bring quiet, but only in the short term. Only the political leadership, through the civilian efforts it adopts, can ensure quiet in the long term. According to Thompson, quiet will endure when the mutual trust between the citizens and their sovereign government has been restored:

Third principle. The government must have an overall plan. This plan must cover not just the security measures and military operations. It must include all political, social, economic, administrative, police and other measures which have a bearing on the insurgency. Above all it must clearly define roles and responsibilities to avoid duplication of effort and to ensure that there are no gaps in the government's field of action.

It is essential, too, that there should be a proper balance between the military and the civil effort, with complete coordination in all fields. Otherwise a situation will arise in which military operations produce no lasting results because they are unsupported by civil follow-up action. Similarly, civilian measures, particularly in areas disputed with the insurgents, are a waste of time and money if they are unsupported by military operations to provide the necessary protection.[49]

In the fourth principle, Thompson presented a complex demand of the political leadership: leaders need to focus on defeating the competing political idea of the subversive party, not its military forces. The war against the insurgency takes place within the state itself. It is a war for the hearts and minds of the people, and the political leadership therefore needs to constantly explain its approach to the citizenry. In Thompson's view, without such ongoing educational efforts, the population will quickly lose its determination and resilience to face the ongoing conflict:

Fourth principle. The government must give priority to defeating the political subversion, not the guerillas.

This is obviously the case in the build-up phase before the insurgency has started, but it holds equally good during the insurgency. Unless the communist subversive political organization in the towns and villages is broken and eliminated, the insurgent guerilla units will not be defeated. If the guerillas can be isolated from the population, i.e. the "little fishes" removed from "the water," then their eventual destruction becomes automatic.

In the process of eliminating the political organization, the attention of the intelligence organization should also be directed to identifying, and eliminating if possible, all members of the insurgent organization who for one reason or another have to cross this heavy line between the insurgent units and the population. This should then be followed up by civilian measures and military operations designed to break the contact between the guerilla units and the subversive political organization. As this process develops, the guerilla units will themselves be forced to cross the line in an attempt to make contact with, and support, their political organization and to secure their sources of supply. The area of the heavy line is turned into a sort of barrier, and will become the killing ground because the guerillas will be forced

to fight the government where it is ready for them and at its greatest strength.[50]

Thompson's fifth principle deals with organizing matters on the ground in preparation for combined operations against the insurgency. The need for doing so derives from the fact that the phenomenon takes place within the state rather than on or outside its borders and the fact that it essentially takes place within the hearts and minds of people. Without this preparation, it will be enormously challenging to point to the needed actions throughout the area based on a situational assessment. These are questions the government must answer to be able to decide where to concentrate its forces. In Thompson's view, acquiring a comprehensive understanding of the strategic level and approaching the issue from a strategic perspective are essential when undertaking a thoughtful examination of the allocation of efforts between urban and rural areas. Although the population is largely concentrated in the cities, the government must not be tempted to only protect them, as abandoning the countryside ultimately brings the enemy at the city gates. Sometimes, focusing too much on the countryside to create a buffer between the enemy and cities could lead to their abandonment and the rendering of efforts already invested to protect them unnecessary:

> **Fifth principle**. In the guerilla phase of an insurgency, a government must secure its base areas first.
>
> This principle should to a large extent be reversed in the build-up phase, before the open insurgency starts, when considerable attention should be paid to security and economic measures in the remoter rural areas. If, however, such preventive action fails, priority in respect of security measures should be given to the more highly developed areas of the country. These contain the greatest number of the population and are more vital to the government from the point of view of its communications and the economy of the country.
>
> There is a second advantage in this approach: the more highly developed areas of the country are easier to secure and control, and the government will therefore start the campaign with some successes. This instils confidence, which is quite the most important ingredient for further success. A thoroughly methodical approach to the problem, which may appear rather slow, encour-

ages a steam-roller outlook which provides the people with faith in ultimate victory.[51]

Thus, in the fifth principle, Thompson pointed to the need for constant judgment regarding the efforts needed to change reality, as the metric for success is not just the physical results on the battlefield but also the sentiment of the citizens themselves regarding their situation. Therefore, Thompson proposed that we examine that sentiment over time and not just at specific points in time.

Complementing the Five Principles

Thompson knew that there were other issues not included in these five principles. And indeed, his book deals considerably with operations the army needs to undertake in various parts of the state to confront multiple additional problems. Although these are interesting subjects in themselves, I chose to focus on two: (1) the administrative structure (government) in charge of coordinated civilian and military actions, and (2) intelligence aimed at directing government efforts.

The administrative structure is the ability to realize the policy of the political leadership on the ground. The civilian administration is the executor of government policy, as laws do not enforce themselves. Thompson states, "If the government performance is going to be effective and keep pace with the aspirations of the people, while at the same time creating an atmosphere of order and stability, the main essential is to establish a sound administrative structure. The best of plans, programmes and policies will remain nothing but good intentions unless the machinery exists to execute them so that they make their impact throughout the country."[52]

Intelligence, in Thompson's understanding, is the cornerstone for forming a situational assessment of what is happening on the ground. It is required for military needs but also for the political leadership—information helping them understand what is occurring in the field: " 'Let's go out and kill some Viet Cong, then we can worry about intelligence.' This remark by a newly arrived General lends weight to the old gag that there are only two types of generals in counter-insurgency—those who haven't yet learnt it and those who never will! Fortunately there are some exceptions."[53]

Thompson uniquely summarized his insights and rules, which derived from his theoretical understanding; he directed his conclusions to the political leadership rather than the military leadership: "The

three indispensable qualities in counter-insurgency are patience, de-termination and an offensive spirit, but the last should be tempered with discretion and should never be used to justify operations which are merely reckless or just plain stupid. It is a persistently methodical approach and steady pressure which will gradually wear the insurgent down. The government must not allow itself to be diverted either by countermoves on the part of the insurgent or by the critics on its own side who will be seeking a simpler and quicker solution. There are no short-cuts and no gimmicks."[54]

According to Thompson, in counterinsurgency wars, politicians are often driven to pursue swift outcomes on the battlefield. However, he highlights that altering the hearts and minds of citizens in this type of warfare is a lengthier process. As a result, political leadership must exercise ongoing restraint, acknowledging that influencing and trans-forming political beliefs and attitudes necessitates more time and patience than attaining immediate military victories. Consequently, the dimension of time emerges as a central factor that reflects the government's commitment to achieving the desired outcome.

Thompson's Contribution to the General Theory of War

The phenomenon of war in Thompson's theory extends beyond its traditional boundaries as outlined by the theorists mentioned thus far. Thompson's contribution to the general theory of war lies in the re-definition of those boundaries. According to him, war is not limited to the battlefield or military clashes between two sides. Its boundaries lie in the political consciousness dimension, and as such, its duration is not limited to one single time frame.

Thompson stated that the war against insurgency revolves around changes in the political consciousness residing in the hearts and minds of the citizenry;[55] in other words, this is first and foremost a war for political consciousness and only afterwards a fight for the physical safety of the citizens provided by the army and other security forces. In truth, in the fight against insurgency, military warfare is just the outer shell, earning sometimes exaggerated fame for its ability to defeat the military components of the insurgents. But these components, violent as they may be, are just a small part of what must really be fought against: the insurgents' competing political idea.[56]

Thompson succeeded in clarifying the nature of this reality by di-recting his five principles primarily toward the political rather than

the military leadership: (1) The government needs to define a clear political goal; (2) the government needs to act according to the law; (3) the government needs to prepare a general plan; (4) the government needs to prioritize defeating political subversion over defeating guerilla forces; and (5) the government needs to first secure its own areas of action. With these five principles, Thompson created the connection between the phenomenon of war against insurgency to its strategic-political aspect—meaning the political achievement it seeks to secure—and only later addressed the operational and tactical approaches to adopt to achieve the desired goal.

His recognition that the metrics for political and military achievements are not the same allowed him to redefine the time dimension. He understood that time operates differently in an anti-insurgency war and is almost the opposite of any concept of time in the traditional military world, where securing optimal results on the battlefield requires precision and clear boundaries. With his concept of relative time, not defined by any particular moment, Thompson sought to delineate the roles of the army vis-à-vis the roles of other parties operating in war. This delineation allowed for operating with understandings regarding the output of the military force: What can be secured through military means, what can be preserved through them, and what cannot be done with them? Moreover, Thompson pointed to the danger inherent in using solely military means to secure a goal even if these lead to military success in every engagement with the enemy.

Thompson clarified that there is almost no importance to war, industrial revolutions, or their associated technologies; all these elements are entirely secondary, as dealing in subversion is fundamentally about political consciousness and not the material components of war. His focus on the struggle against insurgency nicely clarifies our understanding of the phenomenon of war against insurgency as a long and stubborn fight, conducted both militarily and politically, in which military actions are aimed at changes in political consciousness rather than the securing of this or that territory. Thus did Thompson redefine the role of military force in the face of the phenomenon of war, cutting the Gordian knot of war and the army as the central object to use to secure victory.

Smith: *The Utility of Force:*
The Art of War in the Modern World (2005)

Rupert Smith was born in Chelmsford, the capital of the Essex district in England, in December 1943. In 1962, he completed his studies at the Royal Military Academy at Sandhurst. Serving in East and South Africa, the Caribbean Isles, Northern Ireland, Europe, and Malaysia, he encountered an entirely different warfare than he was taught, as these were Cold War battlefields. His formal military training proved useful for just one event in his entire military career: his involvement in the First Gulf War. He also served as commander of the 1st British Armored Division, under the American VII Corps, as part of the multinational coalition led by the United States.

Smith completed his military service in two roles in which he served a relatively long time: 1996–98 as military inspector in Northern Ireland, and 1998–2001 as deputy commander of Allied Forces in Europe (NATO), while participating in NATO operations during the Kosovo War (March 24–June 11, 1999).

Smith retired from military service in 2002, when he began work on *The Utility of Force: The Art of War in the Modern World*,[57] published in 2005, in which he laid out his main military theory. Smith treats his military service and personal experience as the basis for his main insights regarding the theory of war.

Smith's Theoretical Concepts

Smith's primary thesis concerns the gradual change in the characteristics of war since WWII, a shift marked primarily by war increasingly taking place not between armies and other military bodies but between people, influenced more than ever by public opinion. Smith's statement is the first of its kind among representatives of Western armies indicating that the era of industrialized wars in the sense of regular, conventional armies facing each other is over. That is, the characteristics of the two world wars have passed or are no longer relevant in the post-industrial age of the beginning of the twenty-first century:

> The paradigm of interstate industrial war was literally blown to pieces on 6 August 1945. Ironically, it was ended by two of the very forces that brought it into being: industry and technological innovation. For nearly a century the pair served the towering

edifice of industrial war, until the final explosion. The people—massed in their cities; the source of manpower and industrial power; the polity of the state—were now the only target worth attacking, since their cities were the most plausible objectives: constant, sitting targets of mass. And when the cities were destroyed, the forces in the field, cut off from the source of their purpose, direction and supply, could either surrender, be picked off in detail, or else concentrate and be struck with an atomic weapon. Mass industrial armies could no longer be effective in the face of a weapon of mass destruction, as the Russians came to call it. Industrial war, not to mention total war, was impossible in such circumstances. But the threat remained. That was the story of the Cold War.[58]

Smith argues that military force allows the other entities of the civilian government with all their means and capabilities to secure strategic aims—a situation that did not exist previously in the age of industrial wars. Consequently, the military itself can no longer repeat the achievements of WWII, where the strategic goal was secured when the Allied armies met in the heart of Berlin and terminated hostilities.

According to Smith, the character of the new wars is such that it represents at most the beginning of the true war, the "war amongst the people." Smith characterized the new war thusly:

War amongst the people is both a graphic description of modern warlike situations, and also a conceptual framework: it reflects the hard fact that there is no secluded battlefield upon which armies engage, nor are there necessarily armies, definitely not on all sides. To be clear: this is not asymmetric warfare, a phrase I dislike invented to explain a situation in which conventional states were threatened by unconventional powers but in which conventional military power in some formulation would be capable of both deterring the threat and responding to it. War amongst the people is different: it is the reality in which the people in the streets and houses and fields—all the people, anywhere—are the battlefield. Military engagements can take place anywhere: in the presence of civilians, against civilians, in defence of civilians. Civilians are the targets, objectives to be won, as much as an opposing force.[59]

But if war occurs among people, then the population is an insepa-
rable part of the fighting. The populace, not just the enemy army, is
both a target and means. The result of the conflict is determined ac-
cording to the image created among different groups, not just the
physical consequence of the location of forces, extent of casualties,
and so on. Hence, it is evident that the strategic goal of the fighting
within the framework of the new war will be changing the conscious-
ness of the enemy as a collective, not just its leaders, as was the case
in the past.

Smith does not conclude with the world of theory but formulates
two central recommendations for applying his ideas. The first and most
important of these regards how to use military force, especially the
methodological tools needed to analyze the situation. The second
regards the organization of the military force for a war taking place
among people and the best way to use that force.

How to use the army. If we accept Smith's analysis in terms of war
among people, then, as he argues, we have no choice but to form en-
tirely new methodological tools for situation analysis. The tools that
existed until his time were appropriate for industrialized wars—the
wars of Clausewitz and Liddell Hart—wars of army against army. But
a war among people requires a conceptual change in situational as-
sessment, the basis for all political-military activity. To that end, Smith
defines three central principles.

According to the first principle, to achieve the desired strategic
result, one must first understand what it is. Doing so requires delving
deep into the problem and detailing the intended strategic result in
the broad sense (political, military, and economic) and the proper
context in which military force should be used to secure it. Once the
military strategist, whom Smith calls the "planner," understands the
desired political result, he can ask the right questions and define the
relevant military objective, meaning the needed achievement and
result from the military action. The military planner deals in strategic
questions and seeks out tactical answers, thus creating the direct con-
nection between strategy and tactics and vice versa.[60] Smith stated, "I
must emphasize the importance of understanding the desired outcome
before deciding whether or not military force has a part to play in
achieving it. Only by knowing what you want can you frame the ques-
tions to ask of the analysts and intelligence services; and only by
knowing what you want in terms of the political outcome can you
decide what it is you want the military to achieve. In plain terms the

strategic military objective should describe the result of the military action."[61] The effect of this principle on operational military leaders is far-reaching because they are required to understand the political motives and complex relationships politicians have with one another as well as the relationship between themselves and their voters, rivals, counterparts from other countries, and others.

Smith's second principle involves adherence to action based on international law. The reason for this idea is simple: we are distinct from our enemies in that they strive to reject basic principles of that law, while we seek to protect those principles. Not only does the tactical action need to be legal, but it also needs to be carried out according to the law. This principle creates a direct connection between the strategic and tactical levels, as the tactical action is directly guided by the strategic demand without the mediation of an interim layer; the legal aspect directly connects the political leader, military strategist, and tactical force:[62]

I have argued as a principle the need for the military action to support the development of a sustainable rule of law. The application of the principle and the degree of military effort allocated will vary with the circumstances, and will of course take time to apply effectively in the face of the opponent's measures to the contrary, but as long as the outcome desired has amongst its characteristics a sustainable rule of law, then all efforts should be directed towards this end, the utility of force being to establish the rule of law.

The soldier is being held accountable to the law for his actions in these campaigns, and it behoves those who send him to ensure he has an adequate understanding of the law and his position in relation to it. He also needs to know that those setting the context for his actions are doing so in such a way that he can operate effectively within the law. To this end the law and its establishment should be central to the directing logic of campaigns within civil populations from the outset—the law at a minimum being the body of [international humanitarian law] and that to do with establishing order and self-defence.[63]

The third principle is operational planning based on two sets of questions, strategic and tactical. In Smith's view, if a military strategist does not know how to answer these questions, he must avoid applying force. The first series of questions has to do with the general context

of the problem (meaning policy and military strategy) and the way in which the use of military force is related to its solution. The response to this set needs to be given based on combined, interorganizational, and even international thinking, which he calls "institutional thinking." Institutional thinking, when combined, brings different perspectives on reality to the table regarding the challenges, problems, and opportunities, thus allowing for examining them in breadth and depth:[64]

> The true institutional difficulty is in bringing the agencies together to answer all the questions, as will be discussed in the next section. Nevertheless this must be done if the use of force is to have utility: if it is to attain a result that leads to the outcome rather than reinforcing the opponent's position. By establishing the context for the endeavour in answering these questions, what is not known or decided is clarified as much as what is, and objectives—including those of gathering the information to answer the questions—can be set accordingly. Any operation is an exercise in learning about the opponent and the operation should be conducted towards this end, but as noted, in war amongst the people the currency is information rather than firepower.[65]

The second set of questions focuses on the ways (meaning the tactics) in which the use of force serves the solution: "The second set of questions is answered on the basis of the answers to the first set of questions, and the circumstances in the theatre as understood at the time."[66] In other words, the use of force at the tactical level is a derivative of reality on the ground and of the commander's insight and no more due to the complexity of reality and its being sui generis in every instance.[67]

Recommendations for organization and operations. Smith does not stop with defining the general framework. He also notes a number of issues to be handled in practice to increase the benefit coming from the use of force. The first issue regards how to organize commands. According to Smith's framework, the military commands of that era faced challenges in accomplishing the wide range of assigned tasks. This problem emerged primarily because of the creation of the "professional staff" concentrated solely on military aspects. Despite extensive discussions within modern armies on topics like size and utilization, these debates remained confined within the military domain and did not extend beyond it. Although these discussions often involved intense

debates, they consistently remained within the scope of military affairs, failing to transcend into other spheres.

The aim of the various systems in the military headquarters is to help the force commander complete the military mission he is tasked with. Staff members representing professional units—administration, supporting fire, air, and more—are commanders or liaisons of the systems. With the development of the military profession, the professional headquarters now includes officials representing these new fields. Thus, the headquarters has officers whose role is to assist the force with humanitarian aid, legal aid, and so on. Smith concludes that "the staffs that support the commanders on these operations will need to be both military and civilian, multidiscipline as well as multinational when necessary; and headquarters and their procedures must be organized accordingly."[68]

Smith proposes adding, before the fact and as a structural matter, experts who largely handle civilian matters. The expression of the multidisciplinary thinking needed by the commander will be in the manner of military planning, while he is assisted by a team of experts in charge of civilian planning of operations. Moreover, there will be a need for staff officers whose expertise regards not only the hierarchical level in which they operate but also all hierarchical levels, from strategic to the lowest tactical level.

According to Smith, the headquarters' expanding competence and fields of expertise will allow the military force in general and the force commander in particular to operate in more areas and better influence how they implement assigned missions. Thus can the force commander better assess the information, analyze it, and influence those fields. Since the headquarters will need to contend with more missions, including those broader in scope, the commander and the headquarters will have to constantly consider the wider context of a given battle relative to the conflict in general in all its aspects.[69]

The second issue to be handled to improve the benefit of the force concerns its use. In Smith's view, the new battlefield requires that raid-like military actions be used to achieve desired results. Smith proposed abandoning the classic offensive, aimed at taking territory and destroying the enemy, as a central tool for achieving the desired results. By contrast, raid-like actions have a number of advantages when the war is between people. First, the raid requires quality intelligence, which leads to critical thinking on how to achieve the desired tactical and

strategic result. Second, the raid as a mode of action will be more focused than the classical offensive, especially in terms of time and space.

The raid method requires careful planning of the operational time and area, which will necessarily be smaller than a general offensive. Finally, the raid allows for efficient concentration of efforts, even if for a short period, as opposed to an approach requiring the needed means for a mass of military forces in the form of a classical offensive: "To mount security operations we can identify certain constants; they will be expeditionary, they will be multinational to some degree and involve non-military agencies, and they will last a long time. . . . Operationally the way the forces are used and thus organized must reflect both the strategic constants and the nature of war amongst the people."[70] Such a war must include information technology, which "should be harnessed to support the information operation being conducted to understand and find the opponent and separate him from the people, and to network the effects of our actions so as to complement one another."[71]

This combination of organizing headquarters on the one hand and adopting raid-like actions on the other will, according to Smith, increase the benefit of using force in a war among people. More sophisticated headquarters can better connect tactics and strategy, and the raid will be for the sake of the main action within a defined time and space. So it will also be possible to free commanders and their headquarters from the need to mediate between deciders and executors, thus creating more quality action connecting policy to the tactical actions on the ground.

Smith's Contribution to the General Theory of War

Smith formulated many insights regarding the general theory of war, but two are of particular note. First, he coined the term "war among people" with its many meanings,[72] and second, he made a significant contribution to constructing the necessary methodological discourse regarding military force. Smith analyzed the phenomenon of war among people almost without reference to existing technology on the battlefield or the domains in which it takes place; instead, he concentrated entirely on the phenomenon itself and sought to express its human element. Ostensibly, there is nothing new here, as there is no thinker who does not deal with the human spirit in war. Nevertheless, Smith offered an innovation, as he spoke of "people," regardless of their role—whether combatants or civilians, decision-makers or

participants in the fighting. In this sense, what makes war among people unique, according to Smith, is that people themselves are the strategic principle of the first order in war.

Positioning the idea of the "war among people" at the strategic level pours new content into the whole phenomenon of war, as its focus is no longer defeating the enemy army but directly influencing the consciousness of all the people. In this sense, even the last individual is a fighter who needs to be addressed. Smith therefore expands the phenomenon of war into a complete entirety—war is no longer clearly bounded by armed forces and sectors but is instead everywhere. As such, he considers the phenomenon of war to be ongoing, with no end, even if he does not say so explicitly. It is more than likely that his personal experience from areas of ongoing conflict, such as Northern Ireland and Bosnia, and his experiences in the Gulf War led him to the conclusion that there is no such thing as "the end of war."

Smith's second contribution to the general theory of war is the construction of the necessary methodological discourse for using military force, and he formulates his words clearly. According to him, discussion of policy needs to focus on three main stages: (1) the purpose or goal to be achieved; (2) how policy makers seek to act to achieve it; and (3) the means allocated for that path chosen to achieve the goal. Although this construct is not an innovation in itself, its importance lies in the recognition that these three stages must be met to reach the desired policy. The existence of such a discourse does not necessarily ensure victory, but it does promise a starting point for understanding what needs to be achieved and what has been achieved in practice.

Smith does not insist that the discussion take place according to a specific order or consider it important where one starts—strategy or tactics—so long as all three stages are ultimately included. In his view, one can decide first regarding the means and method and only afterward agree what goal is to be secured; however, one cannot determine a goal for which the method and means are inappropriate, as this approach is a sure path to failure. To the same extent, choosing a particular path because it is available and possible, but without allocating the needed means or examining its appropriateness for the desired goal, will almost certainly lead to all the efforts being in vain, no matter how effective or efficient.

In sum, Smith considers war to be a complex, ongoing phenomenon, one in which the army is only part of the solution. War in his view is

a phenomenon of people, and people are everywhere, regardless of their social or political arrangements.

Petraeus: Field Manual 3-24, *Counterinsurgency* (2006)

David Howell Petraeus was born in 1952 in New York to an American mother and a Dutch immigrant who came to the US at the beginning of WWII. Upon graduating high school, he went on to study at the United States Military Academy at West Point, where he completed his studies in 1974 and was made an infantry officer.[73]

Petraeus enjoyed a varied career. He studied at the usual military colleges but also earned a master's degree in public administration in 1985 and a doctorate in international relations in 1987 from the Woodrow Wilson School of Public and International Affairs at Princeton University. The subject of his thesis was "The American Army and the Lessons of Vietnam: A Study of Military Influence and Use of Force in the Post-Vietnam Era." Petraeus also served as an assistant professor in international relations at West Point from 1985 to 1987.[74]

Although he had enlisted in the Army in 1974, the relevant chapter in his military career for this book starts from the end of the 1990s. In 1999, he served as deputy commander of the 82nd Airborne Division, which conducted numerous stabilization operations inside Iraq.[75] In 2003, after being appointed commander of the 101st Airborne Division, he led the US Army's major battles in Najaf and Karbala in Iraq.[76] Toward the end of 2005, he transferred from a command position in Iraq to the role of deputy commander of the US Army Training and Doctrine Command (TRADOC).

During 2006, he published two successive studies. The first was an article in which he summarized his insights from his time fighting in Iraq.[77] In this article, he laid out his approach in the form of 14 principles, serving as a kind of "dos and don'ts" list, guiding military commanders so they can carry out their complex task in fighting insurgency. Many of his insights focus on tactical leadership, while others deal with the character of American activity in Iraq from the strategic perspective (i.e., support for the Iraqi state and its reconstruction efforts). This type of activity leads primarily to a campaign revolving around stabilization efforts.

The second study Petraeus was involved in dealt with how to think about and conduct operations against insurgency and subversion.

This study was published in 2006 as part of a recognized field manual (FM) published by the US Department of Defense, FM 3-24, *Counterinsurgency*.[78] Petraeus never claimed to have exclusive authorship of this field manual and indeed cannot due to its format as an Army manual subject to the protocols of approval from institutions in the US Army and defense establishment.[79] But since he was the one who pushed for its writing, it ultimately became mostly identified with him. Moreover, the 2006 field manual is often attributed solely to Petraeus, mainly because he served in a wide range of senior command positions in 2007–11 in Iraq and Afghanistan and in executing the doctrine he articulated.

Although the document focused on military fighting doctrine, it was more recognized for military theory.[80] The criticism that the field manual was "not military enough," so to speak, led to its being amended in 2014 and rewritten in the necessary military lingo. This amendment of the field manual effectively confirmed the original 2006 field manual as a work on theory rather than practical military doctrine.

Petraeus's Theoretical Concepts

Petraeus's strategic concepts are based on the fact that the methods of warfare of terror and guerilla organizations differ from each other but are fundamentally similar. But the US Army did not fight such organizations to ensure security for American citizens, as fighting did not take place on American soil, but to protect American interests. This factor has many consequences for how conflicts with these organizations are managed and fought. This central fact—the focusing of American military activity for the sake of protecting American interests—necessarily requires a different way of using military forces. One need only consider the geographic and demographic size of Iraq, to say nothing of other characteristics, to understand the enormity of the challenge facing the US Army in protecting these interests. For Petraeus, despite these data points, the problem lay in the ability of the military force to focus on clear goals and conduct strategy-directed campaigns over time.

Design: A formative stage in articulating and directing the act of war. The fourth chapter of *Counterinsurgency* covers the design of campaigns and operations against insurgencies. The manual defines "operational design" as a deeper understanding of the problem, examining solutions to that problem, and a basis for study and operational

adaptation. Design, unlike planning, is meant to study an unknown problem in depth, defining its characteristics and creating conceptions and hypotheses allowing one to think of a solution. Design also exists at the tactical level in what is known as the "commander's intent":

> 4-28. Campaign design may very well be the most important aspect of countering an insurgency. It is certainly the area in which the commander and staff can have the most influence. Design is not a function to be accomplished, but rather a living process. It should reflect ongoing learning and adaptation and the growing appreciation counterinsurgents share for the environment and all actors within it, especially the insurgents, populace, and HN [host-nation] government. Though design precedes planning, it continues throughout planning, preparation, and execution. It is dynamic, even as the environment and the counterinsurgents' understanding of the environment is dynamic. The resulting growth in understanding requires integrated assessment and a rich dialog among leaders at various levels to determine the need for adaptation throughout the COIN [counterinsurgency] force. Design should reflect a comprehensive approach that works across all LLOs [logical line of operations] in a manner applicable to the stage of the campaign. There should only be one campaign and therefore one design. This single campaign should bring in all players, with particular attention placed on the HN participants. Design and operations are integral to the COIN imperative to "Learn and Adapt," enabling a continuous cycle of design-learn-redesign to achieve the end state.[81]

Design is a broad debate including military and nonmilitary parties representing additional governmental and defense bodies, experts from various areas of knowledge, and local parties from the host country. This multiorganizational and holistic dialogue allows discussants to grasp the situation as it is, as this is a deeper understanding of the environment and the problems involved. More importantly, this understanding is reached in connection with the mission and is tightly bound up with the military action itself. The aim of this conversation is to formulate the problem and its boundaries in an iterative and ongoing process—"a continuous cycle of design-learn-redesign"—until the problem is no longer seen as complex. The components of the design process are critical discussion, use of the systems approach, and the creation of a shared model and language alongside principles. This

process helps the development of an intuitive ability to make decisions, which in turn serves as the basis for ongoing situational assessments aimed at structured learning.[82]

The design stage bridges strategy and tactics and establishes the understanding of the commander regarding the solution needed for the problem. This stage begins with the definition of the desired military end states, which can be concluded from the policy goals, and continues to the definition of the operational idea or commander's intent and the instructions for planning operations needed to realize the strategy. In this manner, it is possible to embed the commander's intent in the design stage among his subordinates in order to increase them, allowing them room for flexibility and initiative and allowing every component or soldier taking part in the military effort to realize the essence of the operational idea. Design is what provides the commander with the tools and language needed for modern command.

But design alone is not enough because it only provides an initial environmental awareness founded on working assumptions arrived at during the multiorganizational dialogue and learning. In addition to design, another component is needed to help us study and understand the complex operational environment: "friction" on the battlefield. This friction deepens awareness and enriches it, allowing for a reexamination of the insights arrived at during the design stage, validating them or changing them. In truth, friction is already based on the deep insights formed during the design stage. To successfully derive benefit from it, active flexibility is needed among the lower commanders, who must deliver quality, precise information as much as possible to the campaign commanders so that they can update their views during the fighting. In this, Petraeus repeated what he said in the 2006 article, per which there is no substitute for a commander's flexibility and adaptation to the diverse situations arising on the battlefield.[83]

Design: Between principles and application. The US Army organizes its forces' activity through field manuals, which formulate a shared language for all the Army's operational units. These manuals are not written by a single individual, and they undergo review at several stages and junctions. But it is possible for one person to lead and guide the language used in the manual, as was the case with the 2006 manual. When the Army got down to the task of embedding the design approach and turning it into an orderly modus operandi, it was clear to its commanders that Petraeus's prescriptive was not necessarily a "success formula." The manual therefore cautions its readers (military

commanders), instructing them to adapt the character of the professional discourse and themselves to changing circumstances. The need for an iterative process is stressed repeatedly in light of the fact that only the practical experience of the tactical leadership and the daily friction it endures with events on the ground can provide the vital information needed for the higher-ups.[84] In the same manner, commanders at the lower end need to be aware of and up-to-date regarding the assessments of their superiors.

This requirement is not obvious in a military organization like the US Army, one of whose most prominent characteristics is its hierarchy, a strict chain of command with actions carried out only based on strict orders. The demand directed toward lower-level commanders to be involved in the insights of the higher-ups, all the more so when it comes to the US Army, is a breakthrough in the needed structure for conducting operations as well as an earthquake in terms of its organizational construct.

Another breakthrough in the manual comes in the form of the first principle for using military force, in which Petraeus adopts the famous aphorism of T. E. Lawrence, otherwise known as Lawrence of Arabia (1888–1935): "Do not try to do too much with your own hands."[85] Despite the military value of completing a mission and the accepted military approach that force should be used to do so, Petraeus called on commanders operating among a civilian population to reduce the use of military force. He instructs them to use military force only for what it is meant to do and no more and to exhaust all the options the local population has to take care of itself. For instance, military force should be used against terrorists, but local parties should be allowed to handle municipal matters themselves.

On this point, Petraeus relied on Lawrence of Arabia, who proposed to commanders operating among the civilian population to activate the populace itself. Lawrence also claimed that even if the local populace would be less effective than the foreign forces, it is still better that they be the ones to act since it is their war, and the military force must let them win rather than win for them.[86] This principle is identified by Petraeus, and not for nothing, as one that could weaken the efforts of commanders and soldiers since it hands over responsibility and tasks to someone else to a degree. In addition, Petraeus requires that commanders, even at the lowest levels, remember the overall strategic goal and direct their activities accordingly. Petraeus is aware of the "unease"

that this requirement creates, but he nevertheless defines it as a principle of utmost importance, as can be seen in Lawrence's writings.[87]

This difficulty, meaning the demand for the Army's lower ranks to be exposed to strategic considerations unmediated, was perhaps one of the central, if unofficial, reasons that an updated version of the field manual was published in 2014.[88] In this edition, the authors (no longer including Petraeus) decided to forgo the fourth chapter on design that appeared in the previous edition, choosing instead to integrate it into the seventh chapter dealing with planning and operational considerations. This update was somewhat puzzling since, as opposed to the previous edition, the new edition is meant for commanders at battalion to brigade level and their counterparts, who all agree are not part of the operational leadership. But the new edition of the field manual also did not see the authors forgo the need for a dialogue between the political leadership and military commanders in expanding the discussion and an unceasing assessment process.[89]

However, moving the discussion of design from the fourth to the seventh chapter in the new edition of the manual almost entirely neutralizes the possibility of realizing Petraeus's concept. The main reason for this result is that the role of the dialogue is not solely to exchange views and impressions. Its ongoing role, occurring in an iterative process, is to examine actions versus intentions (strategic and military goals) and assess them, passing on information from varied sources and arriving at a deeper awareness about the situation on the ground. The design process, especially the dialogue taking place within it, was meant to break down the military challenge, which is complicated enough, into smaller and more concrete missions to provide a response to strategic needs. In Petraeus's view, this process is not theoretical, and practical harm thereto (meaning pushing it to the margins of the manual) significantly neuters military action, even perhaps emptying it of any content.[90]

The Petraeus paradox: The incoherence between input and output. Another of Petraeus's innovations in the field of the theory of war is pointing to the paradoxes within the phenomenon of war. From Petraeus, we first encounter the incoherence between input and output. By "input," Petraeus meant any action at the military level, whether the act itself or the planning thereof. In "output," he includes all the possible results of the military act. This distinction allows him to point to the great dynamism present in the act of war at its different levels. That dynamism requires military commanders to engage in a critical

and sharp way of thinking—the sort that presents the outputs of their actions to a daily test—so they can answer the question, "Do my actions contribute to the needed result?"

Petraeus discusses these ideas in the chapter in the field manual dealing with the paradoxes of anti-insurgency operations:

Paradoxes of Counterinsurgency Operations

1-148. The principles and imperatives discussed above reveal that COIN presents a complex and often unfamiliar set of missions and considerations. In many ways, the conduct of COIN is counterintuitive to the traditional U.S. view of war—although COIN operations have actually formed a substantial part of the U.S. military experience. Some representative paradoxes of COIN are presented here as examples of the different mindset required. These paradoxes are offered to stimulate thinking, not to limit it. The applicability of the thoughts behind the paradoxes depends on a sense of the local situation and, in particular, the state of the insurgency. For example, the admonition "Sometimes, the More Force Used, the Less Effective It Is" does not apply when the enemy is "coming over the barricades"; however, that thought is applicable when increased security is achieved in an area. In short, these paradoxes should not be reduced to a checklist; rather, they should be used with considerable thought.[91]

At this stage, Petraeus moves on to describe nine paradoxes of the use of force, which sometimes create dangerous or absurd situations (depending on your perspective), deriving from the incoherence between input and output:

Sometimes, the More You Protect Your Force, the Less Secure You May Be

1-149. Ultimate success in COIN is gained by protecting the populace, not the COIN force. If military forces remain in their compounds, they lose touch with the people, appear to be running scared, and cede the initiative to the insurgents. Aggressive saturation patrolling, ambushes, and listening post operations must be conducted, risk shared with the populace, and contact maintained. The effectiveness of establishing patrol bases and operational support bases should be weighed against the effectiveness of using larger unit bases. (FM 90-8 discusses saturation patrolling and operational support bases.) These practices ensure

access to the intelligence needed to drive operations. Following them reinforces the connections with the populace that help establish real legitimacy.

Sometimes, the More Force Is Used, the Less Effective It Is

1-150. Any use of force produces many effects, not all of which can be foreseen. The more force applied, the greater the chance of collateral damage and mistakes. Using substantial force also increases the opportunity for insurgent propaganda to portray lethal military activities as brutal. In contrast, using force precisely and discriminately strengthens the rule of law that needs to be established. As noted above, the key for counterinsurgents is knowing when more force is needed—and when it might be counterproductive. This judgment involves constant assessment of the security situation and a sense of timing regarding insurgents' actions.

The More Successful the Counterinsurgency Is, the Less Force Can Be Used and the More Risk Must Be Accepted

1-151. This paradox is really a corollary to the previous one. As the level of insurgent violence drops, the requirements of international law and the expectations of the populace lead to a reduction in direct military actions by counterinsurgents. More reliance is placed on police work, rules of engagement may be tightened, and troops may have to exercise increased restraint. Soldiers and Marines may also have to accept more risk to maintain involvement with the people.

Sometimes Doing Nothing Is the Best Reaction

1-152. Often insurgents carry out a terrorist act or guerrilla raid with the primary purpose of enticing counterinsurgents to overreact, or at least to react in a way that insurgents can exploit— for example, opening fire on a crowd or executing a clearing operation that creates more enemies than it takes off the streets. If an assessment of the effects of a course of action determines that more negative than positive effects may result, an alternative should be considered—potentially including not acting.

Some of the Best Weapons for Counterinsurgents Do Not Shoot

1-153. Counterinsurgents often achieve the most meaningful success in garnering public support and legitimacy for the HN

government with activities that do not involve killing insurgents (though, again, killing clearly will often be necessary). Arguably, the decisive battle is for the people's minds; hence synchronizing IO with efforts along the other LLOs is critical. Every action, including uses of force, must be "wrapped in a bodyguard of information." While security is essential to setting the stage for overall progress, lasting victory comes from a vibrant economy, political participation, and restored hope. Particularly after security has been achieved, dollars and ballots will have more important effects than bombs and bullets. This is a time when "money is ammunition." Depending on the state of the insurgency, therefore, Soldiers and Marines should prepare to execute many nonmilitary missions to support COIN efforts. Everyone has a role in nation building, not just Department of State and civil affairs personnel.

The Host Nation Doing Something Tolerably Is Normally Better than Us Doing It Well

1-154. It is just as important to consider who performs an operation as to assess how well it is done. Where the United States is supporting a host nation, long-term success requires establishing viable HN leaders and institutions that can carry on without significant U.S. support. The longer that process takes, the more U.S. public support will wane and the more the local populace will question the legitimacy of their own forces and government. General Creighton Abrams, the U.S. commander in Vietnam in 1971, recognized this fact when he said, "There's very clear evidence, . . . in some things, that we helped too much. And we retarded the Vietnamese by doing it. . . . We can't run this thing . . . . They've got to run it. The nearer we get to that the better off they are and the better off we are." T. E. Lawrence made a similar observation while leading the Arab Revolt against the Ottoman Empire in 1917: "Do not try to do too much with your own hands. Better the Arabs do it tolerably than that you do it perfectly. It is their war, and you are to help them, not to win it for them." However, a key word in Lawrence's advice is "tolerably." If the host nation cannot perform tolerably, counterinsurgents supporting it may have to act. Experience, knowledge of the AO [area of operations], and cultural sensitivity are essential to deciding when such action is necessary.

If a Tactic Works This Week, It Might Not Work Next Week; If
It Works in This Province, It Might Not Work in the Next

1-155. Competent insurgents are adaptive. They are often part
of a widespread network that communicates constantly and
instantly. Insurgents quickly adjust to successful COIN practices
and rapidly disseminate information throughout the insurgency.
Indeed, the more effective a COIN tactic is, the faster it may
become out of date because insurgents have a greater need to
counter it. Effective leaders at all levels avoid complacency and
are at least as adaptive as their enemies. There is no "silver bul-
let" set of COIN procedures. Constantly developing new practices
is essential.

Tactical Success Guarantees Nothing

1-156. As important as they are in achieving security, military
actions by themselves cannot achieve success in COIN. Insurgents
that never defeat counterinsurgents in combat still may achieve
their strategic objectives. Tactical actions thus must be linked
not only to strategic and operational military objectives but also
to the host nation's essential political goals. Without those con-
nections, lives and resources may be wasted for no real gain.

Many Important Decisions Are Not Made by Generals

1-157. Successful COIN operations require competence and
judgment by Soldiers and Marines at all levels. Indeed, young
leaders—so-called "strategic corporals"—often make decisions
at the tactical level that have strategic consequences. Senior lead-
ers set the proper direction and climate with thorough training
and clear guidance; then they trust their subordinates to do the
right thing. Preparation for tactical-level leaders requires more
than just mastering Service doctrine; they must also be trained
and educated to adapt to their local situations, understand the
legal and ethical implications of their actions, and exercise initia-
tive and sound judgment in accordance with their senior com-
manders' intent.[92]

It would appear that the complexity of these paradoxes increases
the more the anti-insurgency campaign continues. In this sense, the
continuation of the campaign leads it to change form to the point of
undermining the conventions regarding the steps that positively or

negatively affect it. Resolving those paradoxes, according to Petraeus, requires intimate proximity between all the ranks involved in war, as much as this is possible. Any distance endangers the operational inputs required for victory in the broader political contexts of war.

Petraeus's Contribution to the General Theory of War

Petraeus presents us with two clear areas in which his contribution to the general theory of war is readily apparent. The first lies in the understanding that there is in fact no additional mediating layer between tactics and strategy; the role of the military commander is to translate and mediate political instructions into a clear policy for the forces on the ground so that they can turn their tactical activity into relevant action. He does so since the word "policy" is not a military term, and armies "speak" or use orders and regulations at the tactical level, not the language of policy.

To bridge this gap within the military organization, deriving from policy instructions instead of clear orders and regulations, Petraeus proposes using the term "design." This concept bridges strategy and tactics and is Petraeus's cognitive conceptualization for the operational level. Per Petraeus, the operational level exists in the mind of the commander and nowhere else. The more the action of commanders in the field (regardless of rank and role) is connected to strategy, the better the chance that the action will be coherent and lead to the needed strategic output. As such, we can also understand Petraeus's demand to focus on how the process is carried out, not just the fact that it is carried out. This process necessitates cutting across ranks and, if possible, without barriers, to enable deriving the needed strategic output from the tactical actions.

The second area established by Petraeus relates to the existing inherent and fixed paradoxes present on the battlefield of anti-insurgency warfare: what is true today will not necessarily be true tomorrow, and what works in one place may harm another. The insight of continuous paradoxes leads Petraeus to recognize that the phenomenon of war is fundamentally dynamic. Dynamism, as Petraeus sees it, is not the accepted distinction of the phenomenon of war as the "kingdom of uncertainty" but a cognitive dynamism that interprets the phenomenon of war at all its levels.[93]

It is commonly thought that the levels of strategy and policy have remained much more stable than what takes place on the battlefield,

where battles are conducted by tactical forces. But in Petraeus's view, this is not so: the strategic and policy levels must always be in a state of constant change just like the tactical level, sometimes even at the tempo of tactical operations. The ongoing paradoxes, as an inherent part of the phenomenon of war, require the fixed interpretation of strategy and policy with repeated feedback from and to tactics. The paradox that what works today may not work tomorrow necessarily requires a change in strategy and policy. In this sense, according to Petraeus, the strategist and the statesman cannot allow themselves to rest in war. They must instead live the events, interpret, instruct, and keep tabs on the results of operations on the ground, hoping that the interpretation given their views brings the expected strategic output.

The fusion of these two fields—design as a systemic process cutting across ranks to form policy and the fixed need to interpret reality due to the paradoxes that form from the use of force—leads Petraeus to invest enormously in tactical forces. This investment is not restricted to their readiness and training but also their understanding since they are the key to creating the dynamic response needed against insurgency at the strategic level.

Notes

1. Brodie et al., *Absolute Weapon: Atomic Power and World Order*.
2. Brodie authored several other publications that focused on the subject of atomic weaponry. Notably, among these works are *Strategy in the Missile Age*, an influential analysis of the effect of missile technology on military strategy; *Escalation and the Nuclear Option*, a study of the risks and limitations of nuclear escalation in conflicts between nuclear-armed states; and *War and Politics*, a collection of essays on the relationship between war and politics and the role of nuclear weapons in the modern world. However, it is important to note that the majority of the material discussed in these works heavily relied on the conclusions already established in Brodie's 1946 publication, *The Absolute Weapon*.
3. For more on his personal life, see Zellen, "Bernard Brodie and the Bomb," 53–96.
4. Brodie et al., *Absolute Weapon*, 14.
5. Brodie et al., 60.
6. Brodie et al., 61–62.
7. Brodie et al., 62.
8. Brodie et al., 63.
9. Brodie et al., 72.
10. Brodie et al., 75.
11. Brodie et al., 70–75.
12. Brodie et al., 30.
13. Brodie et al., 36.
14. Brodie et al.
15. Brodie et al., 41.
16. Brodie et al.

17. Brodie et al., 19.

18. Brodie's approach made him a pariah in the American defense establishment. See, for example, Herken, "Not-Quite-Absolute Weapon," 21.

19. On gaps in Brodie's argument regarding a counterstrike and the deficiencies in his approach to nuclear technology beyond the bomb, see Possony, "Atomic Power and World Order," 533–35.

20. Brodie et al., *Absolute Weapon*, 68–69.

21. For a broad survey of the concept of deterrence, see Freedman, *Deterrence*, 3, 6, 26–27, 110–11, 116.

22. Galula, *Pacification in Algeria*.

23. Galula.

24. Galula, *Counterinsurgency Warfare*.

25. Galula, 83.

26. Galula, 51.

27. Galula, 61.

28. Galula, 82–83.

29. Galula, 78.

30. Galula, 21.

31. Galula, 54.

32. Galula, 58.

33. Galula, 7.

34. Galula, 62.

35. Galula, 9.

36. Galula, 66.

37. Galula, 67.

38. Galula, 62.

39. Galula, 63.

40. For a critique of Galula's experience in Algeria, see Gentile, *Wrong Turn: America's Deadly Embrace of Counterinsurgency*, 34.

41. On the argument that Galula is overrated, especially by the Americans, see Rid, "Nineteenth Century Origins of Counterinsurgency Doctrine," 730–31.

42. Communist groups, specifically the Malayan National Liberation Army (MLNA), organized as guerrilla forces to fight for Malayan national liberation. They aimed to challenge colonial rule and oppression in Malaya through guerrilla warfare tactics, seeking to establish a socialist or communist government. They employed unconventional combat methods, such as hit-and-run tactics and ambushes, while also engaging in political mobilization and propaganda to gain popular support.

43. Jones, "Review of Peter Busch, 'All the Way with JFK? Britain, the US, and the Vietnam War,'" 160–61.

44. This brief biographical survey is based on Thompson's obituary as published in the British *Times*: *Times* staff, "Obituary: Sir Robert Thompson."

45. Thompson, *Defeating Communist Insurgency*.

46. Thompson, 50–51.

47. Thompson, 52–53.

48. Thompson, 53–54.

49. Thompson, 55.

50. Thompson, 55–57.

51. Thompson, 57–58.

52. Thompson, 70.

53. Thompson, 84.

54. Thompson, 171.

55. For more on the criticism of Thompson's insufficient addressing of the uniqueness of each case, as well as the political actions and the role of the army therein, see Gentile, *Wrong Turn*, 24; and McAlister, "Review of *Defeating Communist Insurgency: Experiences from Malaya and Vietnam*," 773–75.

56. For more on this approach, which can be called "population-centric," and its inherent gaps, see Opper, *People's Wars in China, Malaya, and Vietnam*, 241.

57. Smith, *Utility of Force*.

58. Smith, 146–47.

59. Smith, 3–4.

60. Smith, 373–74.

61. Smith, 374–75.

62. Smith, 377–81.

63. Smith, 381–82.

64. Smith, 383–86.

65. Smith, 386.

66. Smith, 385.

67. Smith, 384–87.

68. Smith, 402.

69. Smith, 402–4.

70. Smith, 374.

71. Smith, 400.

72. For a critique arguing that a "war amongst the people" is not new, see Bacevich, "Warhorse of a Different Color," 86–88; and Gardner, "Utility of Force," 143–45.

73. Military Hall of Honor, "Gen. David Howell Petraeus Biography."

74. Military Hall of Honor.

75. A stabilization operation aims at helping the civilian population to reorganize its institutions after the subversive parties are expelled from their country.

76. Military Hall of Honor, "Gen. David Howell Petraeus Biography."

77. Petraeus, "Learning Counterinsurgency: Observations from Soldiering in Iraq," 2–12.

78. The US Army field manual is a publication containing basic principles for conducting military operations and is aimed primarily at military leaders between battalion and senior command, focusing on the tactical and operational levels of warfare. US DOD, FM 3-24, *Counterinsurgency*.

79. Two central coauthors of the manual are John Nagl and David Kilcullen, known in their own right as possessing a great deal of knowledge on anti-guerilla warfare. Nagl's book surveys the combat style and lessons of the British and American armies in fighting insurgencies in Malaya and Vietnam, respectively, and what can be learned from them for future conflicts. Nagl, *Learning to Eat Soup with a Knife*. It is interesting in this context to read the introduction Nagl wrote for the field manual, which came out as a book for the broader public, where it is clear that he was one of the coauthors. Nagl, "Evolution and Importance of Army/Marine Corps Field Manual 3-24, *Counterinsurgency*," xiiv–xx. As for Kilcullen, his main contribution was seen as forming a method that revolved around an overall approach to revolutionary war; he proposed separating the global war ("global war on terror") and the "small wars" in places like Iraq, Afghanistan, the Philippines, Indonesia, Thailand, Chechnya, Pakistan, and North Africa. Without such a distinction, it would be difficult to understand the conflict being fought or the correct strategy to be adopted regarding that conflict. He published these insights in Kilcullen, "Countering Global Insurgency," 597–617; and Kilcullen, *Accidental Guerrilla: Fighting Small Wars in the Midst of a Big One*, xiii–xix, 35–38, 291–301. Kilcullen also received explicit recognition for his part

in the 2006 manual within the manual itself; Nagl noted that Kilcullen is one of the writers and that the appendix A published for the general public was entirely based on an article by Kilcullen, which greatly influenced the ideas in the manual. Petraeus et al., *US Counterinsurgency Field Manual*, xiix, 287–304.

80. Petraeus is a unique theoretician since his book of combat theory or doctrine ultimately turned into a military theory for all intents and purposes. Many sources point to this factor, whether noting it in a positive or negative sense.

For the positive, see Russell's proposal to understanding Petraeus's ideas in a broader setting. In Russell's view, Petraeus's approach goes beyond the world of doctrine because of his significant effort to propose a new theory for the activity of American forces in Iraq and Afghanistan. Russell, "Counterinsurgency American Style: Considering David Petraeus and Twenty-First Century Irregular War," 69–90. Sebastian Gorka and Kilcullen propose viewing Petraeus's ideas as a theory of war directed toward actors in a given area. In this sense, by their understanding, Petraeus's ideas move beyond a narrow doctrinal prescription and serve as a theory of war that stands on its own even if it is correct for a given problem. Gorka and Kilcullen, "Actor-Centric Theory of War: Understanding the Difference Between COIN and Counterinsurgency," 14–18. Elinore Sloan addresses Petraeus's approach against insurgency in her book and calls it "classical," placing him among the thinkers dealing with revolutionary war. She thus accepts the argument that Petraeus's book goes beyond the definition of a book solely concerned with combat or doctrine in the narrow sense. Sloan, *Modern Military Strategy*, 80.

For the negative, consider the fact of the field manual's being republished in 2014 with the aim of replacing the 2006 edition. The authors of the 2014 manual note the significant changes in the new version, primarily due to the need to make the military language more precise relative to the previous one. These statements may have unarticulated inferences, but the removal of the design chapter from the 2006 manual as a separate chapter marks a clear reservation toward the room for thinking broadly that Petraeus's manual allowed his readers. DOD, FM 3-24, *Counterinsurgency*, vii. In his article, David Ucko seeks to emphasize his opposition to the "theoretical myths" in Petraeus's 2006 manual, even claiming that the 2014 revision is the actual beginning of a practical discussion of counterinsurgency. Ucko, "Real Myths of Counterinsurgency."

81. DOD, FM 3-24, *Counterinsurgency* (2006), 4-9.

82. DOD, 3-4.

83. Petraeus, "Learning Counterinsurgency," 9.

84. DOD, *Counterinsurgency* (2006), 4-6.

85. DOD, 1-28.

86. DOD.

87. DOD.

88. DOD, *Counterinsurgency* (2014).

89. DOD, vii.

90. DOD, *Counterinsurgency* (2006), 7-4–7-6.

91. DOD, 1-26.

92. DOD, 1-27–1-28.

93. For more on Petraeus's proposal to change the character of American fighting in Iraq and the degree of his success in applying it, as viewed by some of his critics, see Gentile, *Wrong Turn*, 25, 34–35; and Rovner, "Review of *Soul of Armies*," 348–52.

Chapter 6

Extracting a General Theory of War

Until now, our study was limited by the 15 theoreticians chosen via revealed preference. They were selected based on a single test: whether they stood the test of time and history. The theories needed to be relevant with the passing of time until today, whether in the field of academic research or in the various military institutions dealing with military thought, as noted in chapter 2 of this study. Even if they did not necessarily innovate or offer a revolutionary approach, these theoreticians reflected unique perspectives on the theory of war and its essence, which, as we can see, is an elusive concept.

The timeline of this study extends over 176 years—from 1830 with the publication of Jomini's formative *Précis de l'art de la guerre* to 2006 with the publication of the US Army's FM 3-24, *Counterinsurgency*, which included Petraeus's study. The other axes of the study were placed alongside this timeline, as well as the dates of the industrial revolutions, the development of the domains of warfare, and the wars occurring during this period.

These 15 theoreticians were systematically reviewed through the study of their theories in detail and the identification of their characteristics. But the primary analysis was devoted to the unique contribution of each one of these theories to the general theory of war. It is important to stress that this study was not meant to judge the quality of the theories or their theoreticians, though we did take note of criticism of those theoreticians, at the time and in retrospect by scholars today. This study was meant to extract the components and characteristics of those theories that would help us form a general theory of war.

The renewed observation of the theoreticians, this time from the perspective of the study's axes, allows us to lay down a strong foundation for the sake of extracting and constructing a general theory of war. This scholarly foundation allows us to ask questions about what the theoreticians have in common in their understanding of the phenomenon of war and where they differ. But more than that, this foundation can point to much more complex questions: How does one create and build a theory of war? How is it even possible to learn of the phenomenon of war? This foundation can even point to the

causes for the strengths or weaknesses of various theories as seen from scholarship.

To extract a general theory of war, three successive discussions need to be conducted, through which we can discern the "generality" of the theory, its laws, and their validity: The first discussion will deal with the formal aspect. The aim is to prove the "generality" of the general theory of war by validating the argument that it contains four fixed axes, whose appearance and mention in the theories of the 15 theoreticians serve as proof of their existence, even if they are not all mentioned in the same manner by those theoreticians or indeed mentioned at all.

The second discussion will deal with the content aspect. The contents of the theory originate in the way each of the theoreticians—as observers, scholars, and critics—used the three axes (industrial revolutions, development of domains, and wars they studied) or some of them (to one degree or another) to form their theory of war. Based on a systematic analysis of its contents, we can identify the methodology in the thought of that theoretician and thus extract the laws and fixed relationship between the three axes he studied.

The third discussion will deal with the formal and content aspects. Examining both factors is meant to prove the study's hypothesis regarding the existence of a general theory of war meeting all the laws of theory. Doing so is of particular scholarly importance; this study will point for the first time to clear theoretical and scholarly limits on the study of the phenomenon of war in terms of what it includes and what it does not, its strengths and weaknesses, and the biases that characterize it.

The Formal Aspect of the General Theory of War

The expression of "generality" in the theory of war requires abstraction that gives formal expression to the axes of the study. The form is needed to express the different research parameters revealed throughout this systematic survey of the 15 theoreticians. The easiest way to describe the axes is to address them all in the same manner, as independent spaces that stand on their own but also interact with each other. An analysis of the theories shows that each of the theoreticians addresses at least two of the three research axes and that there are close interactions between these axes. Even theoreticians who chose

to focus on just one axis, since they sought to demonstrate unique contexts within it, did so in reference to at least one other axis, even if only partially.

Figure 7 expresses the equal representation of all four axes and the existence of the interaction between them. This figure will accompany us later in the chapter, but with changing emphases. We will thus be able to point to each stage in the discussion, show what we are researching in that stage, and what we should focus on. The emphasis will be done by painting one or more box or axis in order to point to the different phenomena connecting one or more axes, or to discuss the schematic in the figure.
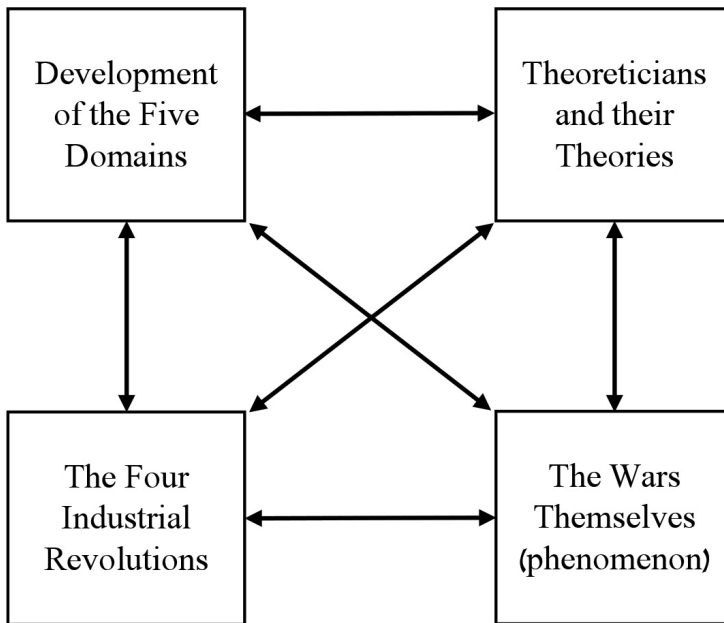
Figure 7. Schematic of the four axes of the general theory of war and their interactions

The "four industrial revolutions" text box represents the *time axis* of the general theory of war. The "development of five domains" text box represents the *domains of warfare axis*. The "wars themselves" text box represents the *wars axis* studied by the *theoreticians* represented in the "theoreticians and their theories" text box. The interaction between the four axes is represented by the directional arrows. The content aspect of the axes is discussed below.

The Theoreticians and Their Place in the Scholarly Sphere

First, we should do an initial breakdown of the theoreticians noted in previous chapters. Three successive analyses will help us form an integrated view of the theories. The first analysis deals with the position of the theoreticians along the timeline of wars and the timeline of industrial revolutions. The second deals with adding the axis of the development of the domains of warfare. The third and final analysis in this stage of the initial discussion involves grouping the theoreticians into groups sharing a common denominator in terms of ideas and content, based on the two previous analyses.

First Analysis: Positioning the Theoreticians on the Timeline of Wars and Industrial Revolutions

This analysis positions the theoreticians according to the date of publication of their formative work, relative to the timelines of wars and industrial revolutions. The result is depicted in figure 8, below.

This figure shows the first analysis via three columns representing three of the four axes of the general theory of war. From left to right are the timeline of wars taking place during the theoreticians' lifetime, the timeline of publication of the theoreticians' formative work, and the timeline of the industrial revolutions.

A quick glance at figure 8 shows the absence of theoreticians chosen for this study who wrote during the Third Industrial Revolution (1969–2000). The primary theoretical work is deeply rooted in the period between the First Industrial Revolution to just after WWII, with the publication of Brodie's work in 1946. Galula, who published his book in 1964, and Thompson, whose work was published in 1966, make no reference to the Third Industrial Revolution, which was already starting at the time. Their field of interest is guerrilla wars or anti-insurgency wars and how to win them. Meanwhile, Smith and Petraeus began to develop their theories during the Fourth Industrial Revolution, with their works published in 2005 and 2006, respectively.

Timeline and Main Wars	Theoreticians	Axis of Industrial Revolutions
Napoleonic Wars 1803−1815 20		
30	Jomini (1830) Clausewitz (1832)	**First Industrial Revolution**
US-Mexican War 1846−1848 40		
50		
60		
Franco-Prussian War 1870−1871 70		
80		
90	Mahan (1890) Bloch (1898)	
1900		
	Corbett (1911)	
WWI 1914−1918 10		**Second Industrial Revolution**
20	Douhet (1921) Liddell Hart (1929)	
30	Isserson (1932) Mao (1937)	
WWII 1939−1945 40	Fuller (1939) Brodie (1946)	
Korean War 1950−1953 50		
Vietnam War 1955−1975 60	Galula (1964) Thompson (1966)	
70		
80		**Third Industrial Revolution**
First Gulf War 1990−1991 90		
2000	Smith (2005) Petraeus (2006)	
10		**Fourth Industrial Revolution**
20		

Figure 8. Positioning theoreticians relative to wars and industrial revolution timelines

As noted above, the Third Industrial Revolution dealt primarily with the digitization of information. Thanks to a far greater capacity for processing information, it was now possible to increase the industrialization of the means of warfare. In general, this period refers to the shift from the analog to the digital age. However, the Third Industrial Revolution—31 years if we count its duration (1969–2000) or 39 years if we count the years between the publication of Thompson's book (1966) and Smith's (2005)—seems to be a period severely lacking in serious thought.

We should note two central emphases in this context. The first is that wars take place regardless of the existence of theories and theoreticians. The periods under review witnessed hundreds of wars at various levels, whether between states or revolutions against states. The second, concerning the Third Industrial Revolution, is the choice of theoreticians found to contribute to the understanding of the phenomenon of war, based on Samuelson's revealed preference approach. The wars during this period focused primarily on the organization of fighting systems, whose quality improved significantly thanks to the computing revolution.

The computing and digitization revolution sparked prominent processes, paving the way for concepts like network-centric warfare (NCW) and system-of-systems warfare (SoSW) based on the argument that armies need to focus on combat capabilities that can be secured by connecting platforms and capabilities instead of the technological capabilities of each platform separately. This approach effectively overturns the one dominant from the mid-nineteenth to the mid-twentieth century, which focused on the power of platform-centric warfare revolving around the power of a single, particular means of warfare or a specific combat capability. Thus, the Third Industrial Revolution witnessed the rise of the approach of bridging platforms with means and capabilities as a vital ingredient for success on the battlefield. Meanwhile, the power of a single platform as a means in and of itself was marginalized.

One of the direct markers of this new approach was the massive use of precise, guided weaponry throughout the domains of warfare. A prominent example of this component is the revolution of precision-guided munitions used in the domains of land, sea, and air. Although armies made extensive use of such weapons on the battlefield, especially in the First Gulf War, these capabilities were still not seen as able to

change the general theory of war and instead viewed at most as theories of military combat.

The second emphasis this study noted regarding the Third Industrial Revolution is the choice of theoreticians found to contribute to the understanding of the phenomenon of war, based on the concept of revealed preference. Such is the case with John Warden, a theoretician in American airpower and articulator of the "five rings" model, which he developed during the 1980s. In his view, the enemy has five centers of gravity represented by rings: the inner, initial ring including the political and senior military leadership, followed in ascending order by the second ring including vital systems such as national communications (organic/system essentials), the third ring including state infrastructure, the fourth ring including the population, and the fifth ring including the fielded military forces.

In Warden's view, the air force alone can lead to an all-systems collapse of the enemy if it is launched to simultaneously and precisely bomb all the aforementioned five centers of gravity. Warden argued that due to the different character of each of these centers of gravity, the harm will not just be physical (i.e., destruction of enemy forces, vital infrastructure, etc.) but also echo and magnify the sense of loss in the other centers, such as among the population and the political and military leadership.

However, Warden did not put forward a new theory of war or contribute significantly to an existing theory of the sort examined in this study. The reasons might be explainable in terms of the difference between him and Douhet: Warden considered the population to be a means and not an end (e.g., attacking communications infrastructure since it has enormous importance in the civilian fabric of life), while Douhet sought to directly attack the population as an end in itself, with the aim of influencing decision-makers. Another possible explanation lies in Warden being primarily identified as a theoretician in the field of air forces rather than a theoretician of the phenomenon of war as a whole.

But how does this gap emerge in thinking about the phenomenon of war? One possible explanation can be attributed to the power of systems and means of warfare created during the First and Second Industrial Revolutions. These were so dominant and left such a lasting impression that they overshadowed any effort to rethink the phenomenon of war during the Third Industrial Revolution. In other words,

"quantity and power" concealed the change taking place in the phenomenon of war if there was such a change.

Another possible explanation for this gap and the absence of significant theoreticians for the Third Industrial Revolution lies in the innovations created during this revolution apparently not being seen as capable of truly changing the general theory of war.

Second Analysis: Adding the Domains of Warfare Axis

This analysis is a further act of integration, with the addition of another axis to the theory—the domains of warfare—alongside the axis of theoreticians and the timelines of wars and industrial revolutions. Figure 9 shows the addition of this domain.

The figure describes the second analyses via four columns representing the four axes of the general theory of war. From left to right are the timeline of wars taking place in the lives of the theoreticians, the axis of development of the domains of warfare, the timeline of publication of the theoreticians' formative work, and the timeline of the industrial revolutions.

As figure 9 illustrates, adding the axis of the development of the domains of warfare to the axis of industrial revolutions brings a new and highly significant layer—the air domain and its industrialization—that influenced the development of the general theory of war. As noted, this domain was introduced in 1903 when the Wright brothers conducted their first motorized flight during the Second Industrial Revolution. The power of this revolution in the air domain—as seen in the ability to produce large quantities of airplanes and maintain standardization and operations of all weapons systems—granted the air domain its influence over the years and made it a critical component in war. The effects of the air domain pertain not only to planes, the vehicles most identified with it, but also to two types of systems and means of warfare used in innovative ways: missiles, in terms of their method of transportation, and bombs, in the degree of damage they do to the enemy. Such a capacity for rapid movement was viewed as something one could not defend against, while bombing capacity moved from simple explosives (Douhet) to the world of nuclear weapons (Brodie).

Timeline and Main Wars	Development of Domains	Theoreticians	Axis of Industrial Revolutions
Napoleonic Wars 1803–1815 — 20	1801 Industrialization of Land and Sea Domain		
30		Jomini (1830) Clausewitz (1832)	First Industrial Revolution
US-Mexican War 1846–1848 — 40			
50			
60			
Franco-Prussian War 1870–1871 — 70			
80			
90		Mahan (1890) Bloch (1898)	
1900			
WWI 1914–1918 — 10	1903 Industrialization of Air Domain	Corbett (1911)	Second Industrial Revolution
20		Douhet (1921) Liddell Hart (1929) Isserson (1932)	
30		Mao (1937) Fuller (1939)	
WWII 1939–1945 — 40		Brodie (1946)	
Korean War 1950–1953 — 50	1957 Industrialization of Space Domain		
Vietnam War 1955–1975 — 60		Galula (1964) Thompson (1966)	
70			
80			Third Industrial Revolution
First Gulf War 1990–1991 — 90			
2000	2000 Industrialization of Cyber Domain	Smith (2005) Petraeus (2006)	Fourth Industrial Revolution
10			
20			

Figure 9. Positioning theoreticians along the timeline of wars, industrial revolutions, and development of warfare domains

Douhet and Brodie viewed the air domain as being of strategic and revolutionary significance. In their view, the new technologies of planes, missiles, and bombs created a domain that changed the face of war and through which a belligerent could achieve rapid victory or mutual deterrence against war. Meanwhile, Isserson viewed the air domain as bringing about the operational revolution, meaning an operation integrating the air and land domains in an intensive manner. In his view, such an overall combination of domains would lead to victory on the battlefield, which would ultimately lead to victory in the war as a whole.

Compared to theories emerging from the domains of air, sea, and land, there is a dearth of theories deriving from the space and cyber domains. These two domains have become industrialized like the others but as of this writing have not yet contributed any consequential insights regarding the general theory of war. The question asks itself: Why have the domains of space and cyber not led to the formation of new theories of war, as opposed to the others? One possible explanation lies in the physical structure of these domains, which are difficult to perceive through normal human senses: space because of the great distances and cyber because of its virtual nature. Consequently, people may have difficulty creating effective systems and means of warfare that would have physical effects on people during war.

Another possible explanation lies in the fact that the domains of space and cyber are not seen as domains marking sovereignty, as opposed to the land, sea, and air domains, the loss of one of which directly affects the sovereignty and lives of human beings. However, a change of perspective—wherein the space and cyber domains are viewed as directly contributing to human lives to the point of protecting their very existence—may be enough to lead to renewed integrative thinking on the phenomenon of war.

Third Analysis: Grouping the Theoreticians Based on Shared Content and Ideas

The third analysis, based on the prior two, deals with the significance of the content and ideas of the theoreticians' work. It is at this stage that I aim to group the theoreticians into distinct units. First, I will classify them according to their theoretical fields of interest relative to the other three axes of the general theory of war. Then I will address each group individually and deepen the discussion of their formal positioning and the way the theoreticians developed their theory.

Figure 10 shows the third analysis in which theoreticians were grouped into three clusters and placed alongside the axis of theoreticians, relative to the other three axes of the general theory of war.

The initial screening results in the following three groups:

- The first group of theoreticians includes Clausewitz, Jomini, Mahan, Bloch, and Corbett, who each focus their expertise on a holistic view of the phenomenon of war itself, both in the sea and land domains, during the First and Second Industrial Revolution.

- The second group of theoreticians includes Douhet, Liddell Hart, Isserson, Fuller, and Brodie, who focus on the organization of systems and means of warfare in the air domain (added in their time) and the land and sea domain during the Second Industrial Revolution.

- The third group of theoreticians includes Mao, Galula, Thompson, Smith, and Petraeus, who focus on a holistic view of the phenomenon of war itself, primarily the land domain, while the other domains serve as auxiliaries, with the Second, Third, and Fourth Industrial Revolutions taking place in the background.

This initial positioning of these three groups is highly schematic, but we can already see its contribution. It allows us to discuss the strengths and weaknesses of each of the groups as well as ask penetrating research questions regarding the failure of any group's members to address a specific axis or, alternatively, their excessive attention to a particular component of this or that axis. At this stage, I will expand on these three groups in detail, discussing their formal positioning and especially how the theoreticians of each group developed their theory.

Timeline and Main Wars	Development of Domains	Theoreticians Formal Groups	Axis of Industrial Revolutions

Napoleonic Wars 1803–1815

20

1801 Industrialization of Land and Sea Domain

30

Jomini (1830)
Clausewitz (1832)

First Industrial Revolution

US-Mexican War 1846–1848

40

50

Franco-Prussian War 1870–1871

60

1

70

80

90

Mahan (1890)
Bloch (1898)

1900

1903 Industrialization of Air Domain

Corbett (1911)

WWI 1914–1918

10

20

Douhet (1921)
Liddell Hart (1929)
Isserson (1932)

Second Industrial Revolution

30

2

Mao (1937)

WWII 1939–1945

40

Fuller (1939)

Korean War 1950–1953

50

Brodie (1946)

Vietnam War 1955–1975

1957 Industrialization of Space Domain

60

Galula (1964)
Thompson (1966)

70

3

80

First Gulf War 1990–1991

90

Third Industrial Revolution

2000

2000 Industrialization of Cyber Domain

Smith (2005)
Petraeus (2006)

Fourth Industrial Revolution

10

20

Figure 10. Grouping theoreticians based on shared content and ideas

The First Formal Group: Creating Organizing Theories and Stretching Existing Reality Relative to the Author's Present and Near Future (Clausewitz, Jomini, Mahan, Bloch, Corbett)

The theoreticians in this formal group focused on groups characterized by two central motifs: (1) large-scale armies and (2) wars between imperialist or state-based political entities. Their theory was based on the study of the recent and distant past. Some of these theoreticians lived and wrote during the Second Industrial Revolution and even experienced the technological change it wrought, but their writings lack any meaningful focus on the technological progress engendered by the revolution or a conscious acceptance of the same. Despite living during the industrial revolution, these theoreticians looked backward and remained focused on the modus operandi of armies, the human factor involved in wars, and the goals of these wars. Their attitude to the phenomenon of war can therefore be described as based on a broad, holistic perspective.

This schematic understanding demonstrates the focus of these theoreticians on the phenomenon of war and the metrics they used to understand it. This conclusion does not mean members of this group paid no attention to the technological development of their time, but discussion of these matters was minimal. Even if it seems Bloch differed from the others due to his obsessive interest in technology and tables full of data, it was just to better explain what might happen within the phenomenon of war, nothing more.

Members of the first group of theoreticians dealt with the phenomenon of war in the context of the domain in which it took place. The thinking of Clausewitz, Jomini, and Bloch clearly focused on the land and Mahan on the sea, while Corbett was also primarily identified with the sea, despite his also examining the relationship between the land and sea domains. The central question guiding the members of this group was a simple two-part question: What is the regularity operating within the phenomenon itself, and what can be extracted from the phenomenon to point to this regularity? The importance of this regularity lies in the ability to conclude what is needed of participants in this violent phenomenon in order to win.

This group's members analyzed the phenomenon of war with an emphasis on two central areas. The first was the levels of war; the second was the basic approaches that armies use during war, offensive or defensive, to win it. An observation of the phenomenon of war as

it takes place in reality, meaning the clash on the battlefield, is done via the criterion of levels of war, which grants this group the ability to arrive at abstract observations of the phenomenon. This observation, even if emotionally detached, allows the formation of the complete theory and its connection of the act of war to abstract values and political goals. It also allows connecting the irrational actions on the battlefield, in which people kill people, to the ideal space of political needs and wants that embody the desired strategic and political goals.

We have already noted how Clausewitz, Jomini, Mahan, and Corbett did not attribute great importance to technology. They considered the art of command during war itself, meaning the striving to win the war, to be the commander's primary business. In this sense, the question of the systems and means of warfare at the commander's disposal when trying to win the war is a marginal matter. This factor stems from the commander's focus on exhausting the possibilities of the means at his disposal, not developing new ones. In other words, the world of force construction, of creating systems and means of warfare, is not the world of the military commander, and there is thus no real significance attached to technology in the context of the phenomenon of war. In this world, technology is a matter in and of itself, in addition to others, and is not entitled to special treatment.

Even Bloch's detailed analyses of the character of future war, especially his discussion of military technology, do not point to an ongoing trend or seek to point to future developments, which if studied in depth would lead to additional developments he did not predict (such as the range of artillery pieces).

Figure 11 portrays the formal representation of the general theory of war by the five theoreticians listed with the first formal group: Jomini, Clausewitz, Mahan, Bloch, and Corbett. Here, we see how deeply they studied each of the axes. These theoreticians focused on the phenomenon of war itself with less reference to the development of the domains of warfare and with minimal attention to the industrial revolution of their time.

The theoreticians in this group, each in their unique way, studied the phenomenon of war itself, the occurrence itself (on the field of battle), and what they perceived to be the thing that affected war the most. But the boundaries of their investigation were always clear and distinct: the facts describing the war in practice are a source of authority from which the theoreticians sought to draw their insights. In this

First Formal Group
Creating Organizing Theories and Stretching
Existing Reality to the Present and Near Future
Jomini, Clausewitz, Mahan, Bloch, Corbett
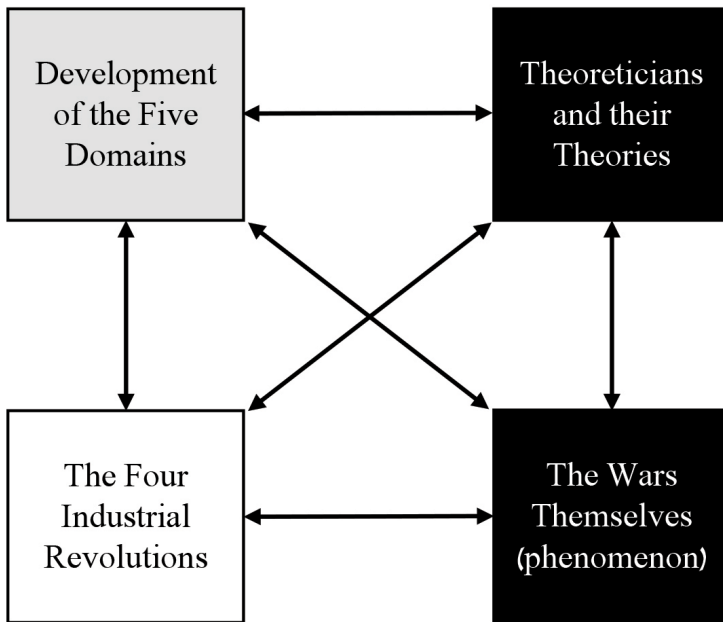
Key
black text box = fully covered
gray text box = partially covered
white text box = minimally covered

Figure 11. The first formal group: Creating organizing theories and stretching existing reality relative to the author's present and near future

sense, this was a conservative group, as in coming to point to universal laws regarding victory in war, they relied on the facts its members studied. Theirs is a raw and unsophisticated scientific study of the phenomenon of war based on historic writings (Mahan is a clear example) or personal experiences (Clausewitz and Jomini being prime examples) and pointing to laws that led or can lead to victory in war.

Similarly, we can see the range of possible scenarios that theoreticians of this group can offer us. In this sense, they do not claim to point to another possible reality with its own imagined laws. Even when they point to future aspects, they are restrained in their description of sce-

narios and clarify that the regularity they point to is dependent on proper application and does not necessarily assure success in any military conflict. However, although this group is ostensibly more conservative than innovative, its theories have stood the test of time and relevance.

The Second Formal Group: Creating Theories Based on the Magnitude of the Second Industrial Revolution in Being and Attempting to Predict the Future War (Douhet, Liddell Hart, Isserson, Fuller, and Brodie)

The theoreticians of the second formal group, like the first group, focused on the large-scale wars of the past. But their study of the past was done differently. The formative experience for this group was WWI and its horrors (aside from Brodie, for whom WWII was the point of reference). This foundation of knowledge serves as the basis of their thought, and they used it to set out on a journey into the future or at least to hypothesize about wars of the future.

Members of this group were already deep within the Second Industrial Revolution, with the internal combustion engine, wireless communication, and mass production already widely recognized developments among the general public. The broader discussion focuses on the future military uses the Second Industrial Revolution can offer. How will military organizations look if they adopt these technologies, and what will be the relevance for war or the phenomenon itself? Hence, this group was preoccupied with future military systems and means of warfare and their use within the different domains of warfare. An analysis of this group shows that they tried to create and construct theories based on the magnitude of the Second Industrial Revolution and to predict the face of future war.

While WWI was like a millstone around the necks of Douhet, Liddell Hart, Isserson, and Fuller, Brodie bore the weight of WWII. But none of them let these historical experiences defeat them. All five sought to formulate new theories about the future of war and warfare, and to this end, they relied on theories seeking to organize and arrange the future systems and means of warfare according to their domains: air, land, and sea. A comprehensive observation of the industrializing potential of these future systems and means of warfare, some of which had precursors, can prevent the repeat of past mistakes, contribute to the learning of lessons from the past, and of course shape future wars in other ways.

The formation of these theories was supported by two primary, mutually supporting innovations. The first was the product of the industrial-technological revolution, which in turn presented belligerents with new and varied systems and means of warfare in every domain. The second innovation was the need for mass, meaning large quantities of these new systems and means of warfare. With these two innovations, combatants could have real influence on the phenomenon of war, as having few means of warfare was insufficient.

The use of theories produced by members of the second group allows for a more tactical-operational examination, one that also observes how means of warfare are used and not just how the campaign is conducted. Theoreticians of this group tried to engage in precise calculation of all the factors involved, with attention paid to the technological aspects contributing to fundamental development on the battlefield.

Some would say that members of the second group almost entirely neglected war itself. But for them, war is an instrumental point of reference, indicating the danger therein and the need to prepare for it or to study it tendentiously to justify the directions the members steered toward. As such, this group focused on specific technologies or domains and the relationship between them as well as the question of how such a war would look in the future when integrated with technology. Thus, Douhet pointed to planes and the air domain, Fuller focused on mechanized armies and especially tanks and the land domain, Brodie emphasized the industrialization of the atomic bomb and the now superfluous conventional wars, Isserson considered combining all systems and means of warfare and domains to be the new progress in the phenomenon of war, and, finally, Liddell Hart viewed the tank and the airplane as the central tools contributing to the strategy of indirect approach.

Another insight emerging from the second group of theoreticians centers on the number of needed systems and means of warfare. In their view, the ability to realize their theory (meaning to influence the phenomenon of war) revolves around mass: large quantities of those tools and means of warfare. Technological progress, no matter how fantastical, including wireless communications, planes, tanks, and atomic bombs, is insufficient without large numbers of them. Hence members of this group conclude that this phenomenon occurs on a very large human scale, if it indeed occurs. Moreover, the ability of a particular side to turn the tide in its favor requires abundant means.

Second Formal Group
**Creating Theories Based on the Magnitude of
the Second Industrial Revolution on the Way
and an Attempting to Predict the Future**
Douhet, Liddell Hart, Isserson, Fuller, Brodie
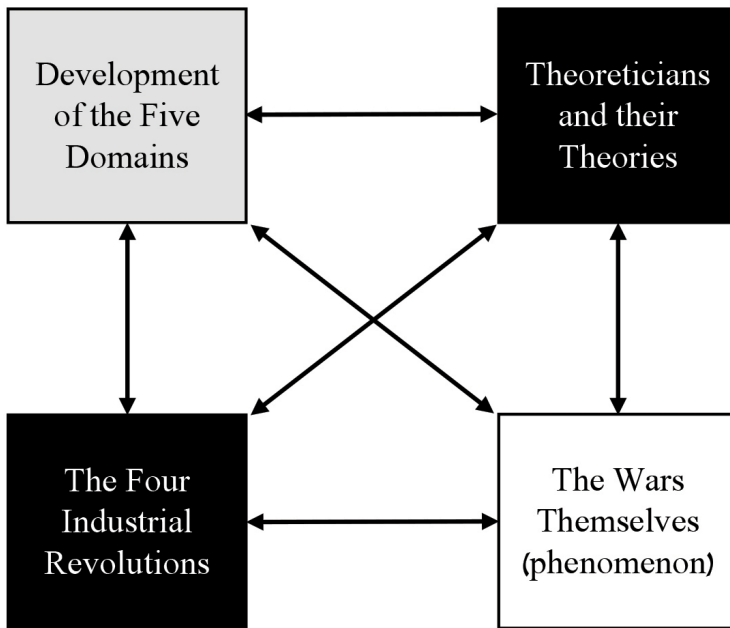
Key
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gray text box = partially covered
white text box = minimally covered

**Figure 12. The second formal group: Creating theories based on the
magnitude of the Second Industrial Revolution in being and attempt-
ing to predict the future war**

Even Brodie, who recognized the enormous destructive power of
atomic weapons, thought that one bomb was insufficient to bring about
victory in war. To the contrary, he thought that victory required many
bombs capable of causing massive damage.

The path of the Second Formal Group to creating a theory of war.
The second group of theoreticians focused on the study and analysis
of technologies at the forefront of the industrial revolution of their

time, meaning technologies at the disposal of armies to ensure victory in war. Not a few studies tend to play down the value of insights produced by members of this group, as they seem focused solely on technical matters, whether Douhet on the plane, Fuller on the tank, Liddell Hart and Isserson on combining the two, and Brodie on the atomic bomb. But this is not the whole story. These theoreticians connected technology to how they interpreted the developing reality of the industrial revolution they were witnessing. They thus recognized that the industrialization phenomenon would lead to fundamental changes in the way of life of civil society as well as the organization of armies as hierarchical organizations.

The phenomenon of industrialization, characterized more than anything by the mass production of items, points to what all members of the group share in their writings: the focus on large quantities and never the single item. They discussed many kinds of tanks, many planes (even if of a particular, dominant type—the strategic bomber), and many bombs. Even Brodie dealt with large numbers and different delivery systems when discussing the atomic bomb. These theoreticians are effectively the first to point to the physical and mental enormity of war and thus to the quantity of means needed to win it.

When examining the range of scenarios offered by their theories, we can say that they took a somewhat loose approach. Their approach is not due to their not learning from the past, meaning lessons from WWI (or Brodie, who also relied on WWII). Their theories focus on the effort to raise hypotheses regarding future wars, presenting them as wars conducted based on different laws.

The scientific tool of the study of past wars, which served the first group, could no longer serve the second group as a tangible point of reference for conclusions about the future, aside from noting what should not happen. Liddell Hart is known for extracting the indirect approach from the study of 240 historic battles, but in coming to explain how to win future wars, he found himself without any basis for the idea he presented in *The Decisive Wars of History.* There, he offered tools that would realize his approach as effectively as possible. And this is without mentioning the fact that the battles he analyzed did not involve tanks or planes (because they did not exist), while they would be present in the future.

However, the theoreticians of the second group sought to point to regularities and laws leading to victory, regularities that, if followed, would allow for coherent action in the face of the phenomenon of war.

It is no wonder this group encountered much resistance, in different ways and at different levels of intensity, in light of what was ostensibly seen as an attempt to challenge the future and not the past. Thus, the group's efforts pointed to a regularity that still did not occur via equations, something requiring no small amount of imagination. In hindsight, we can say that the theory of members of the second group was found to be valid, as it survived the test of time. But there is no doubt that the fundamental analysis of the broader aspects of the phenomenon of industrialization is what provided them with the tools to engage in educated and properly established guesses about wars of the future.

According to members of the group, the theoretical assault on their writings derived from the degree of influence of technologies, including their connection to the phenomenon of industrialization, on the phenomenon of war. This methodology is an empirical analysis of the systems and means of warfare and their possible influence on war. As physical tools, they then have a certain regularity, even if not all were invented or built in the way noted by members of the group.

As stated, these theoreticians adopted a somewhat loose approach as they tried to speculate about future wars and claim that their theories assured victory in all future wars. But in practice, their range of scenarios was limited to the next war as a possible reference point for the universal future of the phenomenon of war. Even if we address Brodie's statement on atomic bombs and deterrence, we see that he was cautious, focusing primarily on future trends that may develop in defense establishments and not necessarily the regularities and laws of war with atomic bombs.

The Third Formal Group: Creating Realistic Theories for Distinct Problems in a Given Context, Primarily in the Context of Time and Space (Mao, Galula, Thompson, Smith, and Petraeus)

The theoreticians listed in the third group, unlike the other two, focused on revolutionary or antisubversive wars (depending on the perspective). Their unique interpretation did not consider guerilla warfare to be merely a question of tactics or use of forces but rather the essence of revolutionary war. This essence required a new and orderly conceptualization of guerilla warfare, one allowing for the extraction of a fixed regularity. The theoreticians of the third group were therefore required to rethink how to organize and use conventional armies, alongside thinking about large-scale war that may yet come.

The theoretical basis of members of the third group was different than the other two. In the third group, members based their assumptions on two criteria: empirical study of the phenomenon of war and theoretical study of the past for the sake of learning about the present and future.

Most theoreticians of the third group lived during the Second and Third, and some even the Fourth, Industrial Revolutions. Domains of warfare had been expanded in their time, and the air and space domains became more active and varied thanks to new systems and means of warfare used there, even though the theoreticians of the third group considered the domains of air, space, and even cyber to not have fundamental influence on the phenomenon of revolutionary war. In their view, these domains did not contribute to a victory achieved primarily in the land domain.

The theoreticians of this group believed that the means of warfare and their domains cannot explain the phenomenon of war, primarily because they were not seen as significant in achieving the desired victory. The investigation of the phenomenon for this group was a matter of focusing on two main fields: (1) man and society as the object of war and (2) a reclarification of the needed modus operandi at the different levels of war. This construct is also how we can explain these theorists' almost obsessive, highly detailed writing on the military forms used in revolutionary war. Concepts like "defense," "offense," "raids," or "ambushes," which characterize the large-scale war, therefore needed to be reinterpreted when it came to revolutionary war.

This effort derived from the absence of a new theoretical framework for the understanding of revolutionary war. The tactical expression of guerilla warfare on the ground, with the fierce violence accompanying it, made it hard for theoreticians to grasp the essence of the required new regularity they sought to comprehend. The situation on the ground was so poor in descriptors of war and the theories that they were based on that members of the third group argued that use of the theoretical knowledge provided by members of the first two groups only made matters worse and increased the odds of losing the war rather than winning it.

It is worth noting Mao's unique contribution to the general theory of war here. This contribution lies in his ability to explain how revolutionary war can be used to win, even though it is a transitional stage toward the large-scale regular warfare that is needed to fully achieve the belligerent's political aims. Guerilla war is not a new phenomenon

in human history. However, until Mao's *On Guerilla Warfare* came out in 1937, there was no existing theory to explain what was happening in reality that allowed for coherent, systematic, and initiated action in revolutionary war. In this sense, Mao is the most prominent theoretician of the third group, as he knew to point to the path most fully utilizing the guerilla approach as organized violence on the path to a regular army—and ultimately as a factor helping him to win the war.

Galula, Thompson, Smith, and Petraeus contributed opposing approaches to Mao for confronting and defeating guerilla warfare. They each point to different theses in approaching and winning warfare of this sort.

Figure 13 shows the formal representation of the general theory of war for the third group's theoreticians: Mao, Galula, Thompson, Smith, and Petraeus. We can thus see how they primarily focused on the phenomenon of wars themselves while partially addressing the industrial revolutions of their time and addressing to some degree the development of the domains of warfare.

The path of the Third Formal Group to creating a theory of war. The third group of theoreticians dealt with the systematic study and analysis of a particular kind of war they sought to solve. Each theoretician was compelled to deal with a concrete event: Mao, with the Japanese invasion of China in 1937 and then the nationalist Chinese Guomindang led by Kaishek; Galula, the civil war in Algeria; Thompson, the wars in Malaya and Vietnam; Smith, the war in Bosnia; and Petraeus, the fighting in Iraq. The work of the third group was empirical, devoted to a specific problem they faced. The historical dimension, even if they noted it, was entirely marginal, meant to justify a new argument or provide context for another example.

The five domains of warfare do not receive detailed attention in the writing of these five theoreticians. Even Smith (2005) and Petraeus (2006), who wrote at a time when the space and cyber domains were fully operational in the military, social, and technological senses, do not consider them to provide any benefit or contribution to victory in war. The industrial revolutions accompanying the wars of their time influence the broader aspects of industrialization and the subsequent social structure but have less influence in terms of the military technologies they place at the disposal of those engaged in war.

Third Formal Group
**Creating Realistic Theories for Distinct Problems
in a Given Context, Primarily in the Context of
Time and Space**
Mao, Galula, Thompson, Smith, Petraeus
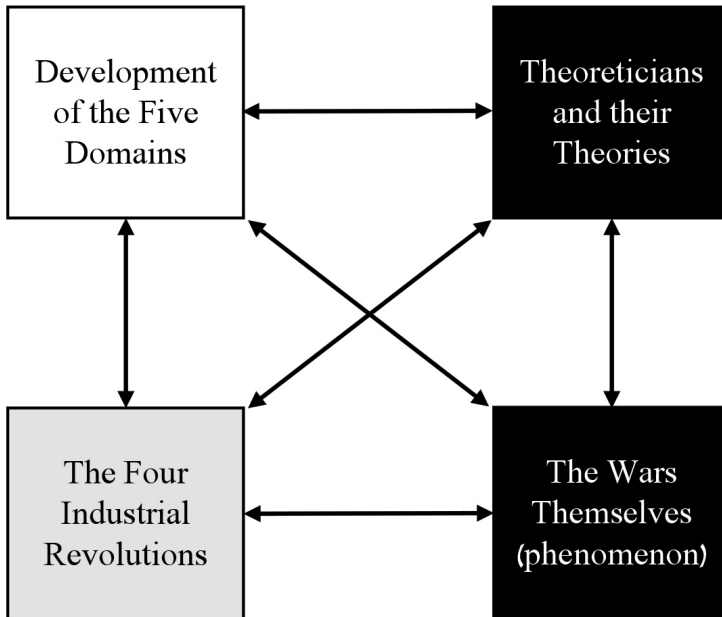
Key
black text box = fully covered
gray text box = partially covered
white text box = minimally covered

Figure 13. **The third formal group: creating realistic theories for distinct problems in a given context, primarily in the context of time and space**

In light of the potential range of scenarios, the theoreticians of the third group adopted a realistic approach in their theories. They tested what did and did not work in practice, refusing to allow the ghosts of the past influence their analyses. But they were also not tempted to offer interpretations or distinct and clear outcomes about a future that has not yet happened. What makes the new regularity offered by the third group is its structure: war is not limited to armies fighting each other, as was the case thus far in war. Now the civilian population is an inherent, inseparable part of the phenomenon of war. The popula-

tion therefore turned from being a party indifferent to the phenomenon of war to an active factor, with its own dynamic and influence on war. The phenomenon of war can be expressed through a range of reactions and actions by the public: from a citizen trying to stay out of it at any cost to one who bears arms and takes an active and even influential role in war.

This distinction, which provides a new context for the parties involved in the phenomenon of war and offers a more complex understanding of the population as an active rather than passive actor, was an enormous innovation in the analysis of the phenomenon. The first group of theoreticians (Jomini, Clausewitz, Mahan, Bloch, and Corbett) only addressed the military clash on the battlefield, and the second group (Fuller, Douhet, Liddell Hart, Isserson, and Brodie) viewed the population as a group with influence on decision makers. This third group of theoreticians expanded the scope of their research and involved actors who had thus far not taken part in the phenomenon or been considered part of it.

The population therefore dictates new rules in the analysis of the phenomenon of war, and it needs to be taken into account if victory is being sought. The very arguments of members of the third group and the regularity deriving from them pointed for the first time to the limitations of military force vis-à-vis the phenomenon of war—and for the need for a far more complex understanding for those who wish to win it. The regularity they pointed to is a consequence of the fact that all actors in the field, including those outside it, are part of the phenomenon. All fight; it is not just uniforms or weapons that represent war but all components of the phenomenon itself, which is now redefined.

How Does the General Theory of War Look in Terms of its Formal Aspect?

The general observation arrived at via the perspective of the three groups of theoreticians combined allows us to point to the formal model of the general theory of war. The validation of the four axes is done with the understanding that each of the three groups addressed some of the parameters in a fundamentally distinct manner compared to the others. The attention we paid to the unique characteristics of the theoretician, the domain under discussion, technological indus-

trialization or the industrial revolution taking place at that time, and the phenomenon itself points to the need for the presence of all four of these components in the methodology. Meanwhile, the methodology itself forms the outlines of the general theory of war. When one of these components is missing, the theory itself becomes deficient.

The excessive focus on one of the axes creates a bias leading to the development of a theory of war in a particular historical time and space. Such an effort is not illegitimate, and it seems to be required of a theoretician working to solve a problem as well as the solution he seeks to offer. Study, whether clearly reliant on history or whether history serves as a hook for predicting the future, is a necessary process for creating a theory for victory in war.

At this stage, we can confirm the four axes of the general theory of war based on history itself, if only at the formal level at this stage. Forming the theoreticians into three groups based on their overall observation of wars combined with the dating of the industrial revolution points to the unique biases of each of them. It should be noted that this positioning was not meant to grade any particular theoretician but to establish them as an inseparable part of the general theory of war.

The Content Aspect of the General Theory of War

Now that we have finished the discussion of the formal aspect and determined its characteristics, we can move on to the content aspect of the general theory of war. The analysis of the content aspect will be done in three stages.

First, we need to examine the general theory of war through the eyes of each theoretician. To that end, we need a different formal positioning for the general theory of war, certainly one distinct from what we have used thus far. With this positioning, we will dedicate a distinct location for each theoretician vis-à-vis the other three axes. Doing so will make it easier for us to examine the other three axes and the interaction between them.

Next, we need to focus on the regularity of the interaction between the axes and discuss the levels of war as the component serving as the glue for the formal aspect of the different parameters, as can be seen from the survey of the contributions of each of the 15 theoreticians to the general theory of war.

Finally, we need to focus on the unique content this methodology raises, pointing to the four different groups of content through which we can point to the regularity existing within the theory itself.

A New Formal Positioning
for the General Theory of War

The need to position the formal aspect of the general theory of war in a different way arises because we are dealing with the theoretical-content aspect. The phenomenon known as "war" takes place in reality, in the tangible world, regardless of any theoretical aspect. Theory helps the scholar characterize this phenomenon. The theoretician—the person interpreting the phenomenon—occupies a unique place in its understanding and the understanding of related parameters.

Since this is a different field of inquiry, in coming to position the theoretician relative to the proposed model of the general theory of war, I relied on the work of Talcott Parsons and Edward Shils, *Toward a General Theory of Action.* Their study deals with the distinctions needed for creating a general theory of any action taken in the world. Although it addresses this subject from a sociological point of view, it was a source of inspiration for me that was very close to the subject discussed here—the world of war—from a methodological point of view. Therefore, from here on out, I will note the contribution of Parsons and Shils to the theoretical concept of general theories, but reference to the specific methodology of the general theory of war is mine alone.

In the central theoretical chapter of their book, Parsons and Shils attribute a great value to the place of theoreticians in the world and their unique perspective on the phenomena they study. The need of the theoreticians to interpret a phenomenon is a unique one, as is their perspective on the world. The consequence for this study, according to Parsons and Shils, is that theoreticians are people with a unique perspective on the world of war. As opposed to the masses who participated in war or experienced it throughout human history, theoreticians (relatively few people by comparison) sought to coherently explain the phenomenon of war and categorize it, despite its profoundly chaotic nature.

According to Parsons and Shils, if there is no theoretician, there is no theory, which means the theoretician's perspective is an Archime-

dean point for investigating the phenomenon. In the context of this study, it is a principled point: How can war theorists come to interpret the products of the industrial revolution at their disposal during their lifetimes, as well as the domains in which the phenomenon takes place (land, sea, air, space, cyber) and their influence on it in general?

If we rely on the theory of Parsons and Shils, the theoretician in the context of this work on war's methodology must have a broad, interdisciplinary perspective due to the need to deal with the different parameters of the general theory of war. Against the background of the industrial revolution, they need to understand human beings as individuals and as part of a social group, plus become acquainted with the technologies of this industrial revolution. Among other things, they must understand how these technologies can serve the systems and means of warfare in the domains of warfare that characterize their era—and all this, of course, restricted to time and place, an inseparable part of the physical aspect of the phenomenon of war. In this manner, we can change the position of the theoreticians in relation to the other three axes of the model of the general theory of war, placing them as an "observer" of these axes. The following schematic depicts this form of positioning (fig. 14):
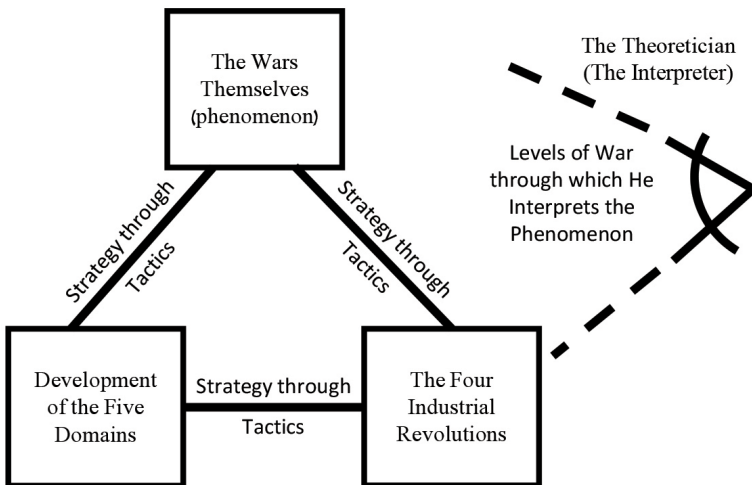
Figure 14. The theoretician as interpreter of the general theory of war via the levels of war

In this schematic, the axis of theoreticians serves as the perspective through which the relationship between all three axes of the general

theory of war is examined. Accordingly, the theoretician as interpreter is represented on the right side of the diagram; he observes and interprets each axis separately as well as the content relations between the axes via the levels of war (strategy to tactics). The relations are represented by the directional arrows between text boxes.

The theoretician is therefore required to engage in complex interpretation, and at this stage we need to ask what scholarly tools he has at his disposal. What are the scholarly "lenses" he needs to use to study the formal aspect discussed above from a content perspective"? The focus on the 15 theoreticians in this study points to one tool shared by all: levels of war. We can use the levels of war as a kind of cognitive scaffolding through which we can observe the phenomenon in an orderly manner, with its different formal foundations.

Therefore, before moving to the third stage of this chapter, which will point to a new breakdown of the theoreticians into four content groups based on their thoughts about the formal aspect of the general theory of war, a comprehensive explanation of the concept of levels of war is needed.

Levels of War: The Content Glue of the General Theory of War

To demonstrate what makes levels of war unique, it would be best to propose simple but not simplistic definitions here, which will point to the largest possible common denominator to which we can apply the term "levels of war" as it appears in the professional research and literature. The reason for doing so lies in the fact that every theoretician places the emphasis on the definition of the levels of war and points to several characteristics unique to this theoretical-cognitive tool (see fig. 15).

The diagram displays (1) the hierarchy of the different levels of war and the existing congruence between them; (2) the contents of each level of war—national-strategy in the context of specific theatre strategy (deriving from a particular geopolitical sphere), large or broad operations at the operational level; and (3) battles or clashes between field forces at the level of tactics.

Figure 15. Levels of war: Schematic representation

The levels of war can be defined at the most basic level as follows:[1]

- Strategy: The strategic level of war deals with the art and the science of using force to achieve national political goals.

- Operation: The operational level of war regards the planning of a series of controlled actions, carried out simultaneously or sequentially, with the aim of achieving operational goals defined by the overall commander, usually within a defined timeframe or area. At this level, military strategy is implemented through the allocation of missions, goals, and resources for tactical efforts.

- Tactics: The level of tactical warfare deals in the planning and execution of battles and battlefield clashes and is characterized by the allocation of concentrated forces and the use of violent actions to achieve the desired goals.

The Characteristics of the Levels of War

These definitions of the levels of war offer a broad common denominator and allow us to point to a number of phenomena accompanying those using the term "levels of war." But these theoretical definitions are insufficient to clarify what makes levels of war unique vis-à-vis the general theory of war. Here, I saw fit to point to three such

unique characteristics derived from the use of the levels of war—strategy, operation, tactics—to describe the phenomenon of war in reality.

The Unique Language of Every Level of War

Although levels of war all deal in the phenomenon of war, we can point to the development of a unique language for each level. This language was meant to precisely formulate the meaning of a particular concept in relation to a concrete problem within the reality of war. Thus, we can determine that strategic language describes the political purpose of the military operation. This language sometimes includes relatively vague concepts like "deterrence," "serious damage," and "decision." Tactical language describes the achievement needed on the battlefield. This language is characteristic of operational orders at the level of operational leadership, and it includes terms like "occupying territory," "destroying targets," and "killing enemy actives." The operational language ties the sometimes vague strategic language to the more detailed and focused tactical language, and it can be characterized as the language of "operational ideas." Concepts characteristic of operational language are "encirclement," "blow," "operational control," and so on.

The mediation between the phenomenon of war at its theoretical level and the real world, meaning the actual battlefield, requires those active at all levels of war to be conscious and systematic when they interpret and update abstract concepts at the strategic level into operational, tangible, tactical level ideas. As can be seen from the writings of the theoreticians, the mediation between the different levels of war is a true necessity if we wish to conceptualize the insights from the act of war. This is true both in the unique context of the war and in terms of patterns of use of force needed to achieve its aim.

We can characterize the theoretical and tangible phenomenon deriving from the linguistic expressions describing the levels of war as follows. Language at every level of war "thinks of" and "describes the idea" (text) through "grammar" or "guiding principles" (syntax) maintaining a regular connection—both coherent and relevant—with the requirements from the other levels of war, meaning the "context." In this way, we can engage in coherent action in the face of the phenomenon of war. More importantly, this is how a theoretical scholar can have a systematic tool for mapping out and defining the study he engages in.[2]

"The Linear Sense" Deriving from the Use of Theoretical Definitions of Levels of War

The theoretical definitions formulated for all levels of war (strategy, operation, tactics), in addition to the language deriving from each level, point to a linear, theoretical pattern that generally derives from the top down. Thus, we first need to define the strategy, then the goals of the campaign, and ultimately the battles and clashes that will realize the tactics on the battlefield. This approach is rooted among any who deal in war, as the theoreticians covered in this study made clear that the act of war is subordinate to the political strategy. This premise is the basis for the sense of linearity of the process organized from the top down, even though this process does not actually occur in this way when war is examined in depth. The complexity of the phenomenon derives from the violence and chaos characterizing it. The theoretician will therefore have difficulty identifying the connections between the reality on the battlefield and the different levels of war and will certainly find it hard to know if this violence and chaos are indeed part of the test for achieving the needed strategic aims.

The "Positivist Spirit" of the Levels of War

Levels of war create a positivist mindset: They deal in the desired future, in which the national political aims will be achieved. In other words, the levels of war way of thinking is always tilted toward the approach that will lead to the desired result. If we adopt the "positivist spirit," we can make the following argument: If we but engage in orderly action, where we form the strategy, operations, and tactics in a scientific manner, victory in war is assured. The dominance of this positivist mindset therefore makes it difficult for the theoretician or the scholar to engage in the necessary critical thinking regarding the phenomenon of war, and it may therefore prevent or even effectively frustrate achieving the desired goals. Thus strategy, in simple terms, is a plan of action for a desired future. The purpose of strategic planning is preparing for both the desired and realistic future. Strategists, whether political leaders or military commanders, should therefore look to the future, both the desired future and the realistic one. When required to respond to events in the present, strategists can only use those moves created in the past. When coming to plan the desired future, strategists effectively discover they are "prisoners of the past," meaning of the

positivist spirit, and therefore have difficulty in seeing the future critically.

The Dialectic Between the Levels of War: The Theoretical-Content Process and the Tangible One

The positivist spirit and the "sense of linearity" are among the primary contributors, certainly at the theoretical level, to the almost mathematical conception connecting desired political results to steps taken on the battlefield. But in reality, there are at least three factors complicating the theoretical process. First, what seem at first to be orderly and organizing stages in this process are nothing of the kind; the stages in the process tend to mix with each other during their "linear flow" from strategy to tactics. The effort to use such precise terminology at every level of war is of no benefit unless we understand that it is a process, not a series of planned events loosely related to one another or of levels detached from one another relative to the phenomenon of war. Second, there is also an inverse feedback loop within the whole process. Strategy, operations, and tactics are all subject to change due to intermediate or partial results during the process. Third, there are many external factors that "shrink" and "twist" the "linear line"—leading from strategy, which establishes the national goals, to the tactics of the battlefield—and that narrow or expand the room for maneuver at every level. Among these factors, we can list the character of the enemy, domestic and foreign policy, economics and technology, the physical environment and geography, cultural heritage, and military doctrine.[3] The effects of these factors are therefore situationally dependent, and their importance and scope are not necessarily identical or similar at every level of war or in their consequences for the levels of war.

The "Clausewitzian trinity," the direct friction between the three levels of war (strategy, operations, and tactics), takes place in war, meaning tangible reality. Friction as a phenomenon requires a strategic idea, the military path supporting it, and feedback—or the correct military action to achieve the strategic result. Recognizing friction as a structural phenomenon and coping with it distinguish a focused and successful action from the dissipation of military efforts followed by general strategic failure.

In practice, the three levels of war exist in tandem throughout the entire chain of use of force, from the strategic level to the operational

level to the tactical level. While leaders at every level in the chain of command focus on their level, the other levels serve as reference points. As they calculate their decisions, leaders consider the other levels, whether strategic, operational, or tactical.

Thus, for example, the politician thinks mainly about policy but simultaneously considers military strategy and tactics in decision-making. Whereas the junior commander on the battlefield deals with tactical actions, that is, fighting, the righteousness of the war (what the war is about and what is being fought for) was defined for him by his commanders at the systemic and strategic level. The table below demonstrates the friction between the three levels of war in an imagined operation:

Table 2. Thinking via levels of war in an imagined operation

Way of thinking	Levels		
	Strategy	Operation	Tactics
Goal	Improving political reality: By defeating the enemy on his own territory	Improving military-strategic reality: Eliminating the enemy's military capability by occupying a given territory	Carrying out tactical missions in a strategic context: Using force in enemy territory; adapting existing tactical tools to new problems
Connection with other levels of war (context)	Improving political reality: By defeating the enemy on his own territory	Upward: Proposing an action to increase pressure on the enemy to secure the strategic goal Downward: Focusing the action in the time or space or with the intensity needed to achieve the goal	Using force to fully achieve the desired goal

The columns represent the levels of war. The "goal" in the first row represents the goal required to be defined at each level; the context in the second row shows the different interpretation given to each goal at each level. The challenge is, of course, to create coherence—prior to and during the war—between all the goals and the contexts in which they must be accomplished.

Table 2 shows what makes thinking at every level unique and how this thinking is tied to the different levels of war. We can thus see that thinking at all levels revolves around territory or ground, but in a different context depending on the thinking, with different insights emerging. In addition, the thinking at every level also relies on all

aspects of the action (tactical, operational, and strategic), but the degrees and balances change depending on the level. Thus, it is possible through study, analysis, forming conceptions, and coherent action within the chaotic reality of the phenomenon of war to accumulate meaningful information about the complex phenomenon of war via its levels. The levels of war offer all levels of leadership a shared basis of understanding that is flexible enough to enable the realization of political goals. This flexibility derives from the chaotic nature of the phenomenon of war as well as the tangible and nontheoretical boundaries blurred between the levels of war.

Levels of War: The Component Connecting the Parameters of the General Theory of War

The use of unique terminology to define the levels of war is meant to clarify their inherent part within the general theory of war. The distinctive interpretation each theoretician gives each level of war, whether regarding how to break them down or how to define them or their content, is a matter for the theoreticians themselves. But the interpretation of the phenomenon of war and the connections between the different parameters, as clarified in the formal aspect of the general theory of war, create the unique content of the theory. To better understand the role of the levels of war in the theory of each theoretician, the following figure simplifies the levels of war and places them along a continuum (fig. 16).

The continuum on the left side (from 100 percent strategy to 100 percent tactics) is intended to show the theoretician's perspective. Along this continuum is a range of nuance, which the theoreticians can use to describe the levels of war in theory as they see fit.

On one end of the continuum is "100 percent strategy," which seeks to point to the most abstract part of the goal being sought, while the other end contains "100 percent tactics," which explains how this goal is implemented in the practical, physical aspect of the act of war. The theoreticians mentioned in this study use different approaches within this sphere of ideas to discuss the phenomenon of war in general, as well as in their effort to formulate their conception of the levels of war and the contribution of this understanding to victory.

100% Strategy

Strategic
National Strategy – Theater Strategy

Operational
Campaign Plans – Major Operations

Tactical
Battles – Engagements

100% Tactics
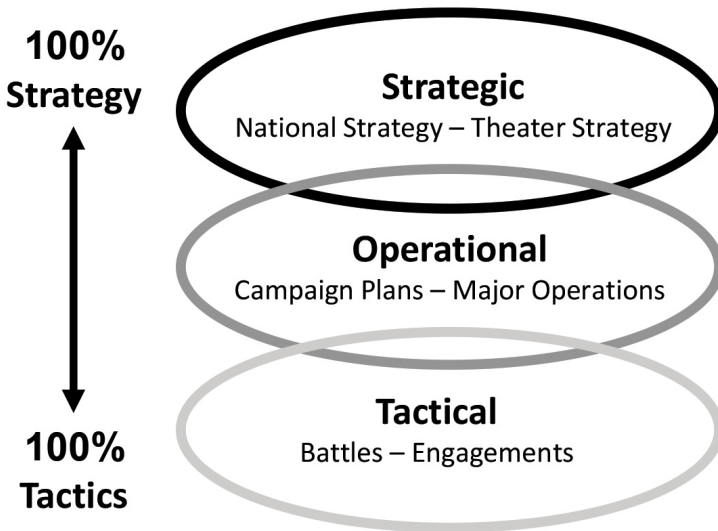
Figure 16. **Continuum of levels of war, from strategy to tactics**

Therefore, we need to go back to positioning the general theory of war in the formal sense, where we pointed to three distinct groups of theoreticians. Then, we must also add their worldview and theoretical innovations to interpret the phenomenon of war. In this process of connecting the formal positioning of the general theory of war and the innovations of the theoreticians, we can point to four distinct content groups. The first deals with the connection between war itself and the industrial revolutions, the second with the levels of war through war itself, the third with the connection between war itself and the development of the domains of war, and the fourth with an integrative analysis of the axes of theory and the interactions between them.

The First Content Group: The Connection Between War Itself and the Industrial Revolutions

The first content group is represented by Bloch, Liddell Hart, Fuller, and Brodie. The four focused their theory on its content aspect, the products of the industrial revolution and their effect on war itself.

The following diagram demonstrates the focus of the theoreticians in the first content group on the connection between the phenomenon and the industrial revolutions via the levels of war, with a noticeable lack of attention—to the point of neglect—on the domains of warfare axis (fig. 17). The names of the theoreticians appear at the top, referring

to the theoretician as interpreter. From this perspective, one can see the emphasis on the axes (industrial revolutions, phenomenon of war) where the connection they pointed out exists.
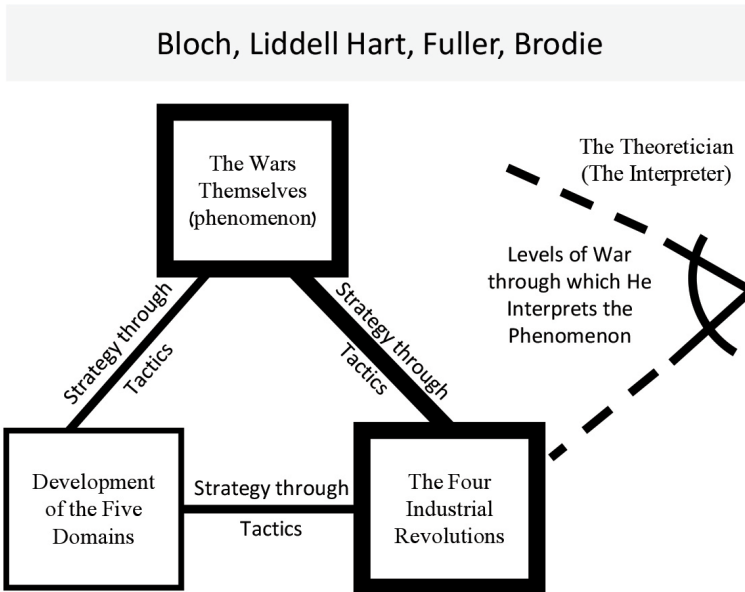
Figure 17. The connection between war itself and the industrial revolutions

Bloch focused on analyzing the technological potential presented by the industrial revolution of his time. The "thought experiment" of placing the means of warfare he studied (including their capabilities) on the future battlefield allowed him to show professionals how this battlefield would look (even though most of them found it difficult to heed the lessons of a man lacking military experience). It also enabled him to argue to the political leaders of his time that war does not offer any positive recipe for achieving political aims. The military technology on Bloch's battlefield is not a matter of a specific local quality; its significance lies in its capacity to directly influence the strategy and overall efficacy of the entire war.

Liddell Hart's efforts were on analyzing the war itself. The study he conducted led him to conclude that victory in war lay not just in the correct interpretation of strategy but also in the use of a content approach—the "indirect approach." In Liddell Hart's time, the desire to realize the strategy of the indirect approach met the industrial revolu-

tion in the form of the development of tanks and planes as a physical component at the tactical level. In his view, thanks to these mobile forces, it was possible to best realize the indirect approach since their very mobility created an ambiguity for the enemy until the central blow was landed against the core strategic goal, leading to victory in war.

Fuller studied the last war he had experienced—WWI. His main insight focused on the intermediate level of war between strategy and tactics. From his view, the "slowness" on the battlefield made it difficult to realize strategy and exacted a heavy price at the tactical level. Studying the potential for increasing the speed of the battlefield was a practical endeavor: by isolating the problem, he managed to focus on the solution: integrating tanks in war. To prove his solution for the act of war, Fuller dealt with the connection between speed and the tactical and strategic levels and the benefit this speed brings for achieving victory in war. This connection led him to imagine the tactical structure of the operational forces in a more detailed manner, with the aim of proving the viability of the solution he sought to bring to the battlefield. However, in practice there was no such structure in the stage in which he formed his theory, aside from the enormous technological potential embodied in the industrial revolution taking place during his lifetime.

Brodie focused on analyzing the industrial revolution and nuclear technology in his time. What made his analysis unique is the recognition that the dropping of two nuclear bombs on Hiroshima and Nagasaki was a demonstration of a new industrial phenomenon rather than a singular event. Brodie concluded that the effect of the atomic bomb—due to its size, power, and scope—is in the strategic aspect, regardless of its tactical effects. As such, the enemy cannot ignore the enormous damage the bomb could cause and its consequences. A complementary step in the development of nuclear technology, which reached critical mass in the form of missiles and planes in Brodie's time, pointed to the need for mutual deterrence; those who seek to hit another side with atomic weapons needed to know they were also vulnerable to such a strike. Conveying the imperative of mutual deterrence was necessary to prevent the use of such weapons. Brodie believed that mutual deterrence could take atomic weapons off the battlefield and impose a strategy of deterrence. He maintained that the introduction of such weapons cannot bring victory in war because no one would be left to enjoy it.

The Second Content Group: Levels of War through War Itself

The second and largest group includes Jomini, Clausewitz, Mao, Thompson, Galula, Smith, and Petraeus. Members of this group focused on understanding the phenomenon of war in interpreting the battlefield, its conduct, and how to influence it. Issues like the products of industrial revolutions, their contribution to war, and the domains of warfare in which one can fight were not largely deemed critical. These theorists considered the phenomenon of war the be-all and end-all. Within the phenomenon of war itself, they identified the different levels at which it is conducted and the difference between soldier, general, and statesman. The issue of operations and means of warfare at the army's disposal in different domains of war was something they considered secondary. For them, the phenomenon of war overshadowed all else.
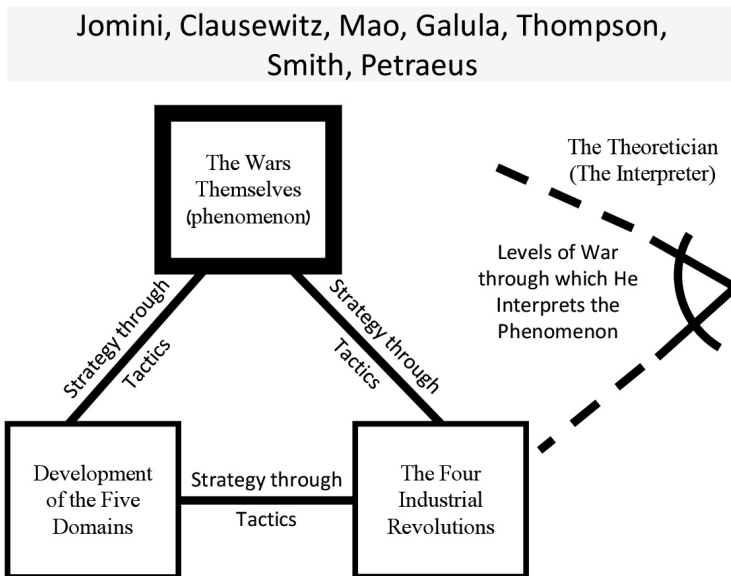
Figure 18. Levels of war through war itself

This diagram above demonstrates the focus of the theoreticians in the second content group on the phenomenon of war alone and its interpretation via the levels of war, with partial to nonexistent focus on the axis of industrial revolutions or the axis of the domains of war (fig. 18). The names of the theoreticians appear at the top, referring to

the theoretician as interpreter. From this vantage point, one can see that these theoreticians emphasize the axis of war itself.

Clausewitz, Mao, and Smith chose to focus on the strategic level, regardless of the tactics, to identify the other levels of war and point to them and the contents they believe to derive first and foremost from the strategic goals to be secured. This approach derives from the distinction by these three that the "how" in tactics requires enormous resources for realizing them as well as great cruelty. They considered war to be a phenomenon aimed, first and foremost, at realizing "100 percent strategy," but that does not render the industrial revolution or the domains of warfare superfluous. What makes the three unique is their claim that the only way to emerge from war as a winner is to completely adhere to strategy as a victory-directed factor, even at the cost of ignoring all other parameters. Mao and Clausewitz openly ignored technology and domains of warfare, which they considered to be but a derivative of strategy. Smith, meanwhile, focused the level of war to the object of action alone—man—while ignoring geography or geostrategy.

Jomini, Thompson, Galula, and Petraeus chose to focus on the operational level. They embody a kind of "middle" or "mediating" group, as they examined how it is possible to connect strategy and tactics in a way that would serve victory in war. Their detailed attention to tactics or strategy and their attempt to interpret war through these lenses created a unique perspective on the phenomenon of war.

Galula and Thompson elected to address tactical reality; they observed the tactical level in the context of the operational and strategic levels and asked themselves, How can war be won? Looking at matters from the bottom up created the "middle" for them, marking the path in their theory for properly using force and realizing the needed strategic aims.

While Galula and Thompson focused on the phenomenon of revolutionary wars (Galula on Algeria and Thompson on Malaya and Vietnam), Jomini and Petraeus contemplated a different phenomenon. Jomini's attention was on large-scale war while Petraeus's was on revolutionary war, but the perspective of the two was the same: from the strategic level downward to the tactical level. They understood what tactics looks like from the inside out and could thus point to the need to apply tactical approaches at the operational level, which seemed to them capable of producing the greatest strategic benefit.

Along the continuum of "100 percent strategy" and "100 percent tactics" (see fig. 16), Galula, Thompson, Jomini, and Petraeus range between the level of tactics, operations, and strategy (military or national) and pointed to its unique insights into the actions needed to win war.

The Third Content Group: The Connection Between War Itself and the Development of the Domains of War

The third content group includes Mahan and Corbett. These two occupied themselves with in-depth analysis of the physical domain in which war takes place (see fig. 19). Despite their differences, both dealt with the sea domain. What makes their thought unique is the belief that there is a direct connection between the different domains and war itself. They interpreted this connection at the political-strategic-operational level. The systems and means of war at their disposal for realizing their military theory was of less interest for them, and they did not consider them very important.

This diagram demonstrates the focus of the theoreticians of the third content group on the connection between the phenomenon of war and the development of the domains of warfare via the levels of war, with partial to nonexistent reference to the axis of industrial revolutions. The names of the theoreticians appear at the top, referring to the theoretician as interpreter, and from this perspective, these theoreticians emphasize the axis of war itself and the axis of the development of the domains of warfare in the diagram of axes.

Mahan and Corbett focused their analyses on war because they sought to point to the unique connection between the land and sea domains and victory in war. Mahan and Corbett also noted the connection between the land and sea domains at the strategic level. Deciphering this connection and pointing to what makes it unique formed the path to victory in war, in their view. However, there is a clear difference between the two content-wise.

Mahan's focus on the sea domain seems to be an effort to force results in the land domain. This unique perspective, which he extracted based on the comprehensive historical study he conducted, helped him to point to desired operational patterns of action at the tactical level, such as controlling sea routes. These patterns, which Mahan proposed adopting at the tactical level, derived from an understanding of the strategic level. He attributed supreme strategic effects to the sea and believed that victory in this domain had repercussions for the whole war.
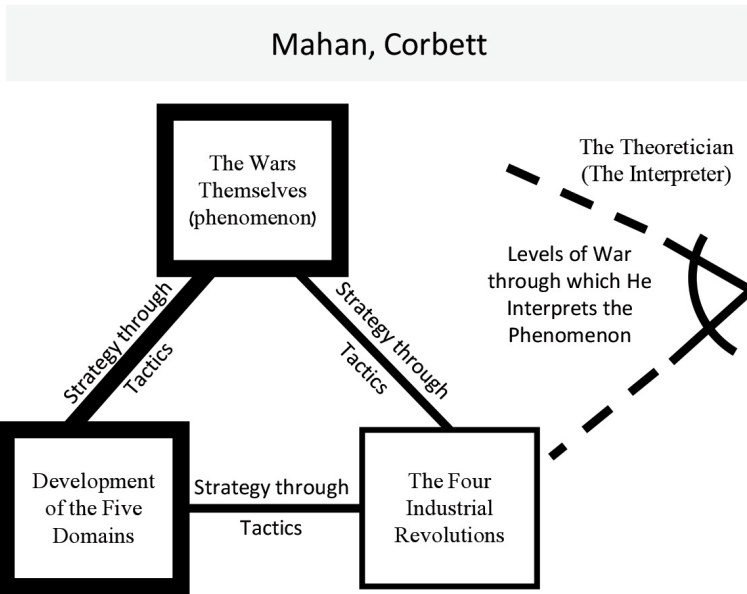
Figure 19. The connection between war itself and the development of domains of warfare

Corbett, by contrast, considered the sea to be a domain enabling victory in the war on land, even though he qualified this observation by saying that victory at sea did not necessarily guarantee victory on land. In Corbett's view, the land domain stands on its own, and the form of fighting there embodies the essence of the phenomenon of war. Corbett examined the sea domain in terms of the strategic level, aiming to tie the sea to the land. As such, he believed there was no choice but to examine the tactical methods of warfare on the battlefield and identify regular patterns and tactics that could bring benefit at the strategic level—not just in naval warfare, as Mahan interpreted it, but primarily for combat at sea in terms of its contribution to warfare taking place in the land domain.

Mahan and Corbett's focus on the phenomenon of war and not on the industrial revolution of their time attests to their not considering it to be a unique moment. Their assessment was that the different types of ships had no effect on the phenomenon of war. Rather, what influenced war was a strategic approach, along with the tactical patterns of action supporting it, regardless of the type of ship.

The Fourth Content Group: An Integrative Analysis of the Axes of Theory and Their Interactions

The fourth content group includes Isserson and Douhet. The two focused their content investigation on the connection between domains of warfare and the industrial revolutions and their connection to the phenomenon of war (fig. 20). Their recognition of the coming industrial revolution led the two to think of the systems and means of warfare that could serve the future war in industrial terms. Although they were concerned with analyzing the phenomenon of war itself, it was not their main priority. For them, the most important thing was asking what could be possible in the future: What could be? What might happen? This thinking required them to intensely study the meaning that derived from the coming revolution. Therefore, having large numbers of aircraft, tanks, other means of warfare did not seem obvious to them. In their era, only a few examples, such as planes in Douhet's case or the combination of planes and tanks in Isserson's, existed.
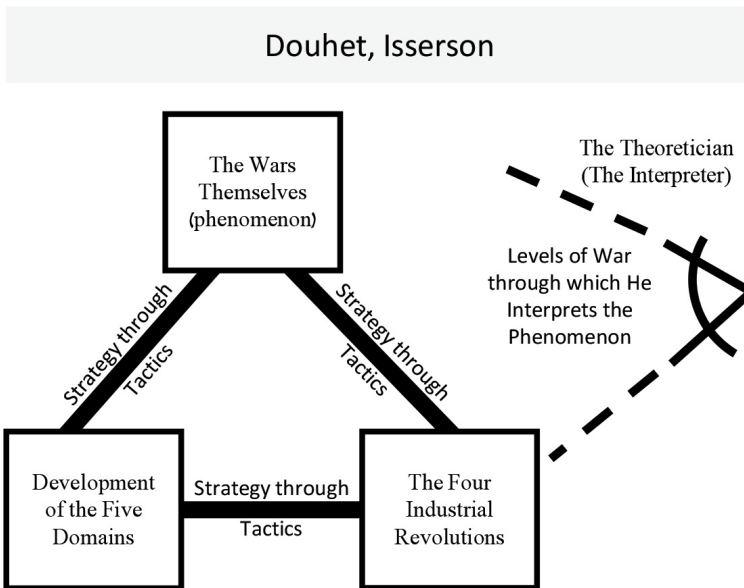
Figure 20. An integrative analysis of the axes of theory and their interactions

This diagram demonstrates the focus of the theoreticians of the fourth content group on integrating the three axes on the basis of analyzing the interaction between them via the levels of war. The names

of the theoreticians appear at the top, referring to the theoretician as interpreter, and from this perspective, these theoreticians emphasize the interaction between the different axes.

Douhet's vision was much more ambitious than Isserson's but also much less complex. Douhet's approach—extensive use of planes for the direct bombing of the enemy's capital cities—was due to the desire and thought that this method would bring about rapid victory in war (meaning the conquest of the desired targets) and spare the need for extended fighting on land, with its attendant losses and required resources. The justification for Douhet's ambitious ideas was at the level of strategic war, from which he also derived the rationalization and aspiration to imagine a future war that would prevent losses and diminish the scope of resources needed for land war. Isserson's vision, although less ambitious than Douhet's, was more complex. Isserson accepted the level of strategy as a given. His focus was therefore on the "how." This approach led him to point to the operational level of war as granting a broad, intellectual observation of the battlefield despite the great violence. His study stressed the need to combine the air and land domains and consider the systems and means of warfare—the plane and the tank—that can fit these domains. It will thus be possible, in his view, to carry out a series of operations until the achievement of the needed strategic goal.

Douhet and Isserson shared the same perspective, but the levels of war led them to different content viewpoints. Douhet pointed to the plane and the bombs dropped from them as the means of warfare leading to an immediate change in the strategy of the enemy after his population centers are directly hit. These bombings would, in turn, lead to an immediate change in the enemy's strategic policy, ending in surrender—all without having to once again break through the bloody land front line of WWI. By contrast, Isserson considered the plane and the tank to be systems and means of warfare enabling, subject to proper organization, the conduct of battles on the battlefield itself. The simultaneous series of battles on the enemy's front and rear can bring about an operational-level change on the battlefield and ultimately lead to the desired strategic victory. Douhet believed that taking strategic actions could achieve the desired results at other levels of war without necessarily relying on them. In contrast, Isserson argued that effectively organizing warfare at the operational level could lead to victory at the strategic level.

How Does the Theory of War Look from the Content Perspective?

We can already state at this stage that all the theoreticians discussed here developed their theoretical insights relative to the phenomenon of war via the content they attributed to the levels of war. But how can we confirm if a particular axis has an effect on the phenomenon at the strategic, operational, or tactical level? Even if they did not explicitly refer to a particular level of war, the theoreticians always sought to deal with the degree of influence of systems and means of warfare on the phenomenon of war. In this sense, the levels of war enable us to understand, connect, and distinctly explain how these systems and means lead to achieving victory in war.

Even if the theoreticians examined the same formal parameters of the general theory of war, the content angle of the levels of war they chose to research led them to different insights about what is needed to win in war. Consequently, considering the levels of war is pivotal for those seeking to understand what war is. All those involved in making decisions about war need to consider the levels of war in terms of their overall formal aspect, their nature, the domains where they occur, the industrial revolution that occurred, and the technologies deriving from it. The natural conclusion is that significant observation of the sort seen as advancing the understanding of the violent and cruel phenomenon called war and the path to ending it victoriously can only happen by positioning the theoretician separately from the three other test axes, allowing him to observe the levels of war from that vantage point.

General War Theory: Form and Content

The two previous discussions dealt with the formal and content aspects of war theory. We can now combine the two and point to the methodology of general war theory. The formal aspect of general war theory, though it seems frozen and schematic, actually contains a turbulent dynamic within it. This dynamic derives, first and foremost, from the fact that we are dealing with war itself, a phenomenon created by human beings, individually and as societies. However, this argument is insufficient in demonstrating the dynamism of the proposed model, as there is nothing new in this statement; all realize that war, as people

know it, is a dynamic phenomenon that can affect and encompass the entire world.

The dynamic of the model proposed here derives from the content-based interpretation given to the violence present in the phenomenon. The levels of war representing the perspective of the theoretician (or indeed any outside observer) are what make general war theory dynamic, requiring redefining our perspective of the phenomenon.
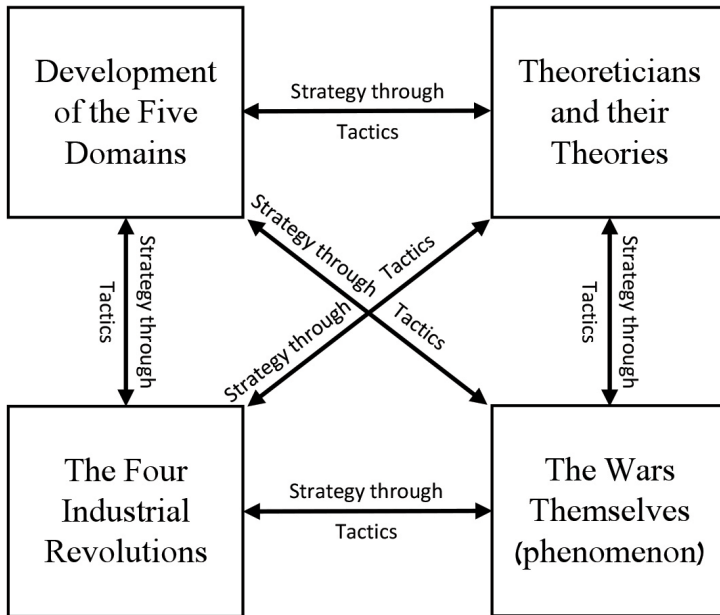
Key

Large boxes: The "four industrial revolutions" (bottom left box) represents the timeline of general war theory, "development of five domains" (top left box) represents the parameter of the different warfare domains, "wars themselves" (bottom right box) represents the parameter of wars studied by theoreticians represented in the "theoreticians and their theories" box (top right).

The lines connecting all four parameters show the content linkage: These are the levels of war, from strategy to tactics.

Figure 21. General war theory: form and content

The fact that war is a highly lethal phenomenon, where even the lowest-level encounter could lead to the death of those participating in it, drives the pressing need to interpret it. But is the phenomenon of war an isolated, one-time, sporadic phenomenon or part of a greater event? And if that is not enough, the three other parameters—the industrial revolutions, domains of warfare, and theoreticians—also dramatically contribute to the general theory of war.

The industrial revolutions. As noted, it is not the technologies of the industrial revolution but rather industrialization itself that is most significant. Not only does industrialization point to the enormous number of tools and means combatants have at their disposal in war, but it also leads to a change in methods, organization, and the products at the disposal of the general population, as well as a fundamental change in the character of their lives. Whether it is a behavioral or a conceptual change, the industrial revolutions stand on their own, regardless of the phenomenon of war, as a human event with enormously powerful effects. However, this is a phenomenon that can be clearly assessed only in retrospect, and we cannot always determine when exactly it reaches the point of critical mass.

The physical domains of war. The domains of war may seem to stand on their own, but as we can see, man gave these domains significance vis-à-vis war. Man established the domains of war as passable spaces, thus expanding the range of the phenomenon of war and his ability to fight and win in these domains. Man also decided the character and nature of the relationship between the domains regarding the aims of war. Moreover, those physical domains inspired him to create a virtual physical domain in the form of the cyber domain.

The theoretician. Finally, we are left with that individual who seeks to connect all the threads, trying to interpret war and present a positive theory explaining it and how to win it, even though it is a most cruel phenomenon. The dilemma of the theoretician is how to connect the environment in which people live, created by the industrial revolutions, with all other contexts: the aspects of systems and tools of war, the approaches to and behaviors in war, or the domains of war and war itself. How do we connect the above factors, among others, to secure the desired victory?

For theoreticians, levels of war are a necessary, if not systematic, theoretical scaffolding to help them comprehend the enormity of the phenomenon. Dealing with different levels of war is essential to methodology, as it creates the cognitive context between the environment of war, described as domains, and the industrial revolutions that create the systems and tools of war and the theoretician and war itself. In other words, the cognitive context is the ability to explain the phenomenon and the degree to which a component influences the whole.

How Should We Use General War Theory? Six Proposals for Analyzing the Relationship Between Parameters

General war theory invites the researcher to move along its axes and through its spaces, observing the phenomenon of war from different directions, systematically articulating the results of the observations and the insights related to this unique phenomenon. This theory provides the researcher with tools for a deep analysis of the relationships between the different axes or criteria, and between them and levels of war. This sort of analysis can lead to insights hidden or misunderstood until now and to new distinctions in fields that were presumably well plowed. In the six brief analyses below, I will demonstrate how general war theory can be used, taking note of its contribution based on the research done so far.

First Analysis: The Relationship between Wars and Theoreticians—A Methodology of Theoretical Development

Theoreticians and Their Theories + The Wars Themselves (the Phenomenon) = The Methodology of Theoretical Development

It turns out that the methods of proof different theoreticians use to confirm or refute their theories are not unequivocal. Still, we can point to two central methodologies—the historical and the predictive—each of which has a fixed regularity, even though they also both have various nuances.

Historical method. The historical method works through systematic study. That is, the theoretician can systematically study the wars that have already happened. First, he tries to find out which wars secured victory for the participants and then attempts to point to the reasons for this success. The nuances in this method touch on two aspects: the scope of case studies and the distance in time from these cases.

The scope of case studies differs widely from scholar to scholar; sometimes many cases are looked at, as with Mahan and Liddell Hart, and sometimes the theoretician relies on one single war (such as WWI, which, despite its wide scope, is still just one war as a case study), referring to some battles within it, and no more. Either way, the regularity of the historical method lies in the necessity of arriving at conclusions solely based on events that actually happened.

But distance in time from the case studies also influences research. A question arises naturally in this context: When does a case study become a historical event? Also, is it recent history or distant history? Maybe it is a case that happened in the relatively recent past, such as a war the theoretician even personally took part in or personally experienced somehow. Thus, for instance, Mahan studied wars he never witnessed. By contrast, Galula studied wars he was either there for or that took place in his lifetime.

The meeting point between the theoretician interpreting the phenomenon and the history is fixed, created from the perspective and through the research of the theoretician and based on how the levels of war are reflected through his prism. But it is important to confirm something when reading: Is the theoretician observing the phenomenon at the strategic, operational, or perhaps the tactical level? The perspective used grants him the ability to create new cognitive contexts within the narrative of historical events he describes.

Predictive method. By contrast, the predictive method focuses on the systems and tools of war themselves—the products of the industrial revolutions that enable professionals to operate within the various domains to achieve the aims of war. This method has difficulty relying on the history of wars and sometimes even considers them a hindrance. Prediction in this case is based at most on personal experience and logical inference, as it is often possible to find detailed technical descriptions of systems and tools of war in a particular domain. However, the assessment of their consequences and effects on the phenomenon of war is based solely on the personal experience of the theoretician, and no more.

Such is the case with Bloch and Brodie, theoreticians who participated in not a single war but who observed the phenomenon from the outside and at a distance. Still, most of the theoreticians mentioned in this study were men of practice; war was not foreign to them, as they were active participants. One can also find nuances in the predictive method, such as the diversity of systems and tools of war or differences in the ability of a theoretician to influencing the description of the phenomenon.

It would seem that most theoreticians tended to magnify the importance of a given tool of war, attributing a leading role in victory to it. In this case, they spoke, at most, of the diversity of that tool (Douhet spoke of types of planes; Fuller, types of tanks). But only a few spoke of the diversity of tools of war as a whole (such as Isserson and Liddell

Hart, who discussed the combination of tanks, planes, and infantry, though each presented this diversity in their own way).

Theoreticians differ in their capacity to affect the phenomenon of war. The theoreticians in this study formulated different approaches for influencing the phenomenon, but their approaches share the need for a significant mass of systems and tools to change its processes or outcomes. In this context, it is interesting to note that the possible levels of influence on war range from rapid, crushing victory at the strategic level (e.g., Douhet) to the conclusion that there is no point to war since the tools of war are so destructive that it is better not to go to war at all (e.g., Bloch and Brodie).

Second Analysis: The Connection between Domains and Theoreticians—A Problem in Creating an Explanatory Theory

Development of the Five Domains + Theoreticians and Their Theories = The Problem in Creating an Explanatory Theory

The domains in which war occurs define the creation of the systems and tools of war that fit the domain, then connect them to the act of war itself. The ability to understand this domain is, first and foremost, a cognitive ability and only then a practical ability. This is because the domain itself exists as a distinct physical entity, independent and foundational, which requires a deep understanding of the nature of the possibilities, limitations, and conduct in that domain. Even the cyber domain, the first artificial physical domain created by human beings, stands on its own. The ability to formulate principles and rules for a given domain requires abstract thought connecting the phenomenon of war with the domain itself. It also requires imagination in connecting the machines of war functioning within that domain and between it and others—all to achieve the aims of war.

The two theoreticians most identified with the domain aspect of war are Douhet and Mahan. Both dealt with the issue with a view to its strategic contribution to war. Douhet believed that conducting war in the aerial domain could render the ground domain—in which war is expressed most cruelly—unnecessary, and that the realization of the aims of war in this domain involve a heavy human toll. He sought to propose the aerial domain as an alternative to the ground domain, offering the plane as a tool of war that could achieve the aims of war with great speed, thus, a domain faster than all the systems and tools of war offered by the ground domain.

Mahan, like Douhet, also sought to offer an alternative domain to the ground one, but he chose the sea domain for this purpose. Although he pointed to the need for large warships, in his study he spent little time discussing the tools of war and preferred instead to focus on ways of understanding and interpreting the sea in the context of war. He raised ideas about routes and the control of the sea, and these serve for him as a central motif in any victory at sea as well as a precondition for victory in the ground domain.

But the connection between domains and theoreticians allows us to also discuss theoreticians aside from Douhet and Mahan. Fuller, for instance, entirely identified with the tank revolution and tried to make it a reality with his "Plan 1919." Fuller focused particularly on the tank, based on a profound recognition that the land domain as a physical domain makes the realization of war aims difficult. He studied matters regarding the contours and cover of land, as they make it difficult for forces to move around and naturally create complex and unpredictable tactical situations. His focus on the tank was meant in effect to find a technological solution to better deal with the ground domain at the operational-strategic level and not merely a tactical solution, as is often thought. Fuller believed that the tank could lead to better mobility in the ground domain, help realize the war aims at a faster speed, and thus influence the strategy of the whole war.

Thanks to the relationship between domains and theoreticians, we can also identify the domains in which significant theories were not developed by well-known theoreticians. Thus, we cannot identify known theoreticians who reached profound insights on the ways to connect the space and cyber domains to the phenomenon of war. It therefore seems that space and cyber are still waiting for their interpreting theoreticians, who will clarify the role of these two domains in achieving the aims of war.

Third Analysis: The Relationship between Domains and Industrialization—The Ability to Make Full Use of the Revolution

Development of the Five Domains + The Four Industrial Revolutions = The Ability to Make Full Use of the Revolution

"Industrialization" is defined here as a phenomenon focused on the organization of the means and methods for the mass production of items. Even when it comes to an atomic bomb, whose power in the battlefield is enormous, Brodie did not consider it a single item that

can lead to victory in war. By his thinking, it was one item among many identical mass-produced items that could lead to the destruction of the world.

The theoreticians were aware that industrialization and the demand for mass production can influence war and that great numbers of tools of war are needed to influence the phenomenon of war. This was therefore an enormous effort: creating the ability to industrialize the domains aside from the ground domain requires not only the technological developments derived from the industrial revolutions in which they occur but also a greater readiness on the part of civil society and political leadership to move in these directions. Hence, there is a need to convince the broader public in different ways that the army and its leaders can use a domain in war to secure strategic goals. Even more, they need to point to those systems and tools of war to be built and developed so they can successfully exploit this domain.

The combination of the tank and plane is a model for the ability to industrialize the different domains and create a clear connection, providing the ability to win in war. This connection, sometimes viewed tactically, effectively represents an operational-strategic connection. It is operational because it requires a change in the conception of operations during the war. It is strategic because it requires civil society and political leaders to develop such a capability, one that will avail them nothing in the everyday but which will give them victory in war.

Fuller, in the ground operations field, and Douhet, in the aerial operations field, represent fairly simplistic examples of the effort to industrialize a single domain. They chose to point to just one component (the tank and plane, respectively) in this domain. According to them, this component has the most significant role in creating the difference between victory and defeat. By contrast, theoreticians like Isserson and Brodie identified the complexity of the different domains in a more sophisticated manner.

Isserson understood that the connection between the aerial and the ground domains is not just a matter of the new systems and tools of war that would move within them but rather was related to the need to connect them for the sake of organizing the armies and managing the operations. In the systemic theory Isserson developed, he was required to offer a solution for the close connection between the plane and the tank and to organize a number of operational ranks within the army (first and second strategic levels). He had to fundamentally

change how operations were managed and systematically place the tools of war so that they could all be integrated on the battlefield.

As noted, Brodie also did not consider the atomic bomb a singular technological item leading to victory. He understood the advantage lying in connecting the domains of sea, air, and land and the ability to move the atomic bomb at all ranges and considered them to be central components in military victory. Since, by his understanding, the penetration of atomic bombs into these domains on the way to their targets could not be stopped—whether via missiles, planes, or even vehicles on the ground—all that was left was to establish permanent mutual deterrence to prevent rival sides from using the bomb. It was imperative to create an awareness of the enormous destructive effect it has on the battlefield.

But what do we do in cases where the armies fail in creating the conceptual and practical connection between industrialization and the different domains? Also, what do we do in cases where armies fail to make full use of the domains of warfare (e.g., bringing military forces from unexpected places onto the battlefield)? In those instances, the discussion focuses on one of the two: the quantitative or qualitative dimension of the systems and tools of war. This insight regarding the need for military superiority in a particular domain often serves as a central motivation at the tactical level. This driving factor pushes armies to continue and hone their systems and weapons of war, to invent and develop more sophisticated machines, which would grant those who use them tactical control in that domain, thus contributing to their relative advantage over their rival.

Fourth Analysis: The Relationship between Industrial Revolutions and Theoreticians—What Is the Connection between Man and Machines of War?

Theoreticians and Their Theories + The Four Industrial Revolutions = The Connection between Man and Machines of War?

In the relationship between the industrial revolutions and theoreticians, there is an almost perfectly clear-cut division into two opposing views: those who see man as the primary part of the act of war while machines and tools of war are secondary and marginal, and those who see man as marginal relative to machines of war. The dominant view in this matter views man as the essence of the revolution; the internal change happening within him, not the systems and

means of war which he uses or operates, is what brings about victory on the battlefield. The means are always secondary. This view reflects the theoretical work of Mao, Galula, Thompson, Smith, and Petraeus (members of the realist theoretical group) and Clausewitz, Jomini, Mahan, Bloch, and Corbett (members of the holistic theoretical group). According to them, man is the core of the phenomenon and a victim of the circumstances surrounding him; he does not control the tools at his disposal, as he does not control the war. War, as an event that stands on its own, allocates the means needed in that period, and these means become a constraint within the phenomenon. In this sense, man's power lies in understanding the concrete occurrences of the industrial revolution in which he lives and of the means that this revolution places at his disposal to win the war.

Opposite the first group (the realist theory group), we can find Fuller, Douhet, Liddell Hart, Isserson, and Brodie (future war theorists), whose central argument was that technology is a cure-all. They argue that the use of innovative systems and tools of war effectively renders the role of man superfluous and turns him into a secondary actor in the face of the size and power of the phenomenon of war. He has a small role to play in this phenomenon, while tools of war play the biggest part.

It is unlikely that the group of theoreticians researched for this study lacked any practical understanding of the weapons systems and tools in use when they wrote. As already noted, most of its members fought in various wars or operated in a military environment, whether as instructors or engaging in theoretical works on war. Some of them, like Fuller, Douhet, Brodie, and Isserson, even dealt obsessively with the tools of war of their time to the point of using empirical numbers and data to support their position.

However, it seems that the need to understand the essence of the tactical, systemic, and strategic relationship vis-à-vis the industrial revolution and the theoretician created a lack of clarity between the object of the action and the action itself: Is it man they seek to influence, or is he being used to influence others? This confusion is still apparent in quite a few of the writings of the theoreticians noted above.

Two theoreticians who stood out in their effort to disperse the fog hovering over this issue and first expressed a unique understanding of the matter are Clausewitz and Mao. Clausewitz did so when seeking to formulate the trinity connecting state, army, and nation, requiring coherence between the three so they can carry out their mission and

establishing that doing so is an almost necessary condition for their victory (despite the phenomenon of friction in war). Mao, for his part, sought to unequivocally clarify that the advanced technology the industrial revolutions placed at the disposal of the traditional armies of Japan and China, which his army faced, cannot break the human spirit, power of endurance, and ability to develop creative solutions at every level of war—and ultimately also to win it.

Fifth Analysis: The Relationship between Industrialization and War—The Phenomenon of the Tyranny of Tools

Four Industrial Revolutions + The Wars Themselves (Phenomenon) = The Phenomenon of the Tyranny of Tools

The industrial revolutions placed unprecedented technologies at man's disposal, changing life at the individual and social levels and leading to profound changes in entire social structures. In this sense, industrialization is not measured only in the quantity of tools of war it provides him but also the organizational and foundational conceptions and structures it brings, serving as a basis for wholesale social transformation. Thus, for instance, the invention of the car required paving roads and establishing traffic arrangements, which led to wide-ranging changes in the structure of modern cities.

The industrial revolutions therefore influenced how war is managed thanks to the ideas they bore and the processes they advanced no less than the machines and tools they placed at the disposal of the armies. In other words, the idea by which it is possible to reach a practical capacity for mass destruction on the battlefield originates in the practical achievements of mass production in the industrialized commercial world. However, we can assume that the industrial revolutions, by their influence on the lives of people and society as a whole, have themselves become a system seeking to justify itself and make its presence felt through the life of a particular society and its defense. Thus, technology involves not just a matter of freedom and liberty but also a certain way of life the revolution granted people, and some might say even forced on them, and whose denial from them would be grounds for war.

Sixth Analysis: The Relationship between the Domains and Wars—The Totality of War

Development of the Five Domains + The Wars Themselves (the Phenomenon) = The Totality of War

The relationship between the development of the different domains and the wars is primarily expressed in terms of the scope of war and its totality. In the period between the world wars, the aerial domain joined the phenomenon of war, and planes became the most significant tool of war. Douhet's ideas, applied in one form or another by those adopting strategic bombing, were largely responsible for the large number of those killed in WWII. The peak of this approach is found in the combination of the strategic bombing with two atomic bombs of Hiroshima and Nagasaki. Thus, just a few decades after the plane was invented and first flown in 1903, it became one of the most significant tools of war in WWII. The number of planes in various formations and on a range of missions during that war reached tens of thousands, and this number turned the aerial domain into one no less lethal than the ground domain. In this sense, a new, additional domain (air) became competitive relative to others and combined tactical, operational, and strategic missions—just like the ground domain. The aerial domain required enormous resources to maintain it, in both people and means of support, but the side in the war that relinquished the aerial domain could not only not win in the other domains but indeed risked losing the war.

In truth, whenever a new domain developed, it was only a matter of time or decision if and when to use it to achieve the needed aims in war. This relationship between the wars and the different domains attests, perhaps more than any other, to the expansion in the scope of war and its spread to other domains as well as the contribution of these domains to its totality.

Notes

1. These definitions are based on many official publications on the subject. In this study, I chose to rely on the publications of the American defense establishment and its Australian and Israeli counterparts, respectively: United States, Department of Defense, Joint Publication 1, *Doctrine for the Armed Forces of the United States*, I-7–I-10; Australian Department of Defence, *Foundations of Australian Military Doctrine*, 2-3–2-5; and Operations Branch–Doctrine and Instruction, *Avnei Yesod Shel Ha'asiyah Hatzva'it* [The Cornerstones of Military Action], 22–25.

2. This understanding is based on the convention that every language has a system, the recognition of which will help both people of practice and theory, without the need for deep knowledge of linguistic theory: (1) text: the produced product; (2) syntax (grammar): the internal regularity of the language; and (3) context: the context in which the product is produced. See Hazan, *Hasiyach Ha-Antropologi* [The Anthropological Discourse], 8.

3. On the phenomenon of reducing levels of war and its offshoots, see Sheldon and Gray, "*Theory Ascendant?*," in Lutes and Hays, 300–313. The authors present the inherent problems between the theoretical and actual world and trying to apply the model of the levels of war. They delve deeply into the complexity of creating the needed coherence between the different levels of war for the sake of achieving the necessary strategic goals. See also the collection of essays dealing with this subject: Bengo and Shabtai, "Post-Operational Level Age," 4–10. The authors discuss additional ways to bridge policy and tactics, offering the "brain model" as connecting the theoretical and actual worlds. This model presents scholars with a useful diagnostic tool, which explains how to properly focus each level to achieve operational goals in the field, Bengo and Segal, "Post-Operational Level Age: The Operational Focus Approach, Part 2," 3–10. In this article, the authors present the "operational focus" approach as the central one for directing different operational levels among the different levels of war due to the danger that they will become separate from one another or that each level will focus inward due to the phenomenon of shrinking the different levels of war and diversifying new tools of war. Bengo and Shabtai, "Post-Operational Level Age: From Concept to Implementation, Part 3," 4–8. The authors offer a structure to hierarchical organizations that can provide a response to the problem of shrinking levels, viewed as a problem that could lead to the dissipation of efforts and a situation where the needed strategic goals will not be met by the political leadership.

Summary

In this book, I sought to answer these questions: Is there a general theory of war? And if there is, what is its methodology and internal regularity through which it maintains coherence between its components?

These questions required me to set out on a long journey. In the beginning, there was a need to define and delineate the scope of the research. By doing so, I could then examine the new axes in light of a fresh reading of the original writings of the theoreticians, where they laid out their theory of war. Although doing so appeared simple enough, it required a careful, critical, and discerning reading of those writings, as each theoretician developed his ideas while not having to address any actual theory of war that would serve as a basis of reference for them. In trying to trace the sources of the different theories, I had to carefully examine how each of the theoreticians addresses the different axes of this study and thus also try and learn what the theory has to offer, as well as what it lacks. Thanks to this systematic review of the formative works of the theoreticians, I succeeded in identifying two patterns that consistently repeat themselves: formal and content based.

The formal pattern pointed to three distinct groups of theoreticians. The first group, which includes Jomini, Clausewitz, Mahan, Bloch, and Corbett, created organizing theories and stretched existing reality in relation to the author's present time and the near future. The second formal group, which includes Douhet, Liddell Hart, Isserson, Fuller, and Brodie, created theories reliant on the power of the phenomenon of the Second Industrial Revolution in motion and the effort to predict the war of the future. The third formal group, including Mao, Galula, Thompson, Smith, and Petraeus, created realistic theories for concrete problems in a given context, primarily that of time and space. The fact that each group examined a given component in its formal aspect proves that this theoretical component does indeed exist. The absence of a particular theoretical component from the thought of members of one group and its presence in the thought of members of another group also help prove the necessity of this component for maintaining all components within the general theory of war. That is, the components of the methodological equation were created by the very discourse or lack thereof.

While identifying the formal pattern was a somewhat mechanical task, even though it also created content-based insights, identifying

content patterns required a more complex effort. I referred not only to the theoretician as a unique figure but also to the "lens" that served him in consistently interpreting reality, meaning the phenomenon of war. The content pattern pointed to four distinct groups of theoreticians. The first content group, including Bloch, Liddell Hart, Fuller, and Brodie, focused on interpreting the dominant relationship between the levels of war and the four industrial revolutions. The second content group, including Jomini, Clausewitz, Mao, Thompson, Galula, Smith, and Petraeus, dealt explicitly with the phenomenon of war alone, without reference to the domains or phenomena deriving from the industrial revolutions that took place during their lives. The third content group, including Mahan and Corbett, dealt explicitly in the five domains of war and their roles within the phenomenon of war itself. Finally, the fourth content group, including Douhet and Isserson, examined the connection between the war itself and the industrial revolutions, and between them and the domains of war.

As opposed to the formal aspect, the content in the content aspect was developed through the systematic observation of every thinker through their perspective regarding the levels of war. These levels allowed the theoreticians to create coherent content for their theories of war. Without this explanation, adopted from this perspective, there would be no significant interpretation for understanding the complex phenomenon of war. The ability to derive content-based conclusions from the theory, based on the perspective of the levels of war, makes the levels of war an inherent component of the general theory of war.

The resulting conclusion is that the general theory of war is comprised of four fixed components: (1) the theory seeking the given regularity within war, (2) the war the theoretician interprets, (3) the domains of war (the spaces in which it takes place), and (4) the phenomenon of industrialization, which points not only to machines and other means of warfare at a given time but also—and perhaps primarily—to the approach to be adopted to operate these machines and other means as a general system derived from the industrial revolution in which they were formed. These four components are inseparably bound to one another via the levels of war. The levels of war determine the regularity between the different components. The theoretical regularity is put to the test at every level of war of any combination of them, as all 15 theoreticians proved to us—whether in the relative simple structure based on the Clausewitzian triangle (strategy, operations, and tactics) or on the more complex schematic structure of

Jomini with its five components (strategy, grand tactics, logistics, arms tactics, and the engineer's craft). The comprehensiveness of the general theory of war requires a clear definition of the concept of "level of war," and what this level includes, and thus effectively creates the prism through which one can examine the phenomenon in a systematic, scientific manner.

The general theory of war provides all who deal in the phenomenon of war, whether as a scholar or a practitioner, with tools and a method for observing the complex phenomenon of war in an informed manner and for producing systematic insights at both the scholarly and practical level.

For those dealing in scientific study, the general theory of war offers a way to systematically study the past and the future. The reason is that the general part of the theory is based on two foundations: the range of the phenomenon and the scaffolding of the levels of war. The range of the phenomenon is comprised of four axes—the theoretician, the domains of warfare, the industrial revolutions, and war itself—with their physical and conceptual size and their unique inherent complexity. The scaffolding of the levels of war is the unique context derived from the interactions of each axis in itself and between axes. Regardless of the resolution used in the general theory of war, whether we focus on one axis or period at low resolution, identify unique or additional levels of war through which we seek to grant a new interpretation of the phenomenon, or seek to discuss the general structure of the phenomenon in all its aspects, the generality is always maintained.

The study also offers to equip scholars by using the proposed theoretical "lenses," meaning the general theory of war, with two central methodologies. One is the historic approach, through which we can discern who succeeded and who failed in a given war and what led to that outcome. The other methodology, forecasting, is based on the tools of war—those formed from the process of industrialization emanating from the industrial revolutions, allowing them to operate within the different domains to achieve the aims of the war. It should be noted that the forecasting method has difficulty relying on the history of wars, effectively viewing them as a true obstacle to understanding the future development of the phenomenon of war. Here, the decision is left with the theoretician, who must rely on his personal experience, common sense, and professional integrity.

Both methodologies require the use of a fixed tool for understanding reality, these being the lenses through which we can distinguish

levels of war. Scholars need to note how they use the different parameters. For instance, are they observing the phenomenon at the strategic, operational, or even tactical level? This observation provides tools for creating new cognitive contexts within the story of historical events they describe or for understanding the benefit of operating future tools of warfare.

Every theory, no matter how excellent, has limitations as well. In my study, I pointed to the central one in this case, deriving from the inherent positive bias of the levels of war. The levels, by their theoretical nature, are structured hierarchically: strategy is at the head, followed by operations, and ending with tactics. Those who seek to win, as the 15 theoreticians discussed in this study taught us, must conceive of and synchronize all three levels. Therefore, when forming war aims and how to ensure them, there is always an inherently top-down story, and it is the story of success, deriving from the fact that no entity plans to lose a war it enters. History taught us that war must have at least two sides, meaning one will win and one will lose. In other words, the positive bias of the levels of war makes it difficult for scholars to apply critical analysis to the true circumstances of victory or defeat, as it cannot be that it was just about improper formation of strategy, operations, or tactics. Scholars of the general theory of war are therefore required to exercise great caution in consideration of this bias.

Regarding the practitioners, those dealing with the world of war itself, they are served by the theory of war providing them with a way to arrive at informed distinctions within a phenomenon involving life and death, a chaotic reality of clashes between different wills requiring the use of violence to achieve victory.

Although the general theory of war is an analytical tool, we need to remember that when wars occur, they are no longer a "general matter" but a life and death situation for entire nations, societies, and individuals. Theory in the world of the practitioner requires application of theory in all its aspects. But here, the analytical part ends while the human, unpredictable in the research, leads the way. We should therefore remember that while theory certainly has its place, reality, circumstances on the ground, and, above all, the human factor ultimately determine the end of the story. Even theoreticians made it clear that application is the most difficult part of the proposed theory. It is worthwhile here to return to the first two thinkers of the 15, who best described this matter:

Jomini: We will follow the order of procedure of a general when war is first declared, who commences with the points of highest importance, as a plan of campaign, and afterward descends to the necessary details. Tactics, on the contrary, begins with details, and ascends to the combinations and generalization necessary for the formation and handling of a great army.

We will suppose an army taking the field: the first care of its commander should be to agree with the head of the state upon the character of war; then he must carefully study the theater of war, and select the most suitable base of operations, taking into consideration the frontiers of the state and those of its allies.

The selection of this base and the proposed aim will determine the zone of operations. The general will take a first objective point: He will select the line of operations leading to this point, either as a temporary or permanent line, giving it the most advantageous direction; namely, that which promises the greatest number of favorable opportunities with the least danger.[1]

Clausewitz: The commander is the only one who can bring about victory on the battlefield and tilt the phenomenon in a positive direction: "Anything that could not be reached by the meager wisdom of such one-sided points of view was held to be beyond scientific control: it lay in the realm of genius, which rises above all rules."[2] Moreover, "Given the nature of the subject, we must remind ourselves that it is simply not possible to construct a model for the art of war that can serve as a scaffolding on which the commander can rely for support at any time. Whenever he has to fall back on his innate talent, he will find himself outside the model and in conflict with it; no matter how versatile the code, the situation will always lead to the consequences we have already alluded to: talent and genius operate outside the rules, and theory conflicts with practice."[3] . . . "For in the art of war experience counts more than any amount of abstract truths."[4]

In the view of the two theoreticians, the commanders on the ground and on the battlefield decide how to apply theory, determining the results of the battle or perhaps the entire war. Without them, there is no application of theory, and the result is a chaotic bloodbath of combat with no purpose. In this sense, the commanders leading the war are an inherent part of the phenomenon of war, as is the general theory of war. It is part of the "generalness" of the theory, even though their

personality and actions always poured unique content into the historical context of that time.

The general theory of war does not offer a model for predicting future war or indeed any outline that would lead to some fixed and predictable result based on a mathematical equation. Interactions on the battlefield, by their very nature, are unpredictable. However, theory offers a fixed and general regularity regarding the needed manner of inquiry for dealing with the phenomenon of war. This is because the foundation on which it is based is history, and we can always observe the phenomenon in all its components and discuss them as we see fit, based on the perspective we choose to adopt to that end. The model of the general theory of war allows us therefore to move within the phenomenon, in its various spheres, observe it from different directions, and thus systematically express the results of the observation and insights related to this unique phenomenon.

The validity of the general theory of war proposed here is not measured in the number of industrial revolutions, domains of warfare, or wars themselves, or even in what is considered war or who is considered a theoretician. The power of the general theory of war lies in the very existence of the four axes, connected by the levels of war. If a scholar later determines to expand or decrease the content of an axis, or of the levels of war, this will help to maintain the validity of this theory. Obviously, any attempt to outline a new axis or point to other interactions will require the one making the argument to present a new "generality" and prove its validity.

Notes

1. Jomini, *Art of War*, 66.
2. Clausewitz, *On War*, 136.
3. Clausewitz, 140.
4. Clausewitz, 164.

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Index

In this extensive endeavor to formulate a general theory of war, Major General Yacov Bengo (Israeli Defense Forces) provides his unique perspective, deftly weaving industrial revolutions, the domains of war, the major conflicts of the last two centuries, and the works of both classical and modern theorists—from Clausewitz, Jomini, and Mahan to Douhet, Brodie, and Petraeus—into a methodology describing the fundamental principles of warfare in a broader context. His collected insights on the nature, purpose, and conduct of war will guide and inform current practitioners, helping them to adapt to and prosecute contemporary and future conflicts.

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