

**THE OPERATIONAL ART OF BLITZKRIEG: ITS
STRENGTHS AND WEAKNESSES
IN SYSTEMS PERSPECTIVE**

A MONOGRAPH

BY

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ABSTRACT

The Operational Art of Blitzkrieg: Its Strengths and Weaknesses in Systems Perspective
by Major Thomas B. Gukeisen, United States Army, 38 pages

This monograph defines blitzkrieg as a way of operational-level systems thinking that evolved over a twenty-year period. In the on-going debate over whether blitzkrieg was operational or tactical in nature, much of the discourse centers either on the application of narrowly-conceived typologies to a historical phenomenon or to the selective invocation of case studies to reinforce pre-conceived notions. Some students of blitzkrieg admit that it meet operational-level criteria, but fail to press their arguments to broader conclusions. This monograph seeks to avoid the aforementioned pitfalls by viewing blitzkrieg in a broader systems perspective informed and defined by the scholarship of Peter Senge, Dietrich Dörner, and James Schneider. The combining of this perspective with commonly accepted criteria for operational art yields a strong case for understanding blitzkrieg as operational art.

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INTRODUCTION

Like an old piece of gum, it (Blitzkrieg) has stuck, no matter how often the specialists warn against using it. Since we cannot get rid of it, we should make the best possible use of it.

Robert M. Citino

Introduction

Scholars of warfare and “arm chair generals” make a persuasive case when they define blitzkrieg as the German exploitation of tactical success in World War II. They use the term “blitzkrieg” in the sense of an action or a verb. However, if one examines blitzkrieg as a noun or a concept, a different paradigm emerges. “Blitzkrieg” literally translates as “lighting war,” though the Germans did not use it as an all-encompassing term. It emerged as a British buzzword used to explain the “lighting” speed at which the Germans defeated the Poles in 1939 and the French in 1940. Many Germans, including Adolph Hitler, adopted the vocable as a propaganda tool to exploit successful military operations in hopes of instilling fear in their adversaries.

This monograph defines blitzkrieg as a way of operational-level systems thinking that evolved over a twenty-year period. In the on-going debate over whether blitzkrieg was operational or tactical in nature, much of the discourse centers either on the application of narrowly-conceived typologies to a historical phenomenon or to the selective invocation of case studies to reinforce pre-conceived notions.¹ Some students of blitzkrieg admit that it meet operational-level criteria, but fail to press their arguments to broader conclusions.² This monograph seeks to avoid the aforementioned pitfalls by viewing blitzkrieg in a broader systems

¹ Shimon Naveh, *In Pursuit of Military Excellence: The Evolution of Operational Theory* (London: Frank Cass Publishers, 1997) on page 128 states, “Thus, if one examines the Second World War military events in the light of their operational gist and according to operational criteria, it is more than proper to exclude the case of the Battle of France from the category of Blitzkrieg.”

² See discussion in Robert M. Citino, *Blitzkrieg to Desert Storm: The Evolution of Operational Warfare* (Kansas: University of Kansas Press, 2004); and *Quest for Decisive Victory: From Stalemate to Blitzkrieg in Europe, 1890-1940* (Kansas: University of Kansas Press, 2002) where he attributes the development of blitzkrieg as an operational necessity due to mechanization.

perspective informed and defined by the scholarship of Peter Senge, Dietrich Dörner, and James Schneider.³ The combining of this perspective with commonly accepted criteria for operational art yields a strong case for understanding blitzkrieg as operational art.

Blitzkrieg Defined

The origins of the word blitzkrieg are as debatable as the actual concept itself. Germany never adopted it as a term to describe lightning-like campaigns until the British press first mentioned it in a *Time* magazine article on 25 September 1939 that described the fall of Poland. In German literature of the interwar period, the word *Blitzkrieg* first appeared during 1935 in a military service journal, *Deutsche Wehr*.⁴ In 1938, Oberstleutnant Braun titled an article “*Blitzkrieg*,” and discussed the concept of *Stosstruppen*, or a combined arms unit, capable of tactical shock against an enemy’s position. The term did not become part of the regular German vocabulary until the *Time* magazine article appeared. Subsequently, even Adolph Hitler used the term as a propaganda tool until the stalled Russian campaign in 1941. Meanwhile, in conceptual terms, General Heinz Guderian is usually credited with developing blitzkrieg as many observers recognize it today. Contemporary and later commentators added their own shades of the meaning.

Looking into the past and into the present through the interpretations of three distinct views, one can see why blitzkrieg has taken numerous meanings. After witnessing the fall of Poland, General Paul Armengaud, Head of the French Military Mission in Warsaw, described the blitzkrieg as a:

³ The main relevant works used by these authors were: Peter M. Senge, *The Fifth Discipline: The Art & Practice of The Learning Organization* (New York: Doubleday, 1990); Dietrich Dörner, *The Logic of Failure* (New York: Metropolitan Books, 1996); and Dr. James J. Schneider, *Vulcan’s Anvil: The American Civil War and the Foundation of Operational Art Theoretical Paper No. Four* (Fort Leavenworth: United States Army Command and General Staff College, 10 May 2004).

⁴ See discussion in Karl Heinz Frieser, *Blitzkrieg-Legende: Der Westfeldzug 1940; Band 2* (München, Germany: R. Oldenburg Verlag, 1995), 5-8.

German system of combining dive-bombers and tanks to break open the enemy line and penetrate deeply into the rear areas, opening the path for the infantry whose task was to clean up local pockets of resistance and occupy captured territory.⁵

One of the most prolific writers on German military operations, Robert M. Citino, Professor of History at Eastern Michigan University, defines blitzkrieg as:

. . . a German phenomenon based on the traditions of German military history. As a doctrine of employing mechanized units (including air units) on a grand scale to defeat, pursue, and destroy sizable enemy forces within a two-to-four week span of time. Divisions, corps, and armies would use their armored spearhead to create opportunities for warfare at the operational level, in order to achieve the maneuver onto the enemy's flank and rear, leading to the envelopment and destruction of his entire military force. Forces maneuver to place themselves in an advantageous position to wear down the enemy, at the greatest possible speed in other words destroy him, and to do it with as little loss as possible.⁶

Perhaps the best scholarly definition is presented by Barry Posen, Professor of Political Science at the Massachusetts Institute of Technology, who summarizes blitzkrieg as:

The Blitzkrieg stressed mobility and speed over firepower, although in the form of the tank, the dive bomber, and high-velocity antitank or antiaircraft gun it aimed for great firepower at decisive points. Blitzkrieg welcomed encounter battles. It employed concentrated air power offensively and defensively, to prepare the way for advancing armor. Like German doctrine after World War I, Blitzkrieg stressed infiltration tactics and flanking movements for both infantry and armor. As in the classic pre-World War I doctrine, the new doctrine sought single and double envelopments, it aimed as much at the disorientation and dislocation of the enemy command system as it did at the annihilation of enemy forces. This was to be achieved by deep penetrations into the rear area of an enemy army. It was believed that if dislocation could be achieved, the battle of annihilation might be avoided, or at least easier.⁷

The above definitions highlight possible ways of describing blitzkrieg from three perspectives: A French military general, a scholar of German history, and a political scientist. For the purpose of this monograph, blitzkrieg as a concept is defined as the combining of mobile and massed armor formations and aircraft for the purpose of penetrating an enemy's defensive system

⁵ Eliot A. Cohen and John Gooch, *Military Misfortunes: The Anatomy of Failures in War* (New York: Anchor Books, 2003), 211.

⁶ See discussion in Citino, *Blitzkrieg to Desert Storm: The Evolution of Operational Warfare*, 6, 302; and *Quest for Decisive Victory: From Stalemate to Blitzkrieg in Europe, 1890-1940*, 185, 256.

⁷ Barry Posen, *The Sources of Military Doctrine: France, Britain, and Germany between the World Wars* (London: Cornell University Press, 1984), 86.

and encircling the remaining forces, while emphasizing leadership flexibility in means and ways, and while adhering strictly to the overall ends⁸. Whatever the definition, the fact that the concept of blitzkrieg proceeded from major changes in the Germany military during the interwar period is indisputable.⁹.

Operational Art Defined

The need to perceive and identify an operational level of warfare arose during the nineteenth century as field armies grew to unmanageable sizes, as technologies such as the telegraph and the railroad extended lines of command, communication, and support, and as rifled weapons increased lethality ranges. All these developments extended the battle space. Prior to these advances, armies met on a field of battle and victory usually lay with the side that had more men or materiel after the conclusion of combat. However, with extended engagement and sustainability ranges, armies now moved more freely within theaters of operations. Still, the fundamental question was how to command and control such forces at the strategic and tactical levels to ensure that military actions were linked in such a way to achieve a desired end state. Just as the word blitzkrieg is debated among scholars and doctrine writers, so are the origins and definition of operational art. The United States Army Field Manual 3-0, *Operations*, defines operational art as “the use of military forces to achieve strategic goals through the design, organization, integration, and conduct of theater strategies, campaigns, major operations, and battles.”¹⁰ Dr. Bruce W. Menning, Professor at the United States Army School of Advanced Military Studies, defines operations as a complex of military actions and battles linked by time, place, and intent. Battles might extend for several weeks or longer but remain embedded within a

⁸ This definition, as conceived by the author, combines the elements of maneuver as well as the ability of the leadership to remain open to the conduct of the operation, but still remaining with the established boundaries. With boundaries in the cognitive sense and not graphic control measures that were placed on a map.

⁹ Ibid., 210.

¹⁰ Department of the Army, Field Manual 3-0, *Operations* (Washington D.C.: U.S. Government Printing Office, June 2001), 2-3.

conceptual framework. But, the most important aspect remains that of linkages among time, timing, duration, support, scale, range, and distance.¹¹ Both definitions share common features encompassing a connection between not only military formations, but also between actions and intended outcomes over time and space in pursuit of a common goal. This monograph does not claim that the Germans invented the concept of operational art as we recognize it today. This claim to fame rests primarily on the shoulders of Soviet military theorists, including Georgiy S. Isserson, Aleksandr A. Svechin, M. N. Tukhachevsky, and V. K. Triandafillov.¹² The intent of this monograph is to show that blitzkrieg, which is often thought of as tactical, in reality shares characteristics with, and meets the criteria for operational art. For the purpose of this monograph operational art is defined using the current doctrine:

The level of war at which campaigns and major operations are planned, conducted, and sustained to accomplish strategic objectives within theaters or other operational areas. Activities at this level link tactics and strategy by establishing operational objectives needed to accomplish the strategic objectives, sequencing events to achieve the operational objectives, initiating actions, and applying resources to bring about and sustain these events. These activities imply a broader dimension of time or space than do tactics; they ensure the logistic and administrative support of tactical forces, and provide the means by which tactical successes are exploited to achieve strategic objectives.¹³

¹¹ Bruce W. Menning, "Operational Art's Origins," *Military Review* (September-October 1997): 35.

¹² For a further discussion of Soviet Operational Origins see Menning, 37-39.

¹³ Joint Staff, Joint Publication 1-02, *Department of Defense Dictionary of Military and Associated Terms* (Washington D.C.: U.S. Government Printing Office, November 2004), 389.

GERMAN INTERWAR DEVELOPMENT

In the country of the blind, the one-eyed man is king.

Guderian

Introduction

During the interwar period, German doctrine made a radical shift away from static attrition-based warfare. As embodied in doctrine, new strategic concept had to link military campaigns to goals and means or as Michael Geyer has recently asserted: “Individual battles at multiple fronts had to be integrated into an operational design that added movement to the direction of the overarching strategy.”¹⁴ Accordingly, the German military underwent a dramatic strategic modernization process that is best described in terms of an institutional triangle. That is, the planned evolution rested on public impact, on the attitudes of workers, and on technocratic rule. Military work and politics became inseparable. In tandem with physical modernization, the German staff system invited debate and innovation. This radical shift, with its emphasis on decentralized decision-making, facilitated initiative within the chain of command and allowed for optimal use of weapons-shaped command and deployment.

The substitution of machines for men forced the adaptation of the army to suit the new German war machine. Operational planning and strategy became a matter of the management of arms. It is this system that made the German military perhaps the most radical proponents of machine culture in the military.¹⁵ This formation of a military machine strategic culture linked military organization and operation to industry and popular mobilization, gave unprecedented

¹⁴ Michael Geyer, *German Strategy in the Age of Machine Warfare 1914-1945 in Makers of Modern Strategy from Machiavelli to the Nuclear Age* (New Jersey: Princeton University Press, 1986), 537.

¹⁵ *Ibid.*, 541.

freedom and independence to lower echelon front-line officers, and more firmly linked military morale to popular sentiment.

The Army High Command or OKH (*Oberkommando des Heeres*) launched a radical triad of military reforms to support this reincarnation of the nation in arms. First, the force was restructured, beginning with infantry squads armed with an MG 34 machine gun and consisting of nine men and one noncommissioned officer. Panzer divisions were teamed with light infantry forces to form the backbone of mechanized units. Next, the OKH recognized the importance of training the force, but now the major purpose of training was to develop mid-level and junior officers as well as noncommissioned officers. Training emphasized decentralization and initiative through *Auftrag*, or intent-based orders. Last, the OKH published numerous field service regulations that were validated through extensive training exercises. These regulations recognized the importance of combined arms attack and emphasized maneuver over fire. Reserves were used to reinforce success and to exploit gains before the enemy could react. This revolution in military affairs in the German Army “represents a remarkable example of a highly skilled professional group, small in number, performing military work rapidly and efficiently.”¹⁶ Nonetheless, the Germans saw themselves as engaged not so much in innovation as in the restoration of their classical doctrinal traditions.¹⁷ For the purpose of this monograph, these innovations resulted in flexible doctrine, organizational culture, and operational level planning.

Flexible Doctrine

The positional warfare of World War I simplified command and control, but emphasized the unresolved problem of operational mobility. The lessons of World War I taught the Germans that armies had become so large that they had lost their ability to maneuver without significant

¹⁶ Samuel J. Lewis, H100 Student Text, *Reflections on German Military Reform* (Fort Leavenworth: CGSOC U.S. Army Command and General Staff College, 2003), 179.

¹⁷ Citino, *Blitzkrieg to Desert Storm*, 19.

ties to existing railroad infrastructure. Communications relied on a telegraph and telephone system, which made control of dispersed groups even more difficult. Control meant not only the ability to disseminate orders, but also to gather and distribute intelligence, and most importantly, the capacity to synchronize and coordinate disparate attacks to achieve an integrated operational end state. Rather than a static war of trenches, barbed wire, and fixed fire points, future war called for tanks and aircraft, for extremely high mobility, and for the inherent drama that mobility offers. A concomitant requirement was for a doctrine that focused on mechanization.¹⁸ The technical problems of operational maneuver were first solved by motorized and radio technology. However, each new or improved weapon of movement demanded a corresponding change in understanding the art of war, and J.F.C. Fuller cogently argued that the introduction of the tank entirely revolutionized the art of war.¹⁹

Flexible doctrine was grounded in the traditions of Moltke, whose guiding maxims for German thinking included:

1. No plan survives contact with the enemy's main body.
2. Only the layman perceives the campaign in terms of a fixed original conception, carried out in all details and rigidly followed until the end.
3. While on the march, an army had to be ready for anything, not hamstrung by rigid orders.

The German Army would return to Moltke, who developed the concept of concentric assaults along operational lines to trap the enemy in a cauldron, or *Kesselschlacht*. The inter-war German Army's leaders--youthful, energetic, and dedicated professionals--studied modern war closely to determine how tanks and airplanes might transform combat from a slogging match anchored in trenches and fortifications into a fast moving contest whose outcome was determined by agility

¹⁸ Ibid., 12.

¹⁹ J.F.C. Fuller, *Memoirs of an Unconventional Soldier*, found in *The Art of War in World History* (California: University of California Press, 1994), 921.

and daring.²⁰ In an ironic side note, the Treaty of Versailles actually helped the Germans to reinvent their Army. Because the treaty limited the size of the German Army, only leaders with the most potential were retained.²¹ The Army's flexible doctrine envisioned a combination of mobile massed armor formations and aircraft with the purpose of penetrating an enemy's defensive system and encircling the remaining forces through a combination of leader-oriented flexibility in means and ways, and with strict adherence to overall ends. Doctrinal evolution was fundamentally based on the ability of the officer corps to debate and openly discuss ideas in both written and verbal forums. In essence, the German military culture fostered discourse. Therefore, the conception of flexible mechanized doctrine cannot be attributed to just one person, although General Heinz Guderian is often credited with developing it through his study of history, his understanding of theoretical concepts, and his implementation of field testing:

I concentrated on Napoleon's 1806 campaign. I also dealt with the history of the German and French army cavalry in the autumn of 1914. This thorough study of cavalry tactics in 1914 proved very useful to the development of my theories which were becoming increasingly preoccupied with the tactical and operational use of movement.²²

Perhaps the best way to analyze German doctrine is to examine the *Truppenführung* of 1933 and its subsequent revisions until 1936. This manual was the corner stone for the conduct of military operations. In the *Truppenführung*, war was conceived as an art, free in form, but relying on scientific principles for its success. This art was in constant change as new technologies and the corresponding fog of complexity were introduced. War was described as a Clausewitzian clash of wills dominated by friction. Decisive action remained the first prerequisite for success in war. From the highest commander to the youngest soldier, all must be conscious of the fact that

²⁰ Cohen and Gooch, 200.

²¹ See the discussion in John Mosier, *The Blitzkrieg Myth* (New York: Harper Collins Publisher, 2003), 284-285.

²² General Heinz Guderian, translated by Constantine Fitzgibbon, *Panzer Leader* (New York: Da Capo Press, 1996), 21-22.

inactivity and lost opportunities weighed heavier than errors of choice.²³ Once the commander received necessary information, he issued an order. An order contained all the information for the lower commander to execute his task independently. The *Truppenführung* placed high emphasis both on combined arms operations at the *schwerpunkt* (point of main effort) and on the employment of mass formations at decisive points. A *schwerpunkt* was characterized as having a narrow zone of attack, having unified fire of all arms, and being reinforced by heavy weapons and artillery.²⁴ Finally, German military doctrine and grand strategy were integrated in the sense that both looked to the same goals.²⁵

Culture

German military culture rejected any *schema* or formula. General Hans Von Seeckt, Chief of the Army 1919-1926, instituted a program to rewrite manuals and field service regulations to support flexible doctrine, the point of departure which intoned, “The mass cannot maneuver therefore it cannot win.”²⁶ His program numbered 57 committees and countless sub-committees totaling some 400 officers. Each committee prepared a concise study, the purpose of which was to answer four fundamental questions:

1. What new situations arose in the war that had not been considered before the war?
2. How effective were our pre-war views in dealing with the above situations?
3. What new guidelines have been developed from the use of new weaponry in the war?
4. Which new problems put forward by the war have yet been found?²⁷

²³ Summary and translation found in Martin Van Creveld, *Fighting Power: German Military Performance 1914-1945* (Washington D.C.: Department of Defense, Office of Net Assessment, 1980), 31.

²⁴ Robert M. Citino, *The Path to Blitzkrieg: Doctrine and Training in the Germany Army, 1920-1939* (Colorado: Lynne Rienner Publisher, Inc., 1999), 225.

²⁵ Posen, 192.

²⁶ General Hans von Seeckt, *Gedanken eines Soldaten* (Leipzig: K.F. Koehler, 1935), 51.

²⁷ James R. Corum, *The Roots of Blitzkrieg* (Kansas: University of Kansas Press, 1992), 37.

Von Seeckt's greatest achievement was not revisiting the past or inventing radically new concepts; rather, it was his collective fusion of past wisdom with present day knowledge into a systematic and coherent plan for the future German Army.

General Von Seeckt's concepts did not go unmodified. Heinz Guderian in Germany, Basil Liddell Hart and J.F.C Fuller in Great Britain, Charles de Gaulle in France, and M.N. Tukhachevsky in the Soviet Union all saw a future for mechanization and mobile warfare. Although military thinkers from different countries saw the importance of these concepts, they were adopted and debated widely only within the German military. Hardly a week went by without one or more articles on the subject appearing in the semi-official journal, the *Militär-Wochenblatt*.²⁸ Three key contributors to the *Militär-Wochenblatt* who furthered the culture of debate were Ernst Volckheim, Ludwig von Eimannsberger, and Walter Spannenkrebs. Ernst Volckheim, who was the best known writer on tank warfare, felt tanks were primarily for infantry support operating at battalion level and higher. Ludwig von Eimannsberger, an Austrian general with vast experience in Spain and Ethiopia, thought tanks were never to attack alone, but only (with the greatest possible speed) in conjunction with other weapons. Walter Spannenkrebs, an army colonel, envisioned tanks operating both tactically and operationally. At the tactical level, tanks would work with the infantry, field artillery, and engineers. Operationally, he believed, tanks would attack deep into the enemy's rear. He realized that other units were not fast enough to keep up with the tanks. General Guderian summarized the debate best:

To resolve such issues it is vital to establish the basic purpose of the tank forces. Are they intended to storm fortresses and permanent defensive positions or to carry out operational envelopments and turning movements in the open field; to act at the tactical level, making breakthroughs on our own account and checking enemy breakthroughs and envelopments; or will they be more than armored machine-gun carriers working in close cooperation with the infantry?²⁹

²⁸ Citino, *Quest for Decisive Victory*, 184.

²⁹ Guderian, *Panzer Leader*, 168.

The open debate fostered by the military culture allowed all officers within the German Army to discuss organizational improvement. The critical analysis instituted by General Von Seeckt and weekly articles in the *Militär-Wochenblatt* ultimately led to the conceptual creation of the Panzer Division, a combined arms mechanized force capable of operating with the Luftwaffe. The birth of this new concept was an evolutionary development that resulted from roughly twenty-five years of experimentation and application that unfolded during the tenures of Army Chiefs Von Seeckt through Beck (1919-1944).

Operational Art

As German industry focused on mechanization and the synthetic manufacturing of fuel and rubber, the German General Staff engaged in a series of war games and planning scenarios. These were not only designed to stimulate the intellect, but also to field test emerging theory and doctrine. The author of this study recognizes that these exercises were important to the development of maneuver warfare, but that they were not generally debated. Still, several key factors of operational level planning significance are germane to this monograph. Of particular interest were the planning against Poland in the late 1920s, the maneuvers of 1928-1929, and the *Füinkubung* (radio exercise) of 1932. These three exercises began to address what might be construed as the operational level of war and to define the conduct of future operations.

The late 1920s saw the beginning of realistic operational planning against Poland. The *Truppenamt* (which later became the General Staff) envisioned three operational objectives for the war planners: Gdynia's port facilities, the seaplane stations at Puck and Rewa, and Gdynia's coastal defense batteries. Initially planned as an all-army operation, intelligence reports determined that a marine company, a battery of coastal artillery, and a railroad battery had recently been deployed in and around the port of Gdynia. The army simply did not have enough time to get to Gdynia without encountering significant Polish resistance, and without losing valuable time that would allow the preparation and occupation of defensive positions. This dilemma was the genesis

of *Studie Gdingen* (Study Gdynia). Operational planning was quickly turned over to the navy for further study. *Studie Gdingen* eventually contained four distinct phases: shelling the port; clearing mines; landing troops; and destruction of the port. A light task force of cruisers and fast-attack vessels would deploy within hours of a ground invasion with three missions: locate harbor mines; prevent the Polish navy from exiting the port; and act as a covering force until the heavy task force arrived 24 hours later. The heavy task force, comprised of heavy-ships, would shell neighboring airfields and defensive batteries in preparation for an amphibious assault. Infantry landing vessels behind minesweepers would enter and destroy the port. In summary, the navy utilized blitzkrieg-associated concepts substituting cruisers for tanks and battle ships for artillery and utilizing infantry to destroy strong points.

The significance of the 1928-1929 maneuvers was threefold. First, the role of the Luftwaffe in support of a panzer division was established. At the tactical level, aircraft would conduct reconnaissance, direct support, or close air support. Operationally, the Luftwaffe would conduct aerial supply to facilitate maneuver, disrupt lines of communication, and either deny the employment of reserve forces or attack flank units. Second, the army began inviting Foreign Office representatives to integrate political and military organizations into planning and execution scenarios. Third, the exercise dealt with every possible situation conceivable, from French spies to rear-area guerilla actions against logistics convoys and bases.

During the summer of 1932, the military conducted a *Füinkubung*, a technical exercise centered on radio communications, primarily command and control with operational significance. This exercise encompassed roughly 2,500 soldiers, 450 vehicles, and 100 radios. The most important conclusion was reported by General von Bonin, inspector of signal troops, who realized that not all messages were equally important. His recommendation was to keep radio conversations to a minimum. He asserted, “There was no time in a rapidly changing situation for

long winded reports or detailed orders. The new form of warfare would require decisions on the part of all ranks.”³⁰ This realization reinforced the concept of end state orders or *Auftrag*.

Arguably the most significant achievement of the 1920s-1930s maneuvers and exercises was the evolution of the panzer division, which became the cornerstone of blitzkrieg. This was no small organizational feat, considering that the German army at the beginning of its transformation was the least mechanized of all major armies. For internal comparative purposes, figures 1-3 detail the composition of a 1919 Cavalry Division (figure 1), its evolution to the 1926 Motorized Division prior to the 1928 maneuvers (figure 2), and finally, the 1940 Panzer Division after the invasion of Poland (figure 3). The foundation for this evolution was the development of a flexible doctrine in a culture that facilitated open debate culminating in training exercises and maneuvers. However, the evolving organization’s mobility stemmed as much from its brains as from its vehicles.³¹

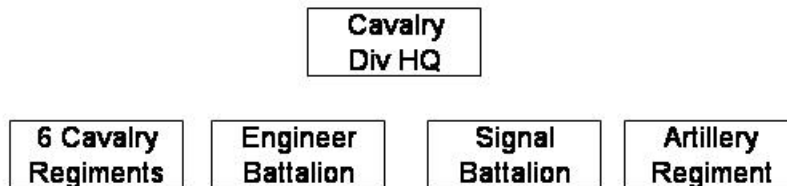


Figure 1. Organization of a 1919 Cavalry Division.

Source: James S. Corum, *The Roots of Blitzkrieg* (Kansas: University of Kansas Press, 1992), 207.

³⁰ See the discussion in Citino, *Blitzkrieg to Desert Storm*, 21-28.

³¹ Mosier, 287.

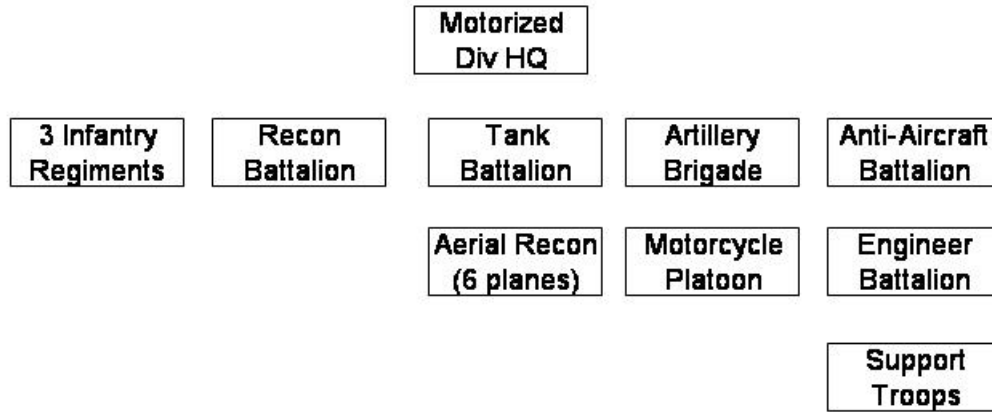


Figure 2. Organization of a 1926 Motorized Division.

Source: James S. Corum, *The Roots of Blitzkrieg* (Kansas: University of Kansas Press, 1992), 210.

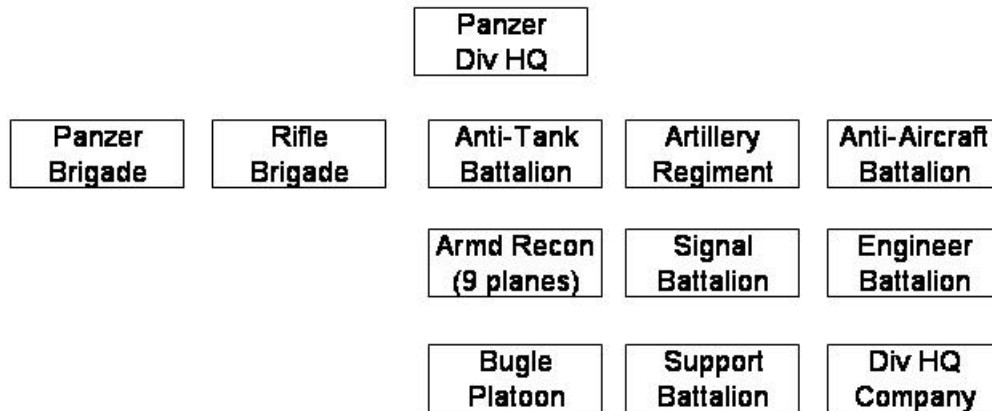


Figure 3. Organization of a 1940 Panzer Division.

Source: Alan Shepard, *France 1940 Blitzkrieg in the West* (Oxford: Osprey Publishing, 1990), 24.

Thus far we have seen that post World War I circumstances spawned a set of developments that were crucial to the birth of Blitzkrieg. These developments included the creation of the panzer division as the primary maneuver organization. This division sprang from a military culture that spawned flexible doctrine with the emphasis on leader actions or *Auftrags*. Most noteworthy was the development of a complex learning system in which the exercise of operational art reflected normalcy in the conduct of military operations.

SYSTEMIC LITMUS TESTS

For the highest form of machinery must win, because it saves time and time is the controlling factor in war.

J.F.C. Fuller

Introduction

Given the conflicting intellectual passions associated with blitzkrieg, an objective assessment of the term's significance for warfare perhaps best rests on its relevance to complex learning organizations and to operational art. Two studies in particular, Dietrich Dörner's *The Logic of Failure*, and Peter M. Senge's *The Fifth Discipline: The Art and Practice of the Learning Organization*, delineate the characteristics of complex systems and learning organizations. Dörner outlines the steps in planning and actions, while Senge describes the components of a learning organization. Additionally, Dr. James J. Schneider's *Vulcan's Anvil: The American Civil War and the Foundation of Operational Art Theoretical Paper No. Four* defines the analytical benchmarks for operational art. With these studies as background, Blitzkrieg is perhaps best understood as an ex post facto construct for explaining a complex structure that was born in a complex organizational learning environment and that provided a structure for planning and action with consequences of operational significance.³²

A Complex Organization

The German Army can be described as an organization that mastered the art of learning in a complex system that culminated as blitzkrieg. Before we can analyze a learning organization, we need first to understand how a complex system works. Military organizations are inherently

³² Dennis Showalter, *Blitzkrieg* (Boston: Houghton Mifflin Company), available from http://college.hmco.com/history/readerscomp/mil/html/mh_006400_blitzkrieg.htm, Internet; accessed 13 November 2004

complex, and Dietrich Dörner's description of complexity and its relationship to organizational goal setting set the stage for an appreciation of the difficulties of confronting change. As a complex system develops, it begins to learn. Senge defines a learning organization as a situation "where people continually expand their capacity to create new results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning to learn together."³³

Dietrich Dörner, Professor of Psychology at University of Bamberg in Germany, specializing in logic and cognitive behavior theories, defines complexity as "the label we will give to the existence of many interdependent variables in a given system."³⁴ A complex system is in constant flux, with variables dynamically interacting with each other over time and causing the system to react in ways that may be "in-transparent" or not yet visible. This interaction is regulated by feedback loops, some positive and some negative, as well as by critical and indicator variables. The casual relationships among the feedback loops and variables define the system, not their interaction. To regulate a system these tendencies must be clarified in such a way to classify them as general behaviors before buffering can occur. Buffering is the act of regulating or altering feedback loops and variables to prevent system failure. System failure normally results from over or under buffering a particular situation without regard to casual behaviors. Far too often, "we regulate the situation and not the process, steering it beyond the desired mark."³⁵ The key to complex systems management is the understanding of casual relationships, their linkages, their roots, and then classifying these relationships either as general behavior or rare occurrences. When we understand the links within a system, we can judge where the roots of certain deficiencies lie and can begin to define our goals more adequately.³⁶

³³ Senge, *The Fifth Discipline: The Art & Practice of The Learning Organization*, 3.

³⁴ Dörner, *The Logic of Failure*, 38.

³⁵ *Ibid.*, 30.

³⁶ *Ibid.*, 75-76

Goal setting is the first action in a five-step process that Dr. Dörner uses to organize a complex problem process (figure 4) to study how people think and act. The purpose of goal setting is to clarify the outcome desired to facilitate the development of guidelines and criteria for assessment. This approach may sound obvious in nature, but how often have we heard, “I will know what right looks like when I see it.” Or, how often are we given ambiguous goals like “I know we have a problem, just fix it and make it go away.” By developing a model and gathering information, the second action, one constructs a cohesive picture on the basis of available information. Collecting information becomes a vital management tool. How much is enough? What is relevant? How long do I have to make a decision? These are only three prerequisite questions. Vital to information processing is arranging it in an overall picture or model that aids in determining what is important and what is unimportant. This kind of “structural knowledge” allows us to find order in apparent chaos.³⁷ The prediction, extrapolation, and assessment step evaluates the model against the status quo and develops general behaviors over the course of time. After developing a structural model and extrapolating general behaviors, the next step is to consider measures to achieve the goal. These measures are divided into “methodism” or “experimentation.” That is, the division is between what has been done in the past and a new unrecognized approach. Dörner warns that it is too easy to apply ritualistic pre-established patterns or methodism: “to be successful, a planner must know when to follow established practice and when to strike out in a new direction. Recognizing the strategy appropriate to a particular situation helps us plan more effectively.”³⁸ After a decision is made, a constant review process must be implemented to review predictions and to ensure that the plan meets the goals outlined in step one. The key lies in recognizing when the plan will not succeed and must be abandoned or just slightly modified. This entire process is not linear; steps are designed to link together and interact with each other (figure 4). Dörner notes that, “the way back from any step to

³⁷ Ibid., 45.

³⁸ Ibid., 45.

any other is generally open, and an actual planning process can involve frequent leaps back and forth between steps.”³⁹ For example, as new information becomes available, goals may need slight adjustment. Or, perhaps the information extrapolated was not adequate to make a decision.

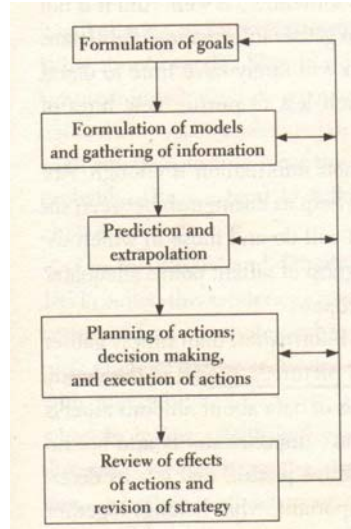


Figure 4. Steps in the organization of complex action.

Source: Dietrich Dörner, *The Logic of Failure* (NY: Metropolitan Books, 1996), 38.

General Hans Von Seeckt clearly articulated that the goal of the German Army was a return to movement in hopes of avoiding the stagnant trench warfare of World War I. The model emphasized was: “offensive, combined arms maneuver, with independent action by officers, and intelligent, effective leadership at all levels.”⁴⁰ Information was gathered through the 57 committees and validated through numerous training exercises and leader development programs. Decisions were made using both a combination of experiments, for example, field testing new equipment of a select unit rather than the entire army, and using systems already in place. Effects were reviewed in an open forum, such as the *Militär-Wochenblatt*, that the military culture encouraged. The cycle was not as linear as this description might suggest. The process and goals

³⁹ Ibid., 46.

⁴⁰ Corum, 48.

were constantly adjusted as new information became available and, more importantly, as new technologies were introduced. A perfect example was the development of the panzer division. For the purpose of this monograph, a detailed account of German panzer development is not necessary. By simply examining organizational charts (figures 1-3), one can begin to imagine the feedback loops and independent variables required to make this organization effective, not only in a peacetime training environment, but during the fog and friction of war. The panzer division was so effective that during and after World War II it became a model for many armies, including France, Britain, and the United States.

A Learning Organization

The system theorist, Peter Senge, defines a learning organization as, “an organization that is continually expanding its capacity to create its future.”⁴¹ Central to this organization is its ability to “dialogue” as a team and not as individuals and to learn how to recognize patterns of interaction. These are not the same patterns and interactions described in Dörner’s complexity theory. Rather, Senge addresses human behavior. Human interaction is where learning takes place, and for innovation in human behavior to occur, five disciplines must converge. The five disciplines, or components to a learning organization addressed by Senge, are systems thinking, personal mastery, mental models, shared vision, and team building. These disciplines are not mutually exclusive, but rather they work as an ensemble (figure 5). Senge stresses that, “Each provides a vital dimension in building organizations that can truly learn, that can continually enhance their capacity to realize their highest aspirations.”⁴²

Systems thinking, the fifth discipline, is visualizing the entire problem as one entity with multiple interrelationships. This conceptual cornerstone involves shifting the mind from seeing parts to wholes, from seeing people as helpless reactors to seeing them as active participants who

⁴¹ Senge, 14.

⁴² Ibid., 6.

have the ability to control their future rather than react to it.⁴³ Personal mastery is the discipline of growth and learning done by individuals with an organization. This mastery embodies clarifying what is important and visualizing current reality more clearly. The three principles associated with personal mastery are: personal vision, creative tension, and commitment to truth. Personal vision is an intrinsic value that specifies your direction toward a desired future. Creative tension is the gap between a personal vision and reality. This gap is a source of energy or driving force that stimulates the mind's creative process in pursuit of change. Consistency of personal vision is the only way to effectively manage this creative tension. Commitment to truth deepens the understanding of the complex system that facilitates identification of behavioral conflicts. This commitment also leads to the ability to change the structure to produce the results from our personal vision. Mental models are deeply ingrained assumptions, generalizations, or even pictures and images that influence how we understand the world and how we take action.⁴⁴ Understanding and visualizing this discipline is perhaps the most difficult task to accomplish. Unknown to us, these mental models sometimes exist at the subconscious level and are not readily subject to analysis. The biggest danger occurs when these models evolve into "skilled incompetence," or when people become "highly skillful at protecting themselves from pain and threat posed by learning organizations and fail to produce the results they really want."⁴⁵ Senge recommends developing four personal skills in combating and identifying mental model friction points:

1. Recognize leaps of abstraction. (Noticing our jumps from observation to generalization).
2. Exposing the left hand column. (Articulating what we normally do not say).
3. Balancing inquiry and advocacy. (Skills for honest investigation).
4. Facing up to distinctions between exposed theories and theories in use.⁴⁶

⁴³ Ibid., 69.

⁴⁴ Ibid., 8.

⁴⁵ Ibid., 182.

⁴⁶ Ibid., 186.

Shared vision, the fourth discipline, means fostering commitment rather than compliance from a personal vision. A shared vision unites the organization in the name of a commonly understood goal through personal mastery. The most direct way to articulate a shared vision evolves from a personal vision by the means of visionary leadership. Senge uses the hologram as a metaphor to describe how a shared vision is accepted by the organization. A visionary leader projects a three-dimensional holographic image. As people in the organization commit to the leaders overall vision through personal mastery, the image becomes more recognizable until everyone shares a common vision. Team Learning is the process of aligning and developing the capacity of a team to create the results its members truly desire.⁴⁷ This discipline builds upon a shared vision as a collective and personal mastery for an individual. The three critical dimensions of team learning are: First, the need to think insightfully as a group, thus tapping the resources of a collective; second, the need for coordinated action; and third, the inculcation of other teams within the same organization.

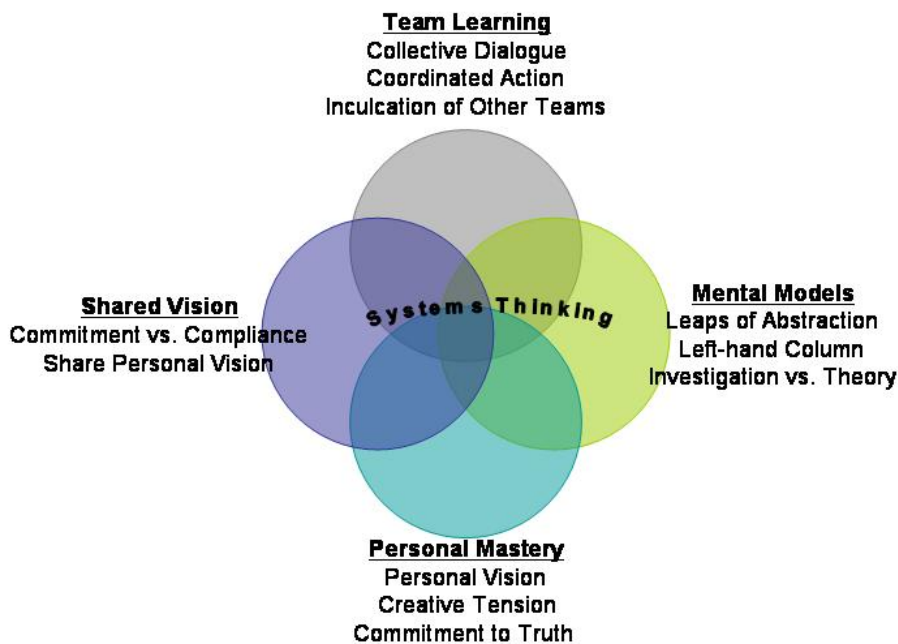


Figure 5. Senge's Learning Disciplines.

⁴⁷ Ibid., 236.

Source: Created by author to summarize Peter M. Senge's learning disciplines found in *The Fifth Discipline: The Art & Practice of The Learning Organization* (NY: Doubleday, 1990).

Personal mastery within the officers corps of the German Army was facilitated by three factors: the 57 studies commissioned by General Von Seeckt; the education system that trained leaders to encourage individual erudition; and the natural selection process of retaining only the top performers. In essence, the German Army created an organization sharing relatively the same mental model under the personal vision of General Von Seeckt's war of mass movements. The creative tension as expressed in open dialogue provided the driving force to stimulate the mind. A convincing example of this dialogue was the proliferation of articles in the *Militär-Wochenblatt*. Those committed to maneuver warfare began to see a gap between what the military required and what the industrial capacity could produce. This gap required the German military to develop a coherent strategy of rearmament in concert with other governmental officials. As Guderian asserted, "We owe this (on supplying the mechanized forces) to the comprehensive measures that have been taken in the Reich's Four Year Plan to assure the synthetic manufacturing of fuel and rubber."⁴⁸ General Von Seeckt had one significant mental barrier to overcome in an open debate type forum. From 1921-1934 roughly 20 percent of the officer corps and 40 percent of the generals were of noble origins and still believed in a defensive posture that called for the construction a barrier similar to the French Maginot Line.⁴⁹ However, General von Seeckt, "who knew so well how to listen and then sum up in a way that always hit the nail on the head,"⁵⁰ had a unique ability to expose the left hand column while proposing practical theories for the future Germany. The shared lack of desire for a return to the fields of Flanders and the horrors of World War I was so strong that it long persisted after Von Seeckt departed his post of Chief of Troops in

⁴⁸ Heinz Guderian, translated by Christopher Duffy, *Achtung Panzer! The Development of Tank Warfare* (London: Cassell Military Paperback, 1992, first published in 1937), 198.

⁴⁹ Van Creveld, 24-25.

⁵⁰ Albert Kesselring, *The Memoirs of Field Marshal Kesselring* (California: Presidio Press, 1989), 20.

1920. General Ludwig Beck⁵¹, who previously authored the *Truppenführung*, carried on the theme of mobile warfare 13 years later as Chief of Troops. Von Seeckt had built his team on a solid foundation, starting with the committees on the evolution of field regulations and later validating their conclusion. Since almost every officer in the German Army participated in the process, a collective mentality was formed that fostered coordination among the various branches. Signal knowledge and lessons learned from the *Fünkkubung* in 1932 were directly communicated across the military, a ploy that furthered the use of *Auftrag* as the best means to issue orders. Meanwhile, incorporation of the Luftwaffe into the evolving blitzkrieg team was a major interwar achievement that led to genuine combined arms engagement. Built of the panzer, blitzkrieg facilitated by radio technology and sustained by multiple relationships for combined arms. Blitzkrieg was a perfect example of the fifth discipline of systems thinking (figure 6).

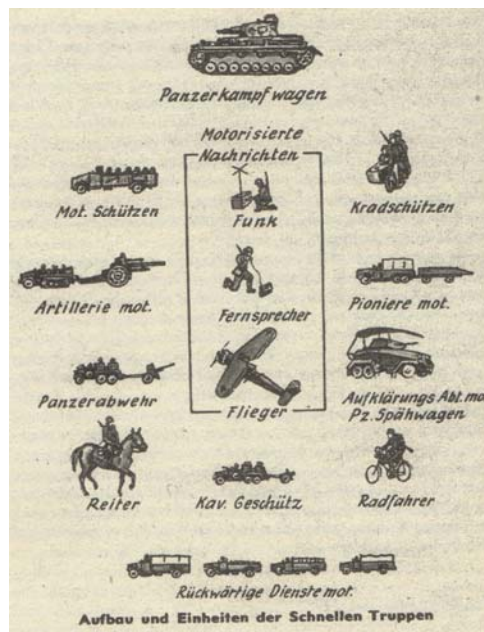


Figure 6. German “Schnellen Truppen” (Fast Troops) in 1939.

Source: Robert M. Citino, *Blitzkrieg to Desert Storm: The Evolution of Operational Warfare* (Kansas: University of Kansas Press, 2004), 22.

⁵¹ General Beck supported the concept of Blitzkrieg, however, resigned his post in protest of Hitler’s war of conquest in the Sudetenland.

Operational Art

Dr. James J. Schneider, Professor of Military Theory at the United States Army School of Advanced Military Studies, defines operational art as the “creative use of distributed operations for the purpose of strategy that are characterized by an ensemble of deep maneuvers and distributed battles extended in space and time integrated in a campaign unified by a common aim in retention or denial of freedom of action punctuated by a period of inaction.”⁵² The bulk of Dr. Schneider’s argument focuses on the structure of operational art, in contrast with specific engagements or battle. Because this author believes that the operational art must be exemplified by more than a few examples, the ensuing discussion focuses on the eight necessary conditions that Dr. Schneider asserted must exist for operational art to flourish:

1. Lethality.
2. Operationally durable formations.
3. Logistics that support successive movement.
4. Instantaneous communication.
5. Command structure with an operational vision.
6. Enemy must be operationally minded.
7. Nations must have the capacity to wage war.
8. Strategic mobilization.⁵³

The first condition addresses the fact that battles and the weapons employed in battles by armies must attain sufficient lethality to extend inter-battlefield maneuver. In light of the second condition of operationally durable formations, that is, formations capable of conducting successive battles and deep maneuvers, the panzer division forms an ideal prototype. The panzer division is the primary engine, the hammer that drives the operational chisel.⁵⁴ Before these two conditions are addressed, it is important to understand the purpose of these lethal formations.

Returning to Dr. Schneider and his definition of operational maneuver, “operational maneuver is simply relational movement in depth that maximizes freedom of action for the destruction of the

⁵² See discussion in Schneider, *Vulcan’s Anvil: The American Civil War and the Foundation of Operational Art Theoretical Paper No. Four*, 16-21, 34.

⁵³ *Ibid.*, 34-35. The order was modified to facilitate a coherent discussion.

⁵⁴ Analogy borrowed from Dr. James J. Schneider.

enemy's capacity to wage war. The idea of freedom of action implies that enemy destruction can be achieved better indirectly, that is, through envelopment and encirclement rather than through direct battle and attrition."⁵⁵ By examining blitzkrieg as a complex system of operational maneuver, one can clearly see the lethality of its primary formation. Blitzkrieg aimed at breaking through an enemy's front line and penetrating to his rear as quickly as possible, overwhelming him. The panzers did not merely blast through or overrun the opposition. Instead, they were used in rapier-like thrusts to cut through a designated sector of enemy line, making a breach wide enough for follow-on forces, so that these follow-on forces might seize favorable opportunities to launch attacks on the opponent's flanks and rear.⁵⁶ Simultaneously, the Luftwaffe would attack key command and control facilities and transportation nodes as deep as 300 kilometers in the enemy's rear. Special forces, using unconventional tactics, would disrupt lines of communication while airborne troops secured key facilities and critical passage points along major routes of advance. The infantry, anti-tank, and anti-air unit combinations would follow the tanks to protect their lines of communication and deal with strong points that had either been bypassed by the tanks or were stalling the advance of tanks.⁵⁷ General Guderian summarized it best in *Achtung Panzer*:

What were the advantages of the tank acting independently, and exploiting their great range and speed? A successful attack would bring a swift victory, which would assume considerable dimensions in breadth and depth; the enemy reserve, and most importantly the motorized or even armored units, would arrive on the scene too late. Breakthrough and pursuit again became a real possibility. The tank forces would not only gain a local tactical importance of the battlefield, but one which extended into the operational sphere of the theatre of war as a whole⁵⁸

The durable lethal formation relied on a system of continuous logistics and instantaneous communication.⁵⁹ Dr Schneider describes these formations as being capable of conducting

⁵⁵ Schneider, 18.

⁵⁶ Citino, *Quest for Decisive Victory: From Stalemate to Blitzkrieg in Europe, 1890-1940*, 276.

⁵⁷ Posen, 207.

⁵⁸ Guderian, *Achtung Panzer*, 141.

⁵⁹ Schneider, 29.

operations indefinitely. Academically this may be a reality; however, the world is governed by a finite set of resources and conditions. His analysis centers on comparing Napoleon's logistical system to that of the system used in the American Civil War, which emphasized the importance of the railroad. The main point worthy of discussion is: "In order for a modern industrial army in a theater of operations to maintain military effective presence, its logistical system must be continuous."⁶⁰

Many critics that classify blitzkrieg as merely combined arms tactics cite the absence of continuous logistics as one of their base arguments. By examining blitzkrieg as a constrained system, duration was an essential consideration. For the German military, one constraint was the assumption that a blitzkrieg would last about a month, and German logistical planning reflected this assumption. The main impulse behind this was the avoidance of another protracted war similar to World War I, which not only devastated the military, but also German society as a whole. Military focus shifted to an emphasis on machines, specifically tanks and aircraft, and to a restoration of mobility in the conduct of war, thereby creating relatively decisive victories in a short span. To say a motorized military did not provide for continuous logistics is ingenuous, yet blitzkrieg admitted to constraints in this key area..

Instantaneous communications emphasized the radio, as previously mentioned, but also conditioned the way that orders were transmitted within the German Army. As noted by Citino, "The higher commander decided on a general intent, *Auftrag*, passed it on to his subordinates in a short, concise order, and then left it up to them to decide the means and methods of achieving it."⁶¹ Instantaneous communication was a prerequisite for operational warfare because the battle space began to expand beyond the traditional line-of-sight generalship that commanders exercised in the past. It is important to note that limited radio contact during battle between operational and

⁶⁰ Ibid., 24.

⁶¹ Citino, *Blitzkrieg to Desert Storm*, 9.

front-line commanders after the issuance of *Auftrags* was an intentional and integral part of blitzkrieg. It was not lack of operational planning or design that explained the absence of detail, but rather the tactical freedom allowed to commanders for mission execution within the parameters of operational goals. The days of seeing massed armies on the field of battle as two-dimensional chess pieces were gone. Mechanization expanded the depth and speed with which lethal and durable formations could operate: meanwhile application of the aircraft introduced a fourth physical dimension.

These new combinations and dimensions required a commander to possess a gift of vision, or the ability to holistically design and prosecute campaigns. Expansion of the battle space required that the commander and his staff possess this operational vision. They must be able to envision creatively all actions in a theater of operations as a whole and coherent pattern of activity, extended through space and time but unified by a common aim. Likewise, the enemy must be operationally minded; he must be similarly trained, armed, equipped, structured, and commanded as the friendly force.⁶² Campaign design generally observed the flexible doctrine of combining mobile massed armor formations and aircraft with the purpose of penetrating an enemy's defensive system and encircling the remaining forces. The enemy drew his strength not from his front line, but from his rear.⁶³ This realization explained why the initially indirect approach preceded a physical move to the enemy's rear.⁶⁴ Analyzing the German art of campaign planning is beyond the scope of this monograph; however, the commander traditionally would shape the campaign so that it resulted in a battle of annihilation rather than attrition. The primary task was to concentrate effects at the *Schwerpunkt* (point of main effort or decisiveness) rather

⁶² Schneider, 35.

⁶³ Fuller, 925.

⁶⁴ Basil Liddell Hart, *Strategy the Indirect Approach*, found in *The Art of War in World History* (California: University of California Press, 1994), 929.

than across a broad front. An *Auftrag*, or intent based order, was disseminated to subordinate commanders, who in turn, designated a subsequent *Schwerpunkt*.

Some argue that this lack of particulars is why blitzkrieg occurred purely at the tactical level. It is easy to draw this conclusion when surveying individual battles, but one has to examine blitzkrieg as a system. By giving an intent-based order, the subordinate commander understood what the outcome of that particular order was in the eyes of his superior. The level, complexity, and detail of German campaign planning were no different from what we are familiar with today. Operations centers were riddled with charts and graphs detailing component operations and end states over time. It is the execution of plans on which contemporary scholars focus. The system was developed to allow commanders to take advantage of every opportunity. Meanwhile, the higher commander was charged with exploiting each local success through leader flexibility in means and ways, while maintaining adherence to the overall ends, the *Auftrag*. Reference to Moltke on doctrinal development makes quite apparent the mental model of subsequent commanders:

1. No plan survives contact with the enemy's main body.
2. Only the layman perceives the campaign in terms of a fixed original conception, carried out in all details and rigidly followed until the end.
3. While on the march, an army had to be ready for anything, not hamstrung by rigid orders.

Senior German Army commanders realized that strategic surprise, strong defenses with comparable force ratios, and natural obstacles made it impossible to develop a single campaign plan. To exploit success, follow-on campaign plans were required. Decisiveness is the quality of character that keeps a commander focused on achieving the mission.⁶⁵

⁶⁵ See discussion in Dr. Gary J. Bjorge, *Decisiveness: The German Thrust to the English Channel, May 1940*, found in *Combined Arms in Battle Since 1939* (Fort Leavenworth: United States Army Command and General Staff College, 1992), 67.

Dr. Schneider's last two conditions are characterized as strategic requirements: nations having the capacity to wage war and continuous mobilization. The subversive nature in which the German industrial preparations occurred under the Treaty of Versailles is not germane to this monograph. However, it cannot be contended that Germany readied politically, socially, and militarily for war.

BLITZKRIEG: PRO AND CON

A book lies before each man who wishes to become a commander, and it is entitled Military History.

Alfred von Schlieffen

A Viable System

The American military scholar Trevor Dupuy discovered that during World War II the Germans lost many fewer soldiers than their opponents. Through statistical analysis Dupuy argued that 100 German soldiers possessed the equivalent combat effectiveness of 120 American, British, or French soldiers. For German soldiers on the Eastern Front, the ratio jumped to 2:1.⁶⁶ If one subscribes to the theory that aggregate causality figures reflect aggregate performance, it becomes evident that the German military performed better than the Allies did. The Allies had a hard time erasing the German qualitative edge, which was an advantage derived from several factors: a more homogeneous and uniformly educated officer corps, more effective methods of command and control, and a better grasp of maneuver at the operational level.⁶⁷ The German Army was successful in combat not because it had developed a new method of waging war. It was successful because its methods of training and doctrine development were often superior to their allied counterparts. A better-trained and educated army is more adept at the decentralization of operations. Returning to Peter M. Senge's disciplines, the German Army before 1941 was a perfect case study of a learning organization. By viewing systems thinking as a pyramid, rather than the previous Venn diagram, one can see the evolution more clearly (figure 7). The left side of the figure represents Senge's disciplines, and the right side the mechanism of the German Army system. The components of the system must interact; however, a fundamental base must

⁶⁶ Mosier, 284.

⁶⁷ Citino, *Blitzkrieg to Desert Storm*, 6.

first be present. A member of the organization must possess a mental model capable of coping with the complexity of the system to which he belongs. If he does not possess such a mental model, he will never be part of or accept the conditions of the team. In subsequent iterations as defined by Dörner, each level of the pyramid is built upon the previous. Personal mastery is defined as self-discipline and an understanding of the complexity of the system. Propagating the shared vision of the organization occurs through effective leadership at all levels. The German Army, like every military organization, used training exercises as the medium for team building. In summary, the German Army was successful for four reasons. First, the critical analysis commissioned by General Von Seeckt developed a clear, sound operational and tactical solution to positional warfare. Second, the intellectual atmosphere prevented stagnation through encouragement discourse at all levels, thereby allowing doctrine to develop instead of being dictated. Third, decentralized command and control, fostered through trust and confidence, allowed leaders to make rapid decisions at the critical time and place. Last, the German Army's training management system and feedback mechanism propelled change into a revolution in military affairs.

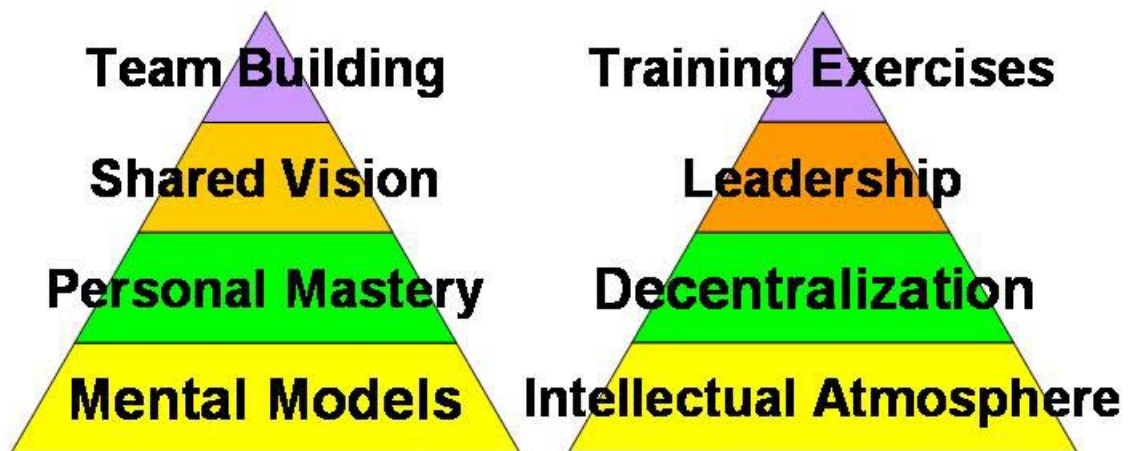


Figure 7. Disciplines of German Army Reform

Source: Created by author to compare Peter M. Senge's learning disciplines found in *The Fifth Discipline: The Art & Practice of The Learning Organization* (New York: Doubleday, 1990) to critical components of German Army military reform.

A Failed System

The analysis of any system traditionally begins when it fails. At the onset of World War II, the blitzkrieg was a capable system for conducting the kind of war which its designers envisioned. The primacy of the blitzkrieg concept was built around an organization designed, trained, and equipped for a short campaign in central and Western Europe. The eventual failure of the blitzkrieg system cannot be attributed to one particular commander or event. Although many scholars argue that Hitler or the Russian Campaigns provided the explanation, the problem perhaps lies in what Dörner calls a *Logic of Failure*:

What Moltke had in mind about strategic thinking in war applies in general to manipulation of interdependent systems. Schematizations and the formulation of rules obscure the constant need to adapt action to context. A sensible and effective measure in one set of circumstances can become a dangerous course of action when conditions change. We must keep track of constantly changing conditions and never treat any image we form of a situation as permanent. Everything is in flux, and we must adapt accordingly. The need to adapt to particular circumstances however runs counter to our tendency to generalize and form abstract plans of action.⁶⁸

The German Military simply failed to adjust their system as the war progressed. Axis forces did little either to alter the basic pattern of their military organization and operational practice or to reform and modernize the way they made war.⁶⁹ There was no way that Hitler's Germany could defeat the force preponderance of Great Britain, the Soviet Union, and the United States. This had been as true in 1914 as it was in 1941.⁷⁰ The combination of the United States industrial capability, the Lend Lease aid provided to the British and the Soviets, and perhaps, more significantly, the collapse of the always tenuous German political--military relationship under Hitler, contributed to the systems failure.

⁶⁸ Dörner, 98.

⁶⁹ For a comprehensive analysis see Richard Overy, *Why the Allies Won* (New York: W.W. Norton & Company, Inc., 1995), 318.

⁷⁰ Mosier, 283.

The degradation of the political-military relationship within Germany was an inherent problem for blitzkrieg in that the link back to the strategic level was severed once protracted war began. By design, fighting short duration campaigns of annihilation rather than returning to the trenches was the military's idea of a strategic solution. The German Army did not want or think about political involvement once the order came to initiate war. As Hitler began to lose strategic sense and control and after the military began to lose initiative, the system faltered. Front line leaders lost the ability to exploit success. Directives from Hitler became more prescriptive as the war progressed. For example, Directive 67, issued on 25 November 1944 ordered:

Should a commander, left to his own resources, think that he must give up the struggle, he will first ask his officers, then his non-commissioned officers, and finally his troops, if one of them is ready to carry on the task and continue the fight. If one of them will, he will hand over command to that man regardless of his rank and himself fall in. The new leader will then assume the command, with all its rights and duties.⁷¹

⁷¹ Hugh Trevor Roper, *Hitler's War Directives 1939-1945* (Edinburgh, U.K.: Berlin Limited, 2004), 288.

CONCLUSION

Blitzkrieg was a viable operational system designed and intended to fight short duration wars against similarly designed and equipped enemies. Blitzkrieg became ineffective when German military planners failed to adapt doctrine and strategies to meet their government's ever-increasing demands for employing military forces without a sound overall strategic concept. The operational and conceptual components of blitzkrieg are apparent today just as they were in 1940. A good example of this involved the "Thunder-Runs" conducted by a company, and later a battalion, from the 3rd Infantry Division during Operation Iraqi Freedom. These "Thunder-Runs" demonstrate the importance of intent-based directives given to a commander capable of exploiting battlefield success at the tactical level while supporting operational objectives that accomplish the strategic end state. The blitzkrieg system failed as an operational means of conducting war only when it was employed in a manner inappropriate to its original purpose and intent. When the political-driven strategy sought all-embracing conquest and enemy attrition, blitzkrieg was forced to confront a level of protractedness not envisioned by its creators. In fact, the operational premise of blitzkrieg was to avoid protracted battles, massive troop movements, and other such difficulties encountered by the Germans in World War I.

Much of the value of this monograph lies with to those in leadership positions that interface with the political dimension of war. Utilized appropriately, blitzkrieg met operational objectives while allowing field commanders the flexibility to exploit local situations and circumstances. When employed in a way that did not match its intended role, the blitzkrieg system failed with unintended consequences. The lesson in this can and should be applied to contemporary systems by planners and leaders considering operational plans and their implementation. Blitzkrieg as an operational system provides insight into the value of flexible doctrine, military culture, and operational planning.

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