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**Mikhail Nikolayevich Tukhachevsky (1893–1937):
Practitioner and Theorist of War**

Christopher Paul McPadden

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ASSOCIATION OF THE UNITED STATES ARMY**

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by Christopher Paul McPadden

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Foreword

Sun Tzu wrote in *The Art of War*, “the general who understands war is the Minister of the people’s fate and the arbiter of the nation’s destiny.” Mikhail Nikolayevich Tukhachevsky was this kind of general—personally, in practice and in the development of military theory. This paper examines Tukhachevsky’s life on a personal level, as a practitioner of war and as a military theorist, revealing an officer who was able to practice and convey in writing an uncanny conceptualization and prescient vision of modern warfare at the tactical, strategic and operational levels.

His military prowess and writings on warfare significantly affected the Soviet military in the interwar years, Soviet operations on the Eastern Front versus the Germans, and the development of operational thinking for the remainder of the 20th century well beyond the borders of the Soviet Union. Notably, many of the same operational concepts espoused by Tukhachevsky in his *Regulations of 1936* are evident in modern foundational ideas of U.S. military doctrine that were formulated in the 1970s and ‘80s in *Airland Battle* and which remain central to U.S. military doctrine today.

Tukhachevsky’s displayed military prowess in his writing on warfare and in practice merit him significant recognition for his contribution to the understanding, conceptualization and vision of Soviet warfare and all levels of modern warfare in the 20th century. With further study, historians of future generations may one day view his impact on modern warfare as being unparalleled by any other officer in the 20th century.

A handwritten signature in black ink, appearing to read 'Gordon R. Sullivan', with a long horizontal flourish extending to the right.

GORDON R. SULLIVAN
General, United States Army Retired
President

August 2006

Mikhail Nikolayevich Tukhachevsky (1893-1937): Practitioner and Theorist of War

Introduction

Few people today, excepting perhaps students of military and Soviet history, know much about the Soviet military officer Mikhail (Misha) Nikolayevich Tukhachevsky. Even those who have studied and written about his life find him difficult to characterize. Author Shimon Naveh asserts that some of Tukhachevsky's colleagues considered him a "charming intellectual, a sensitive and artistic human being who possesses a penetrating and creative mind, and an admirer of Western Civilization."¹ But Naveh found others who characterized him as

a prince of darkness, Bonapartist, the Anti-Christ, anti-Semite, admirer of Nazis, butcher, militant Communist inclined toward pragmatism, and romantic Mongol, a veritable Genghis Khan.²

Another author, Richard Simpkin, presents Tukhachevsky in an equally paradoxical way: "One can see him as the brilliant idealist of irreproachable integrity, slightly gone to seed as a result of the rigors of war and the problems of family and marriage."³ At the same time, "One could equally well present him as a flamboyant opportunist, driven by ambition to the ruthless exploitation of ideas, people and events alike."⁴ Simpkin concluded that perhaps he was both at the same time, a sort of "Jekyll and Hyde in conscious cooperation; and perhaps that was the secret of both his achievements and his downfall."⁵ This final assessment of conscious cooperation is particularly insightful, particularly in light of an examination of Tukhachevsky's personal life, his life as a practitioner of war, and his writings as a military theorist. Such an examination reveals an officer who, whether a Jekyll or Hyde, was able to practice and convey in writing an uncanny conceptualization and prescient vision of modern warfare at the tactical, strategic and operational levels. His efforts significantly affected the development of the Soviet military and the conduct of modern warfare in the 20th century.

To understand Tukhachevsky's contributions to warfare, one must be familiar with the levels of warfare (tactical, strategic and operational) and the concept of operational art. For simplicity, this paper will categorize the levels of warfare using the contemporary U.S. operational framework of tactics, strategy and operations. At the lowest level will be tactics, those aspects of warfare ranging from the individual soldier to corps-size

units. At the highest level will be strategy, those aspects of warfare ranging from the theater of operations to the very head of a nation's government. Operations are the bridge between tactics and strategy. This third level of warfare is especially significant because its genesis in written form is found with the development of Soviet military theory in the early 1900s, and Tukhachevsky was a major catalyst in its formulation.

Furthermore, a military leader's ability to handle these levels of warfare with a focus on their integration to achieve operational success has become known as the operational art. In fact, operational art in the current U.S. Army, which is also arguably a function of Soviet interwar thought, is defined 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."⁶ For the U.S. military, this definition has become fundamental to understanding and designing modern military operations.

When and how operational art emerged onto the battlefield can ignite hours of heated discussion and debate among knowledgeable military officers or historians, who tend to fall into one of four groups that are essentially separated by periodization. A first group holds that operational art is nearly as old as warfare itself and is evidenced through well-known commanders of antiquity such as Alexander the Great and Genghis Khan. Others suggest that operational art is a function of Napoleonic warfare and is arguably manifested through Napoleon himself and Grant in his orchestration of the campaign of 1864. A third group asserts that operational art really had its genesis with Soviets thinkers such as Svechin, Tukhachevsky and Triandafillov. And a fourth group suggests that operational art's genesis was really a result of U.S. military theoretical and doctrinal development in the 1970s and '80s as chronicled in the U.S. Army's capstone doctrinal manual, Army Field Manual (FM) 100-5, *Operations*, in the idea of Airland Battle.

While its conceptual genesis is debatable, the writings of Soviet theorists during the interwar period, including those of Tukhachevsky, clearly reveal an articulation of the operational art. It therefore had its genesis no later than the interwar years if not earlier. Tukhachevsky and other like-minded officers of his time were theoretical forerunners in not only conceptualizing but also writing about operational art. They visualized and articulated a conceptual and practical application of the operational level of warfare which provided theirs and future militaries a foundational understanding and lexicon for operations that comprehensively bridged the gap between strategy and tactics, with far-reaching impact for the future Soviet military and modern warfare in general.

Tukhachevsky's Life—Jekyll Gives Way to Hyde

While his life spanned 44 years (1893–1937), from a personal standpoint Tukhachevsky might be characterized as perhaps a Jekyll who gave way to Hyde, particularly when one looks at his upbringing up to World War I and his subsequent marriages, one ending in tragedy and the other suffering from severe neglect due to professional commitment.⁷

Born 4 February 1893, he was the fourth child of nine and lived in a town near Vyshegor Station on the Smolensk–Vyanzma railway about 150 miles southwest of Moscow.⁸ His father was not a wealthy man, but he was a landowner and part of the nobility. In 1904, when Mikhail was 11, his family moved to Benza, 300 miles southeast of Moscow. In his early life, he revealed no apparent interest in military life, but instead demonstrated a proclivity for constructing and playing violins as well as an interest in astronomy and meteorology. He attended high school and earned an intermediate certificate with distinction in five years.⁹ In 1909 his family moved to Moscow, where he excelled in school and would have qualified for university had his family been able to afford the six years of schooling.¹⁰

Despite his demonstrated musical and scholastic aptitude, Mikhail's potential for university education was interrupted at age 18, when his life unexpectedly gravitated toward the military. He passed some very challenging exams and entered the “seventh [top] form of the 1st Moscow Cadet Corps of Empress Catherine II [Catherine the Great]” on 16 August 1911. Less than a year later, on 1 June 1912, he was awarded the “certificate of graduation” from the Cadet Corps and entered the Alexandrovskii Military College, where he was tutored by V. A. Verezovskii, an expert on the Russo-Japanese War. Two years later, on 12 June 1914, he graduated from the college with some of the highest grades in the school's history.¹¹ An apparent Jekyll had given way to Hyde.

Upon graduation from Alexandrovskii Military College, Tuhkachevsky was commissioned into the Semenovskii Guards Regiment, part of the Tsar's Imperial Bodyguard (household troops). Such would be the beginning of a very unpredictable, serendipitous and transitory Hyde-like military career. Within weeks of graduation, he went with his regiment to the Prussian Front as a member of the 7th Company of the 2nd Battalion, where he saw various combat actions. In one particular fight, he suffered from an explosion and the Regimental Order of 27 February 1915 reported him as having been killed in action. He had actually become a German prisoner of war, and proved to be particularly irascible in attempting to escape five times. As a result, the Germans transported him to a camp for “bad boys” in the vicinity of the Bavarian stretch of the Danube. There he was believed to be a roommate of De Gaulle, but evidence to support this is conflicting. By 12 October 1917, Tuhkachevsky was back in Russia, as a function of either a sixth escape attempt or formal release.¹² Due to the ensuing Revolution, there was no Tsarist military to which he could return; according to one author, he apparently “thought the thing through and just went home.”¹³

While home, Tuhkachevsky's thoughts about the Revolution coalesced. In 1918 he went to Moscow, met with Trotsky, who was heading the Military Department of the All-Russian Executive Committee, and offered his services to the Communist cause.¹⁴ On 5 April 1918, he became a Communist, and Trotsky appointed him as Military Commissioner at Headquarters Moscow Defense Area.

In 1918, during the Russian Civil War, he married Marucia Ignat'eva, who visited him at the front despite the ongoing war. Upon returning from one of her visits she was found smuggling foodstuffs from the front lines to her home. She was brought to Tukhachevsky's quarters to await a summons for further questioning. While waiting, she committed suicide by shooting herself with her husband's revolver. The reason seems to have been that she wanted to prevent any tarnishing of her husband's career or other adverse consequences for him. Her suicide suggests the beginning of a Hyde-like trend in the growing import of Tukhachevsky's career, despite his Jekyll-like act of marrying a woman to whom he was very committed.

Such a view is reinforced by his second marriage in 1924 in Smolensk, to a woman named Nina who was 13 years younger than he. While she was from an aristocratic family, their match seems to have been less than ideal, as shortly after their marriage he went to Moscow, leaving her in Smolensk and returning only after the birth of their daughter. Authors generally characterize this marriage as one of convenience. Nina apparently supported his efforts but understood and accepted that his primary focus was on his military career.¹⁵ If he demonstrated a Jekyll-like mentality in his upbringing and life as a married family man, it appears that mentality gave way to his increasingly Hyde-like commitment to professional progression as a practitioner of war.

The Practitioner of War—Hyde Stays Hyde

Tukhachevsky must have demonstrated some amazing proclivities because Trotsky gave him the responsibility of forming the Red Army from the key location of the Military Department of the All-Russian Executive Committee. His abilities even came to the notice of Lenin, who appreciated his “inquiring mind, ebullient energy, and broad initiative in stating and solving problems.”¹⁶ These abilities would lead to an array of command and administrative positions in the Soviet military that would arguably result in the zenith of his career (becoming a Marshal in 1935), followed by his lowest point (being purged in 1937 by Stalin, who saw him as a potential threat).

As a practitioner of war, from 1918 to 1921 Tukhachevsky actively participated in the Russian Civil War, where he gained a great deal of experience as a commander in engagements against the “Whites,” Poles and other anti-revolutionary elements.¹⁷ Not long after his initial work in forming the Red Army, he was sent to the Eastern Front where he had the task of reorganizing an assortment of battered units into three infantry divisions from which he would form the 1st Revolutionary Army.¹⁸ He then assumed the position of Army commander and had a major impact on stabilizing the situation on the Eastern Front.

Tukhachevsky was then moved to the Southern front, where he became both the Assistant Front and 8th Army Commander. After conducting a very successful offensive operation as an Army commander, he became the commander of both the 8th and 9th

Armies in 1919 and conducted successful counteroffensive operations. In March of 1919, he was moved to the Western Front, where he successfully commanded the 5th Army until he relinquished it in the fall. He then went to Moscow to receive the Order of the Red Banner on 7 August, followed in November by his appointment as Commander-in-Chief Southern Front.¹⁹

On 19 January 1920, he became commander of the Caucasus Front, and in May he was again moved to the Western Front. It was there that he conducted his well-known Polish Campaign, which Naveh describes in four phases: First he conducted an operation that checked the Polish advance. He then conducted an advance of his own, covering a distance of 400 miles in an attempt to move west and south to encircle Warsaw. Third, the Polish conducted their famous counterattack that held the Soviet Army and resulted in their collapse. Finally, Poland and the Soviets reestablished the boundary for Poland at the Treaty of Riga in March 1921.²⁰

Tukhachevsky's attack from the north of Warsaw was supposed to be supported by a simultaneous attack by the Soviet Southern Front emanating from the east and south of Warsaw, which would isolate the city and permit Tukhachevsky to encircle Warsaw from the north. The Southern Front's failure to isolate the city sparked long-term heated debate in the Soviet military as to who was actually culpable for the Soviet failure in the battle. From Tukhachevsky's standpoint, it was the Southern Front's failure to support him, largely influenced by Stalin's specific influence as a Commissar on that front, which resulted in Tukhachevsky's defeat. In Hyde-like resilience, he never changed this view, even though it implicated Stalin. It is generally held that the open-ended debate on this topic, which permitted the suggestion of Stalin's failure in this battle, would ultimately lead to Stalin's eventual purging of Tukhachevsky.

Nevertheless, following his actions on the Western Front, Tukhachevsky was appointed to the Russian General Staff on 22 May.²¹ At the end of the Russo-Polish War in 1921, the Army sent Tukhachevsky to deal with two counterrevolutionary actions and then appointed him Commandant of the Red Army Military Academy (a position he held for only six months), followed by a posting to the Western Front. While Richard Simpkin contends it is unknown why Tukhachevsky served only six months at the Academy, Naveh suggests that this appointment was one "reflecting both general recognition of his professional abilities and a determination to settle the military on an institutionalized professional future path."²²

In May 1924, Tukhachevsky became First Assistant and Deputy Chief of Staff to Frunze and the Principal Director of Studies for Strategy at the Military Academy. In a rare show of Jekyll-mindedness, he and Frunze had a very strong working relationship and friendship. In 1925, under the guidance of Frunze, Tukhachevsky completed the first set of reforms for the Red Army. When Frunze died on 31 October 1925, for reasons that are still suspect, Tukhachevsky was appointed his successor as the Chief of the General

Staff.²³ He would retain this position until 1928, when the military command forced him from this office and appointed him to serve as the commander of the Leningrad Military District.

In 1931, the Soviet High Command brought Tukhachevsky back to Moscow and appointed him as the Red Army's Technology and Armament Chief and Deputy Commissar of War, a position placing him in charge of both the Red Army's mechanization and its motorization. Tukhachevsky seemed to have been created for jobs like this. According to Naveh, "His creative touch was to be felt in the realms of technological development, production and operational concepts."²⁴ In fact, Naveh asserts that, due to the influence of Tukhachevsky,

At the beginning of 1934 the Red Army's mechanized formations were armed with the most advanced weaponry and armored fighting vehicles in the world, both in quality and quantity.²⁵

For instance, Tukhachevsky was highly influential in the development of airborne units that were well equipped, mobile and consisting of force structure including light tanks and artillery, recoilless guns, mobile armored vehicles and well-trained leaders. Additionally, due to his development program, the Soviet Army became equipped with a wide range of aircraft including bombers, reconnaissance planes and fighters as well as the first self-propelled artillery and assault guns.²⁶ His impact in this position made him widely regarded by the French, British and German missions to the Soviet Union for his work in force structure. In one author's view, "It was as an organizer and champion of mechanization, however, that Tukhachevsky best served his country."²⁷ For his overall performance in force structure development, the Soviet leadership promoted him to Marshal of the Soviet Union in 1935.

Regardless of his tremendous performance in developing his military, Tukhachevsky apparently never became a member of Stalin's inner circle. There are conflicting views and interpretations of exactly what happened when and to whom during Stalin's purges of his officer corps. However, there is evidence supporting the idea that a complex conspiracy had been developing against Tukhachevsky for years before his eventual mock trial and execution in 1937. This was quite possibly due to the debate that still existed over the Battle of Warsaw. Part of this conspiracy included the removal of Tukhachevsky from his post as the Red Army's Technology and Armament Chief to the position of Deputy Defense Commissar and Inspector of Military Training. Although this was a demotion, it was during his service in this last position that he wrote and completed the comprehensive 1936 *Field Service Regulations*. This capstone manual would prove to be his last major written contribution to Soviet military thought.²⁸

In June 1937, apparently the Hyde-like Stalin collided with the Hyde-like Tukhachevsky for the last time. Soviet authorities arrested Tukhachevsky by order of Stalin on the allegation of treason. Under interrogation, he "admitted" to being a German

spy and signed a document of “confession” spattered with his own blood. During a mock trial, Soviet authorities sentenced him to death; he was executed by firing squad on 12 June 1937. Although it was not the first of such executions, some mark this event as “the beginning of the comprehensive purge of the Soviet Officer corps.”²⁹

Considering his upbringing, his personal life and his professional experiences in the field, Tukhachevsky had a remarkable career marked by both Jekyll- and Hyde-like manifestations. Despite the challenges with which he dealt, Tukhachevsky was quite mindful of his experiences and observations, as he wrote extensively throughout his career about warfare as he knew it and envisioned it at all three levels of war.

The Military Theoretician—Jekyll in Hyde’s Clothing

An examination of Tukhachevsky as a military theoretician reveals a Jekyll-like commitment to conveying a lucid yet broad articulation of his concept of warfare more broadly encased in a Hyde-like framework focused on the bringing about of worldwide Communist revolution. Existing historiography reveals that historians tend to address Tukhachevsky’s theoretical works in one of three ways: *periodization*, *selective integration* and *vicarious attribution*. While these approaches have their own merits and purposes, they are also limited because they fall short of providing a reader with an overall picture or appreciation for Tukhachevsky’s works as a whole. After briefly detailing each of these approaches, the author will then explain his own methodology.

Periodization equates to an assessment of Tukhachevsky’s works as a function of certain periods during which he wrote, suggesting that his writing was more prolific or more profound as a function of the period during which he was actually writing. While there are some merits to this approach, there are also some problems with it. First, he wrote and lectured quite extensively, producing some form of written work or lecture almost every year in his service in the Soviet military. Second, these works vary quite extensively in their general focus—to such a degree that it becomes problematic to look for groupings of ideas as a function of a period. Third, an examination of more than 12 consecutive works over a 17-year period shows that despite the disparity in general focus of topics, in a broader sense there are significant commonalities over time that eclipse shorter bursts of “periodic” insights.

A second approach is *selective integration*, where authors reference selective works to reinforce their main ideas. This approach is appropriate and necessary for authors who are conveying specific points about Tukhachevsky’s life, but it naturally excludes the extent or breadth of his writings as a whole. Therefore, while it illuminates the reader about specific aspects of his life, this approach falls short of providing a broader appreciation for continuities in his works taken together.

The third approach, *vicarious attribution*, simply attributes to Tukhachevsky concepts and writings that were shared efforts with other officers. Many works about Tukhachevsky

take this approach, particularly with regard to the concept of “Deep Battle.” Many authors attribute the concept of Deep Battle to Tukhachevsky, but ironically an examination of 12 sources authored by or originating with Tukhachevsky reveal few references to any comprehensive description of the Deep Battle concept. What authors have more accurately done is to vicariously attribute ideas and works of related Soviet thinkers such as Isserson and Triandafillov (who wrote more specifically about Deep Battle) directly to Tukhachevsky himself. He certainly influenced these men and others who successfully captured and conveyed the concept of Deep Battle, but overly or simply attributing the concept of Deep Battle to Tukhachevsky must be seen for what it is. Such an approach shows Tukhachevsky’s likely influence as a professional officer, but it tends to make one inclined to conclude that Deep Battle was the focus of his writings. This puts too much emphasis on an operational concept about which he specifically wrote very little, thus minimizing the greater breadth and sophistication of his ideas that spanned all three levels of war.

As a whole, these approaches can lead one to view Tukhachevsky as simply the author of Deep Battle, or a professional officer who was gifted with some intermittent short-term bursts of insight relating to warfare during the interwar years. This precludes a more accurate appreciation for Tukhachevsky as a professional officer who possessed a much more comprehensive understanding, conceptualization and vision of contemporary military affairs that influenced not only his military but the broader future of modern warfare.

What follows are the findings from a methodological approach which focused on searching for commonalities in 12 of his works, produced through either writing or lecture from 1920 to 1937. They include: *National and Class Strategy* (1920), *The Battle of the Bugs* (1924), *Questions of Higher Command* (1924), *Problems in Contemporary Strategy* (1925), *Tactics and Strategy* (1926), *War as a Problem of Armed Struggle* (1928), *Battle and the Operation* (1929), *Preface to J. F. C. Fuller’s Reformation of War* (1931), *Development of Weapons and Forms of Battle* (1931), *New Questions of War* (1931–32), *The Development of Forms of Command and Control* (1934) and *The Red Army’s New Field Service Regulations* (1936).

Consistently concise yet comprehensive and dense in content, these works show that Tukhachevsky’s experience, knowledge and vision of contemporary as well as future warfare were well ahead of his time. An examination of these works reveals some very interesting findings focused on common themes over time at the strategic, operational and tactical levels of warfare and their related sub-themes. First, he actually wrote very little, at least in these well-known works, that specifically detailed an operational concept of Deep Battle. While one can extract disparate ingredients from his works, only a few mention Deep Battle specifically. Second, taken together his writings covered all three levels of warfare, showing that he was not focused merely on the operational

level of warfare, but that he possessed a broader and more sophisticated view of the different levels of warfare. This is rare for any military leader or theorist in the history of warfare, let alone the interwar period. A third observation is related and even more rare for any theorist: Not only did his writings address the three levels of warfare, but Tukhachevsky also consistently addressed the connection between at least two if not three levels of warfare in each of his writings or lectures. This reveals that not only did he understand all levels of war taken together, but he also possessed a keen understanding of the issues that melded the interrelationship among them. Fourth, he addressed many similar topics over time at each level of warfare, revealing the consistency and conviction of his understanding. This suggests his genius for war was more a function of natural operational understanding that he possessed and honed through practice and then conveyed in his writings.

There are a few other facts for note, such as that there were at least 35 recurring topics. Nine of the topics were at the strategic level, 11 were at the operational level and 15 were at the tactical level. Focusing on all of the topics per source, almost every source addressed at least 10 of the 35 topics, showing consistency of focus over time. The first work, *National and Class Strategy* (1920), addressed 12 of the 35; the high point was *Field Service Regulations* (1936), which addressed 18 of the 35. Focusing on any one topic with respect to the 12 sources, many topics were revisited at least six times in 12 sources. The most frequently recurring topics of the 35 are addressed below. The high-point topic—forms of operations at the operational level—was addressed eight times. The topic recurring least often was actually Deep Battle, which is addressed mainly in one work, *Questions of Higher Command*.

In short, this group of works reveals a visionary officer who was emphatically committed to a Jekyll-like conceptualization of the operational art as a function of three levels of warfare in that he saw the concepts for what they were, independent of broader motives. However, this understanding of operational art was cloaked in a Hyde-like framework of political ideology and worldwide revolution. Nevertheless, whether Jekyll or Hyde was a theoretician, in the final analysis Tukhachevsky possessed an uncanny comprehensive understanding of the operational level of warfare and its interrelationship with strategy and tactics. In the foreword to *New Problems in Warfare*, he wrote:

Very possibly it will appear to many readers that I am outrunning events in this book but that would only be an illusion. Man does not easily shake off habitual notion, but a theoretical study based on technical development and socialist construction suggests an urgent need for new form.³⁰

His ideas about new forms of warfare affected his own military in the interwar years, Soviet operations on the Eastern Front versus the Germans, and the development of operational thinking for the remainder of the 20th century.

What follows is a synopsis of the major ideas that emerge from a holistic examination

of Tukhachevsky's works, revealing commonalities at each level of warfare at the tactical, strategic and operational levels respectively. It will focus on the predominate issues he addressed at each level of warfare, with some select examples of the concepts from his writings to reinforce the ideas. However, in the interest of space, this section will provide only select references to the writings that best convey the main ideas of the topics while bearing in mind how pervasive and consistent Tukhachevsky was in addressing each of these issues in his writings. He went well beyond Deep Battle.

Levels of Warfare

Tactical: It is understood that officers must demonstrate a command of tactics if they are going to have successful careers above the company-grade level. Tukhachevsky was no exception to this rule serving militarily from the battalion to the front level. He demonstrated excellence in the basics of the military during his cadet training and initial service in the Tsar's Army and, as has been addressed, he obviously made a very strong initial showing in the Soviet military. Even without any formal military training above secondary school, he was quickly elevated in the Red Army to the highest tactical, operational and even strategic levels of command. His consistent competence in the field made him an officer of choice in a vast array of assignments in combat and administration. He also conveyed his experiences in writings that reveal the ease with which he transitioned to his tactical discussions from the machine gun position to corps command. There was seemingly no end to the depth and breadth of tactical issues he addressed, including his prevalent focus on the specifics related to the synchronization and integration of armor, aviation, reconnaissance, motorization, airborne units, chemicals, command and control and rear operations. More manageably these topics can be grouped into four key areas: the role of emerging technology, the execution of combined-arms operations, the importance of command and control and the role of the individual soldier in warfare.

Tukhachevsky's writings reveal that he was well aware of the many significant technological advances with which militaries were dealing during the interwar years. Some contend that there was virtually a revolution in military affairs during this time. The interwar period was generally marked by an international revulsion to things martial obviated by nine million casualties, the idea that World War I had been the "war to end all wars," and events such as the International Conference on Naval Limitation (1921–22)³¹ and the Kellogg-Briand Pact of 1928.³² Nevertheless, militaries and leaders of major nations continued to wrestle with the potential for future conflict, with many debates centering on the impact of technological advances such as armored warfare, airpower, the aircraft carrier and massed artillery. Some military theorists have been exonerated for their commitment to a single aspect of these technological changes. Examples might be J. F. C. Fuller on armor or Giulio Douhet on strategic bombing. Nevertheless, few thought like Tukhachevsky about the broader integration of all of these assets. He demonstrated

a more comprehensive and generalist form of thinking that engaged many emerging aspects of modern warfare during the interwar period. An example of such openness to technological innovation is found in his words from *New Problems in Warfare*:

The achievements in modern technology, which include automatic stabilization of aircraft aloft, open new possibilities in conducting large-scale air operations even in adverse weather conditions. The combination of automatic stabilizers, television and the utilization of infrared equipment will soon permit conducting complex operations, regardless of fog or cloud cover. Investigations by all modern armies in this area continue most intensively.³³

From a tactical standpoint with a view toward operations, Tukhachevsky's views also addressed the roles of many other technological advances in armor, aviation, massed artillery and motorization.

Just understanding technological innovations was adequate challenge for many military thinkers during the interwar period. Even more challenging were the tactical conceptualization and practical marshalling and integrating of such assets into an orchestrated execution of fire and maneuver to bring about decisive effects on the battlefield, better known as combined-arms warfare. Here also Tukhachevsky showed himself quite adept. In seven of 12 works, his writings reveal that he clearly possessed a thorough understanding of the integration of assets in the combined-arms fight as his writings progressed well beyond mere technology to address issues such as chemicals on the battlefield, antitank systems, air defense, artillery, reconnaissance, the role of the infantry and even rear-area operations. In particular, his *War as a Problem of Armed Struggle*, *Preface to Fuller's Reformation of War* and *New Questions of War* convey some of the most broad and comprehensible explanations of the dynamics of the tactical battlefield that one might ever read.

Besides displaying his understanding of what each of these assets brought to the fight individually, Tukhachevsky was also very cognizant of how they needed to work together on the battlefield and the impact each of them could have in the conduct of the combined-arms fight. He asserted that such an understanding was paramount:

If failure to solve artillery problems fully was the cause of some nasty shocks on the fronts of almost all the countries involved in the First World War, failure to appreciate fully the possibilities in the field of military aircraft, tanks, chemical warfare, radio communication and the like may be the cause of still nastier shocks and setbacks in a future war.³⁴

Any master of combined-arms warfare knows that the most central issue related to the combined arms fight is not understanding technology and the integration of assets conceptually, but rather the successful orchestration of the technology and assets through command and control. Few thinkers wrote about this or understood it as comprehensively as Tukhachevsky, who addressed this topic in six of the 12 works, one of which bore

the title *The Development of Forms of Command and Control* (1934). Without question due to his extensive practical experience, he knew firsthand the importance of this vital ingredient to tactical success.

Finally, what really singles out Tukhachevsky at the tactical level has to be his ability to engage the human element of warfare as a function of leaders, staffs and mission type orders. It takes an exceptional military officer to conduct combined-arms operations well, and while it can be done without a large staff, having such a staff makes its complexity that much more manageable. Tukhachevsky addresses each of these points in seven of the 12 texts. The 1936 *Field Service Regulations* has an exemplary section conveying this idea:

The best results will be achieved in battle when all commanders, from the highest to the lowest, are trained in the spirit of bold initiative. *Personal initiative is of decisive importance* [emphasis in the original]. Proper control on the part of the senior commander involves: a clear and succinct manner of setting forth missions; the proper selection of the direction of attack and the timely concentration of sufficiently strong forces for the purpose; provision for proper cooperation of units and for the greatest possible utilization of personal initiative; support and exploitation of success at any particular point of the front.³⁵

He then goes on to address the role of the staff by asserting,

The commander exercises control over his unit through his staff. The proper organization of staff functions and collaboration on the part of the commander with his chief of staff are of especial importance in the control of forces in battle.³⁶

For the tactical to be integrated with the operational requires that leaders and staffs be synchronized conceptually through an understanding of the place of mission type orders emphasizing initiative in lieu of overly centralized control precluding decisive action on fluid battlefields.

Despite his understanding about how to marshal and orchestrate assets at the tactical level, he never lost sight of the importance of the soldier in the conduct of warfare. He knew first hand that, most important, warfare fundamentally comes down to the individual soldier. He clearly thought that in warfare, every soldier counts and every soldier must have a proper mindset for engaging the enemy in the necessary way to bring about success on the battlefield. Soldiers were the glue that held all the other pieces together. Without them and their spirit for fighting, one has a sense that all would be for naught. In *Battle and the Operation*, he wrote:

The spiritual strength of the Red Army is a very powerful weapon in organizing a modern battle. The complexity, high degree of mechanization, and intensity of the action demand the highest degree of initiative and the manifestation of heroism on the part of individual troopers and the smallest units. Unless these

elements prevail even the most carefully prepared attack can fail. The same holds true for the defense.³⁷

Whether or not he had ever read it, Tukhachevsky clearly understood the Napoleonic principle of “The moral is to the physical as three is to one,” in that the soldier’s moral mindset is paramount in the context of technological assets.

Tactically, Tukhachevsky surely demonstrated a mastery of the practical application and the conceptual understanding of the integration of all of the key ingredients for success on the battlefield. He clearly understood the emerging roles of the tank, the plane and massed artillery. He also clearly understood the marshalling and integrating of battle operating systems in the conduct of the combined-arms fight and the criticality of command and control as a function of leaders and staffs that actually make the fight take place successfully. Finally, while he understood all of these larger pieces of the tactical fight, he never took his eye off the most crucial ingredient for tactical victory—the role of the fighting soldier.

Strategic: While many officers build a tremendous reputation through demonstrating tactical prowess on the field of battle, those who are exceptional embrace the strategic issues that relate to the tactics. More than tactically proficient officers, effectively functioning militaries need those who can engage, understand, embrace and affect the complexity of strategic issues. While tactics win battles, strategy wins wars. Engaging strategic issues came easily for Tukhachevsky, who in many of his writings addressed several key strategic issues, demonstrating his rare and sophisticated understanding of the important interrelationship between the strategic and tactical levels of warfare. Such issues include the importance of the political-ideological work; the role of the economy in the development of a military; forms of warfare such as revolutionary, coalition and civil war; the mediums of ground, sea and air; and the future of warfare.

Paramount in his strategic understanding of warfare was the ideological framework in which soldiers and nations would fight. While at the tactical level he clearly emphasized the individual soldier and his place in the combined arms fight, he saw the implications of the mass of a nation’s soldiers making up the greater whole of Revolutionary Spirit in the progression of world revolution. As such, he saw political-ideological work as being essential to the development of proper mindsets for the progression of warfare against the capitalist enemies of the Soviet Union. Few military writers and thinkers, regardless of their background, have written on this topic. Its presence in Tukhachevsky’s writings is one of the most telling aspects of the strategic breadth of his thinking.

His tactical mastery lay within an intellectual framework of strategic brilliance, as he understood that the impact of a nation’s comprehensive strategic ideological thinking is ultimately critical if not indispensable to truly exploiting military success at the operational and tactical levels. This topic permeates his writing more than any others at the strategic level and can be found in seven of the 12 works, from *National and Class*

Strategy (1920) through *Field Service Regulations* (1936), which has an entire chapter entitled “Political Work to Insure the Combat Efficiency of the Troops.”³⁸ Tukhachevsky expressed the main intent of political work:

Political work toward insuring the combat efficiency of troops is carried on with a view to enhancing the proficiency of the workers’ and peasants’ Red Army, firmly attaching all members of the army to the party of Lenin and Stalin and the Government of the Union of Soviet Socialist Republics.³⁹

Tukhachevsky also understood the economic implications of building a military: “The cause of war is economic. Capitalist countries wage war to acquire markets or natural resources.”⁴⁰ No set of ideas or conceptual mastery of the conduct of warfare is of any value without the actual hardware to bring ideas and concepts to real engagement on the battlefield. His writings reveal his understanding of this essential element of national power in the creation of a military that could compete on the stage of industrial warfare with rival capitalist nations. He mentions the role of the economy (in five of the 12 works) almost as much as he does the role of political work. Modern industrial warfare required modern industrial militaries, which meant massive resources over time. His understanding of this aspect of warfare made his role as head of arms production key in the 1930s. That he was so admired for his work by the members of other nations reveals his conceptual and practical understanding.

Not only did he know how to build a military, but he also knew how to use it in different types of wars, which he consistently addressed in the categories of revolutionary, coalition and civil warfare. He fought in the Civil War, saw the implications of revolutionary war within the worldwide Communist Revolution context, and saw the implications of coalitions in the conduct of modern warfare. Finally, he saw the future of warfare as being characterized by major wars versus the “small wars,” which Fuller espoused in his writings. Some mention of each of these forms of warfare was found in six of the 12 works, most of which mentioned at least two forms of war.

Finally, Tukhachevsky’s writings reveal another aspect of his strategic insight in his discussion of the various mediums of warfare: ground, sea and air. Unlike most military thinkers and writers, Tukhachevsky engaged all three mediums in his writing. His understanding of the interconnectedness of these mediums shows his breadth of thinking as it relates to warfare in general and the Soviet military specifically. He had a vision for the conduct of the army, aircraft and navy of his military both operationally and in terms of constructing the force he thought his military actually needed. In fact, the focus point of mediums is found in at least six of the 12 works. His discussion of all mediums shows his sophisticated view of the military, but his discussion of the use of aircraft in the conduct of warfare is particularly telling.

He addressed the use of air from tactical, operational and strategic vantage points. Most militaries in the interwar years tended to focus on one level at the expense of the

others, e.g., Heinz Guderian, who thought of the air more tactically, and Douhet, who thought of it more strategically. Tukhachevsky envisioned aviation as an asset that needed to be developed in a way that would realize its capabilities at each level of warfare. He saw close air support as being critical to the combined-arms fight, but he also saw the integration of the airborne into the tactical and operational fight. In addition, he prepared for the strategic fight with bombers designed to achieve the distance and impact about which Douhet had written. While he addressed the use of air in many ways, *Field Service Regulations* (1936) displays a great description of its use in chapter V, “Principles of Control in Battle.”⁴¹ The works of Tukhachevsky reveal him as a strategic theorist who recognized the impact of the various mediums of ground, sea and air and the potential they could bring to the fight when properly integrated on the battlefield. That Tukhachevsky saw the importance of this integration and was able to articulate it as early as the 1920s suggests his keen prescience.

In a broader sense, such a strategic understanding of warfare with regard to ideology, economy, types of warfare and mediums mark Tukhachevsky as exceptional when compared to almost any theoretician during the interwar period if not throughout the history of warfare. He knew warfare at the tactical level and he knew how those tactics were related to key strategic issues. He clearly understood and engaged the elements of national power and understood the implications of putting them together to build a practical system to manifest the concepts to which he was committed. However, he also understood the operational level as the bridge between the strategic and the tactical levels of warfare. Moreover, it was perhaps at this level that he would have some of his greatest impact on the future of Soviet operations in World War II and the operational consciousness of modern warfare militaries, particularly that of the United States.

Operational: Compared to many of history’s military leaders and theorists, Tukhachevsky’s breadth of ideas and depth of details about merely the tactical and strategic levels of war certainly make him at least respectable. However, it is his understanding of the operational level as the interconnection between strategy and tactics that distinguishes him from all others. His ability to understand, conceptualize and preclude the implications of the friction between the tactical and strategic levels of warfare through operations conducted by modern industrial militaries resulted in his development of an operational approach to warfare that would have far-reaching impact for his military and for the conduct of conventional warfare in the 20th century. Those areas of his writing, which were consistently focused specifically on the operational level of warfare, addressed numerous key concepts. Some of the most prevalent were the interaction between the offense and the defense; forms of operations; combat in various terrains and security; the role of planning in operations; and the place of deep and destructive operations on the battlefield.

Tukhachevsky well understood the interaction between the offense and the defense. Many of his writings address this idea specifically and in quite some detail. He understood

that there was a place for both forms of operations, but that ultimately the offense must be preeminent. Seven of 12 sources address the interaction between the offense and the defense, and eight of 12 mention the forms of battle themselves, such as the encirclement, the turning movement, the penetration, follow-on operations, double envelopment and deep attacks via air and airborne assault. And he conveyed these forms of operations with respect to various types of terrain such as mountains, desert and forest, along with the importance of security for units. In some ways, Tukhachevsky's description of the various forms of terrain mirrors works such Frederick the Great's *Instructions to His Generals* and Jomini's *Summary Art of War* in that they too saw the importance of preparing units to face various forms of terrain, understanding that it has a critical impact on any type of operation which one conducts. In addition, Tukhachevsky's focus on the issue of security for units is quite telling; he understood that with an increasingly distributed battlefield, the security of the force became a most significant issue in any conduct of warfare. His understanding of these issues is further evidence of the overall breadth of his operational understanding.

He also saw the importance of planning in operations. Although his very cursory and sanguine order for the attack on Warsaw, found in Norman Davies' *White Eagle, Red Star*,⁴² suggests very little in the way of planning in comparison to modern western military doctrine, his writings do address the issue of war plans or planning specifically in almost half of the 12 works examined. He saw a place for planning at all levels, as suggested in *Questions of Higher Command* under the subtitle "Fundamentals of Planning:"

To win the day in a maneuver operation one has to envisage the subsequent development of the action. This appreciation then provides the basis on which the operation is planned. In planning the destruction of the enemy army, there is not need to attack it over the whole front.⁴³

Furthermore, he saw how planning needed to be integrated through all the levels: "One must not count on the heroism of one's troops. The strategy must ensure that the tactical task is a readily feasible one."⁴⁴

Other topics worth addressing are the role of the deep battle and the place of the destructive operation. As has been mentioned, while many attribute the idea of Deep Battle to Tukhachevsky, few of his writings addressed this type of battle specifically. Jonathan M. House conveys the main ideas of this battle in detailing three elements of the battlefield: the penetration element, the exploiting element and the descant or airborne element. In his understanding,

The object was to attack the entire depth of the enemy defenses simultaneously, with conventional frontal attacks, long range artillery fires, deep penetrations by mobile forces, and bombing and parachute attacks of key points. Smoke and deception operations would distract the enemy from the attacker's real intentions.⁴⁵

While House describes the battle in such a way, the 1936 *Field Service Regulations* does not depict it as cleanly. Naveh does the same thing in his description of Deep Battle with a focus on concepts such as the synchronization, momentum and dislocation of the enemy leading to his ultimate destruction, but his lucid description belies Tukhachevsky's discourse. While the concept of Deep Battle is not that clearly laid out in Tukhachevsky's writings, without question he was an adherent of using all available assets throughout the depth of the battlefield in three dimensions. If there is any portion of these writings that gets at a clear depiction of this form of battle, it is in *New Questions of War*, which describes the use of tanks in a deep battle:

The setting up of a deep battle—that is the simultaneous disruption of the enemy's tactical layout over its entire depth—requires two things of tanks. On the one hand they must help the infantry forward and accompany it; on the other they must penetrate into the enemy's rear, both to disorganize him and to isolate his main forces from the reserves at his disposal. This deep penetration by tanks must create in the enemy's rear an obstacle for him onto which he must be forced back and on which his main forces must be destroyed. At this same time this breakthrough must destroy the enemy's artillery, cut his communications and capture his headquarters.⁴⁶

Aside from this, while his writings address many portions of what is known as "Deep Battle," Tukhachevsky's writings are devoid of any other major comprehensive exposition on this form of battle as a cohesive concept.

Because the battlefield in modern warfare had become so distributed, Tukhachevsky realized that decisive destruction of the enemy in one battle had become a phenomenon of past warfare; it was now more a function of a series of battles aimed at the eventual defeat of the enemy. Recognizing this, the destruction of the enemy via operations or campaigns in a "series of battles" became the means to the desired end.

One of Tukhachevsky's first theoretical works—*The Battle of the Bugs* (1920)—contains the words,

An operation consists of the organized struggle of each of the armies to achieve the complete destruction of the opponent's vital material strength. The operational aim cannot be the destruction of some imaginary, abstract nervous system of the army; it must be the destruction of the organism itself—of the forces, and of an army's real nervous system, its communications.⁴⁷

This is an idea that started with him at the Civil War and continued until he compiled his final work—*Field Service Regulations* (1936)—before his premature death. He built upon this destructive battle theory in ways that went well beyond the operational level of war. He built on it tactically, strategically and operationally, and it was the destructive operation by means of concepts relating to all levels of warfare upon which he was ultimately focused.

Most historians seemed to have focused on attributing to Tukhachevsky a comprehensive and somewhat presumptuous simplification of a Deep Battle concept, but his writings do not bear this out. He did much more than convey an operational idea of Deep Battle; he understood the broader and interrelated important issues of the modern battlefield that led to destruction of the enemy as a function of all possible assets through the three dimensions of the battlefield on all three levels of warfare. In bringing these aspects of the battlefield together, one could solve the seemingly unsolvable stagnation of World War I and restore to the battlefield the decisive destruction that seemed to have become unattainable, as evidenced in trench warfare. This decisive destruction had now become relative not to one battle but to a series of battles that ultimately led to final destruction. This approach to warfare, not been practiced to this point in history, is the kind of warfare that would ultimately bring the Soviet Union success against the Germans in World War II and would affect modern western militaries in the 20th century.

In sum, Tukhachevsky's theoretical understanding of the various levels of warfare and their integration on the battlefield distinguish him as one of the most exceptional military thinkers of the interwar period if not in the history of warfare. From a tactical perspective, he had an excellent command of combined-arms warfare with an approach that discounted a "silver bullet" mentality (a one-size-fits-all wonder solution to the future of warfare such as the Fuller tank-centric or the French infantry-centric views of the interwar period). Instead, he focused on the integration of all tactical assets at his disposal to bring about maximum effectiveness on the battlefield. From the strategic perspective, he well understood the importance of the elements of national power, diplomacy, information, military and economy. In addition, he was particularly adept at addressing the interaction among the mediums of ground, air and sea. He avoided the pitfalls of a Mahan focus on the navy or a Douhet focus on strategic bombing, which emphasized one medium at the expense of the others. Most important, he knew how to put these levels of war into operational execution. Achieving operational decisive, destructive results had become a function of bridging the gap between the strategic integration of the mediums—ground, air and sea—and tactical combined-arms warfare.

Conclusion

While many considered World War I to be the "war to end all wars," it was not. Many military leaders during the interwar period—Tukhachevsky included—were mindful that war was not outdated. He is difficult to characterize when one considers his life personally, as a practitioner of war and as a theoretician within a turbulent national and international context of military affairs. As he served, wrote and lectured, the Soviet Union was undergoing some of the most significant internal governmental and military changes of its history while internationally warfare was changing so greatly that some have contended there was a veritable revolution in military affairs.⁴⁸

While many chose to ignore the realities of war, men like Tukhachevsky, due to their commitment to the practical and theoretical conduct of warfare, have had great impact on the future of nations and the world. And despite the complexity of his life and times and his mix of Jekyll and Hyde in one cooperative consciousness, Tukhachevsky rose above personal hardship, practiced warfare and theorized through writing his ideas about changes in warfare and their implications in a most prescient way.

Although Tukhachevsky was purged and most of his records were destroyed, after the humiliation of Finland and subsequent Soviet military reforms Stalin reinstated several Tukhachevsky-like operationally-minded officers, such as Zhukov. As the Soviets put Tukhachevsky's operational concepts into practice, they experienced marked changes in their performance in the remainder of World War II. In the aftermath of Korea, Vietnam, Desert Storm and the Global War on Terrorism, warfare is still very much a part of the human experience.

Notably, many of the same operational concepts espoused by Tukhachevsky in his *Field Service Regulations* (1936) are today foundational ideas in U.S. military doctrine that was formulated in the 1970s and 1980s in Airland Battle. These concepts have been and remain central to the doctrinal conduct of modern warfare from a U.S. and western military vantage point. For the past two decades such doctrine has served as a touchstone for the development of much of the conventional modern western military thinking at the operational level of warfare.

Considering the writings of the leading military thinkers of other contemporary militaries of the world during the interwar period, few come close to Tukhachevsky in depth and breadth of applicable concepts from the tactical to strategic levels. In fact, a comparison of his comprehensive and accurate concepts of warfare with those of any collection of classical military practitioners or theorists suggests that he merits a place in the hall of fame of practice and theory of military operations in history. Such classical thinkers could easily include Sun Tzu, Frederick the Great, Napoleon, Antoine-Henri Jomini, Carl von Clausewitz, Giulio Douhet, British General J. F. C. Fuller, Liddell Hart, Alfred Thayer Mahan, Julian Corbett and Mao Tse-Tung.

As Sun Tzu wrote in *The Art of War*, “the general who understands war is the Minister of the people's fate and the arbiter of the nation's destiny.”⁴⁹ Tukhachevsky was this kind of general—personally, in practice and in the development of military theory. His overall performance and efforts merit him significant recognition for his contribution to the understanding, conceptualization and vision of Soviet warfare and to all levels of modern warfare in the 20th century. With further study, historians of future generations may one day view his impact on modern warfare as being unparalleled by any other officer in the 20th century.

Endnotes

- ¹ Shimon Naveh, "Mikhail Nikolayevich Tukhachevsky," in *Stalin's Generals*, ed. Harold Shukman (London: Weidenfeld and Nicolson, 1993), p. 257.
- ² *Ibid.*, p. 257.
- ³ Richard Simpkin, *Deep Battle: The Brain Child of Marshal Tukhachevskii* (London: Brassey's Defence Publisher, 1987), p. 12.
- ⁴ *Ibid.*
- ⁵ *Ibid.*
- ⁶ Army Field Manual (FM) 3-0, *Operations*, June 2001, p. 2-3. This manual changed to FM 3-0 from FM 100-5 due to the attempt to link Joint Publications and Army Publications in terms of their numerical naming convention.
- ⁷ Robert Cowley and Geoffrey Parker, eds., *The Reader's Companion to Military History* (Boston: Houghton Mifflin, 1996), p. 481.
- ⁸ Naveh, "Mikhail Nikolayevich Tukhachevsky," in *Stalin's Generals*, p. 258; and Simpkin, *Deep Battle*, p. 3. This summary of Tukhachevsky's personal and professional life is predominately taken from two main sources, quite similar in their content, covering the specifics of his early development and professional progression. At points I have amalgamated the information of the sources, but I have provided at least one source for all information pertaining to his background for further study. It might be of interest to the reader to note that while Simpkin portrays him as a complex man who had a profound impact, Naveh seems to suggest that he was a victim of circumstances.
- ⁹ *Ibid.*
- ¹⁰ Simpkin, *Deep Battle*, p. 3.
- ¹¹ *Ibid.*, pp. 4–5.
- ¹² Debate still exists on which one it was. See Simpkin, *Deep Battle*, pp. 5–6, and Cowley and Parker, *The Reader's Companion to Military History*, p. 481.
- ¹³ Simpkin, *Deep Battle*, pp. 5–6.
- ¹⁴ Naveh, "Mikhail Nikolayevich Tukhachevsky," in *Stalin's Generals*, p. 259; and Simpkin, *Deep Battle*, pp. 5–6.
- ¹⁵ Simpkin, *Deep Battle*, pp. 7–8.
- ¹⁶ *Ibid.*, pp. 6.
- ¹⁷ Cowley and Parker, *The Reader's Companion to Military History*, p. 481.
- ¹⁸ Simpkin, *Deep Battle*, pp. 5–6.
- ¹⁹ *Ibid.*, pp. 7–8.
- ²⁰ Naveh, "Mikhail Nikolayevich Tukhachevsky," in *Stalin's Generals*, p. 261.
- ²¹ Simpkin, *Deep Battle*, pp. 7–8.
- ²² Naveh, "Mikhail Nikolayevich Tukhachevsky," in *Stalin's Generals*, p. 262.
- ²³ Simpkin, *Deep Battle*, pp. 8–9.
- ²⁴ Naveh, "Mikhail Nikolayevich Tukhachevsky," in *Stalin's Generals*, p. 263.
- ²⁵ *Ibid.*
- ²⁶ *Ibid.*

- ²⁷ Cowley and Parker, *The Reader's Companion to Military History*, p. 481.
- ²⁸ Naveh, "Mikhail Nikolayevich Tukhachevsky," in *Stalin's Generals*, p. 263.
- ²⁹ Cowley and Parker, *The Reader's Companion to Military History*, p. 481.
- ³⁰ Mikhail Tukhachevsky, *New Problems in Warfare from the Art of War Colloquium* (Fort Leavenworth, Kans.: SAMS Reprint, Command and General Staff College, 1983), p. 1.
- ³¹ <http://www.britannica.com/elections/micro/631/85.html>.
- ³² <http://www.yale.edu/lawweb/avalon/imt/kbpact.htm>.
- ³³ Mikhail Tukhachevsky, *New Problems in Warfare from the Art of War Colloquium* (Fort Leavenworth, Kans.: SAMS Reprint, Command and General Staff College, 1983), p. 22.
- ³⁴ Mikhail Tukhachevsky, *New Questions of War*, in Simpkin, *Deep Battle*, p. 136.
- ³⁵ *Field Service Regulations (1936)*, Trans by SSG Charles Borman (Carlisle Barracks, Pa.: U.S. Army Military History Institute, 1937), p. 42.
- ³⁶ *Ibid.*
- ³⁷ Mikhail Tukhachevsky, *Battle and the Operation*, in *New Problems in Warfare from the Art of War Colloquium*, p. 65.
- ³⁸ See Mikhail Tukhachevsky, *National and Class Strategy in New Problems in Warfare from the Art of War Colloquium; Problems in Contemporary Strategy, Tactics and Strategy; War as a Problem of Armed Struggle; Battle and the Operation; Development of Weapons and Forms of Battle; and the Field Service Regulations (1936)* (chapter IV).
- ³⁹ *Field Service Regulations (1936)*, p. 33.
- ⁴⁰ Tukhachevsky, "National and Class Strategy," in *New Problems in Warfare from the Art of War Colloquium*, p. 32.
- ⁴¹ *Field Service Regulations (1936)*, pp. 39–42.
- ⁴² Norman Davies, *White Eagle, Red Star: The Polish-Soviet War, 1919–20* (London: Orbis Books, 1983).
- ⁴³ Mikhail Tukhachevsky, *Questions of Higher Command*, in Simpkin, *Deep Battle*, p. 89.
- ⁴⁴ *Ibid.*
- ⁴⁵ Jonathan M. House, *Toward Combined Arms Warfare: A Survey of 20th Century Tactics, Doctrine, and Organization* (Fort Leavenworth, Kans.: U.S. Army Command and General Staff College, 1984), pp. 65–66.
- ⁴⁶ Tukhachevsky, *Questions of Higher Command*, in Simpkin, *Deep Battle*, p. 141.
- ⁴⁷ Tukhachevsky, *Battle of the Bugs*, in Simpkin, *Deep Battle*, p. 87.
- ⁴⁸ Williamson Murray and MacGregor Knox, eds., *The Dynamics of Military Revolution 1300–2050*, (Cambridge: Cambridge University Press, 2001) contains a number of articles that address this point. In particular, Major General J. B. A. Bailey (British Army) argues in "The First World War and the Birth of Modern Warfare" that World War I was in itself a Revolution in Military Affairs due mainly to the transition to the third dimension of warfare as a function of massed artillery, the airplane and the tank, particularly the first of these.
- ⁴⁹ Sun Tzu, *The Art of War*, translated by Samuel B. Griffith (New York: Oxford University Press, 1963), p. 76.