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ANNIHILATION, ATTRITION, AND THE SHORT WAR

by

EARL F. ZIEMKE

The 20th-century theory of war is a product of the study of past wars. In 1911, Friedrich von Bernhardi wrote, "Every precept of the military art rests on two pillars: on the knowledge of the past and on speculation as to the probable evolution of all circumstances bearing on war."¹ To his students at the Ecole de Guerre, Ferdinand Foch cited Napoleon's aphorism "Knowledge of the higher parts of war can only be acquired from experience and from studying the history of the wars of the great commanders," and he cautioned them that first-hand experience was likely to come dear since a war could be half lost while that experience was being acquired.² Von Bernhardi and Foch were merely repeating what was already accepted in their circles as a universal truth established by Carl von Clausewitz in his summa, *On War*.³ Clausewitz had said, "Historical examples clarify everything and also provide the best kind of proof in the historical sciences. This is particularly true of the art of war."⁴

Von Bernhardi laid at least half the weight of military art on speculation, and Clausewitz characterized war as at best a gamble, but nations had been led to expect better than they got in World War I. After the war, the science or even the art of war would not soon again command the respect accorded before 1914. As H. M. Tomlinson put it, "The whole library of military science and history was as obsolete by the end of November 1914 as the runes of witchcraft."⁵ Nevertheless, the practitioners and theorists of war, including those who most deplored the World War I state of the art, continued to

take the past as their most reliable guide. B. H. Liddell Hart saw a gradual and continuing evolution in military history and a persistent failure to apply the real lessons of one war to the next.⁶ J. F. C. Fuller maintained, "The surest and most certain foundation to the answers [of questions pertaining to the next war] is not to speculate on future possibilities but to examine the past and to discover the tendencies of military evolution."⁷ True to these teachings, in the inter-war period all armies worked to assimilate the lessons of the last war as they perceived them.

World War II did not, on the whole, deal as harshly with the military theorists as World War I had, but it brought their frame of reference to ruin. After August 1945, the past seemed hardly worth bothering about except for the sake of the historical record. Fuller relegated the whole of warfare as it had been known to "the dustbin of obsolete things," there to join "witchcraft, cannibalism, and other outgrown social institutions."⁸ The theory of war seemed no more lasting than a mushroom cloud.

In Western thinking on the future of war, 1945 has remained "year zero." The same apparently cannot quite be said of Soviet thought. In 1975, the Soviet Minister of Defense, Marshal A. A. Grechko, admonished his establishment, "One must not picture the matter in such a way that the new historical period crosses out everything in the past in the field of military practice and military thinking and that we now have to resolve everything from a clean slate." Conceding that "the [nuclear] revolution in

military affairs primarily requires a forward movement," he asked for "past experience" to be given "a place which is proportionate to its significance."⁹ Marshal Grechko having supplied a context, it may after all not be an exercise in futility to go over the path of von Bernhardt, Foch, Fuller, and others and to speculate as to where it might yet be leading.

THE ERA OF CERTAINTY

At the turn of the century, everyone who counted in military affairs knew the purpose of modern war. It was to destroy the enemy's armed forces, to put them "in such a condition that they can no longer carry on the fight."¹⁰ Logically, then, a future war could only take one form, the "war of annihilation." In the words of Clausewitz, "Of all the possible aims in war, the destruction of the enemy's armed forces always appears as the highest."¹¹ And the destruction of the enemy's forces could only be accomplished by seeking battle. "Everything," Clausewitz had said, "is governed by a supreme law, the decision by force of arms."¹² This meant to attack, "to seek out the enemy's armies—the center of the adversary's power," as Foch put it, "in order to beat and destroy them."¹³ Von Bernhardt identified an "absolute requirement that all strategic dispositions be directed toward producing the most favorable possible conditions for the decisive battle as their sole purpose."¹⁴

Everybody also knew how the next war would be fought. The lessons of the past were clear: one needed only to look at the Franco-Prussian War of 1870. The Prussian victory had brought a revelation, namely, that mobilization and deployment were likely to decide the issue before the first battle was fought. The war also had disclosed a significant, possibly decisive advantage in sheer numbers, even though that entailed using forces predominantly composed of conscripts and half-trained reservists. Mobilizing mass armies and committing them in the first battle required planning for a short war for practical and for moral reasons. Governments could not contemplate carrying the costs of a prolonged mass conflict, and

since everything hinged on the first battle, to look beyond it smacked of defeatism.¹⁵

On the question of strategy the Germans and French parted company, though perhaps not as much as has been assumed, since both believed firmly in the necessity for a single, simple, and, above all, expeditious answer. For the French it was the *offensive a outrance*, embodied in Plan XVII, in which one's own forces, resolutely led and fired to win, could meet the enemy head-on and defeat him.¹⁶ Foch insisted, "No strategy can henceforth prevail over that which aims at ensuring tactical results, victory by fighting."¹⁷ On how the tactical results were to be ensured, Jean L. A. Colin, Foch's successor as commandant of the Ecole de Guerre, resorted to a free interpretation of Clausewitz: "He wants men to march straight on the enemy's principal army, so as to have the decisive battle as soon as possible."¹⁸ After examining various alternatives, von Bernhardt gave preference to the flank attack.¹⁹ More significantly, the long-time Chief of the German General Staff, Count Alfred von Schlieffen, had concluded that "the attack against the flank is the substance of the whole history of war."²⁰ His plan for a war against France committed the nation to seeking a decision by a single great flank attack and envelopment. In the so-called "Great Memorandum," passed on to his successor at the end of December 1905, von Schlieffen reduced the next war to one sentence: "If possible, the German Army will win its battle by an envelopment of the right wing."²¹ The French and Germans were

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aware that conception was easier than execution. The Germans believed that they could cut the risks to an insignificant minimum, the French that they could eliminate the risks by not thinking about them.

German historian Hans Delbrück interposed one discordant note: he claimed to have discovered in his study of wars and of Clausewitz what he called a "strategy of attrition," which could mean that the outcome of a war might be determined not by battle alone but by battle and other things.²² Von Bernhardt, the most vociferous of Delbrück's many critics on this point, maintained that if Clausewitz had said what Delbrück claimed he had about the strategy of attrition, it would be "necessary to refute him on the basis of sound military practice."²³ Nevertheless, von Bernhardt conceded that if the first battle did not produce a decision and the enemy retreated into his own territory, the forces would eventually come into balance, and a war of attrition might ensue. "Naturally," he added, a specific remedy for such an eventuality need not be devised beforehand; but, for certain, one would have to operate offensively "and seize the initiative over and over." In the worst instance, the nation would have to be determined "to give its last drop of blood, if only for the esteem of the flag and the honor of the people and state."²⁴

THE ERA OF DOUBT

The French *offensive à outrance* was crushed within a week in Lorraine and expired on the French side of the border on 25 August 1914. In the hands of the younger Helmuth von Moltke, von Schlieffen's scheme for a grand envelopment collapsed on the Marne River in the second week of September. On 11 November autumn rain drowned out the last of the futile outflanking maneuvers subsequently rationalized as "the race to the sea," and the war settled into the trenches. Four years later, to the day, the armies went home decimated and embittered, without having fought a decisive battle.

What was supposed to have been a breathtaking display of movement and speed

had been a long, bloody, suffocating war of attrition that came close to exacting the last drop of blood for flag and country. The reason seemed obvious: entrenched infantry armed with machine guns and repeating rifles and supported by fast-firing artillery had been able to make a complete hash of the most determined offensives. Also apparent, after the fact, was that those who had formulated theory and doctrine before 1914 had not just overlooked the great increase in the strength of the defensive but had seemingly gone out of their way to ignore it.

By the war's end, those revelations had been so fully and gruesomely documented that they overshadowed others of more fundamental consequence. The first of the latter was that the defensive effectiveness of weapons had comparatively little to do with terminating the mobile phase of the war. Faults in plans and errors of command played a larger part, but, when all was said and done, the great battles of annihilation both sides had expected never developed and probably would not have under any likely circumstances. The armies had not fought to a finish, merely to a standstill. Second, the standard opinion that the defensive power of infantry weapons kept both sides tied down once the trenches were dug obscured a deeper problem.²⁵ As V. W. Germains, one of the few to do so, pointed out, "The state of stalemate on the Western Front was due to the breakdown of *resources*, not of leadership, nor of military technique."²⁶ Consequently, because nobody had the wherewithal to attempt anything else, the war was one of attrition long before the weapon stalemate properly set in, which did not occur until 1916 at Verdun and on the Somme. Finally, as Germains also pointed out, the deadlock was not broken by a resurgent offensive capability but by the entry of the United States into the war, which enabled the British and French to outlast the Germans.²⁷

THE ERA OF HOPE

That attrition was the war's predominant feature from start to finish appeared less consequential than the form the war took in the bloody, indecisive battles of 1916 and

after. Those battles had taught the war's harshest lesson, one that could not be ignored. And they had given glimpses of another kind of war in which all that had been promised before 1914 and not delivered could be accomplished by armies on the move, their mobility and offensive strength restored by improved tactics, such as the German so-called "Hutier tactics," but primarily by two new weapons, the airplane and the tank. Air power had its advocates and its prophets, the chief of whom was Italian General Giulio Douhet, but the airplane would need a great deal of further development before it could live up to all the claims made for it, whereas the tank in its existing state could do most of what might be expected from it and needed only mechanical improvement.²⁸

In the spring of 1918, while the issue of the war was still very much in doubt, Colonel J. F. C. Fuller, then chief general staff officer of the British Tank Corps, submitted a paper he called "Plan 1919" (for the year in which it was to be executed). In it he proposed to smash the enemy's front and end the war in one swoop "by suddenly and without warning passing powerful tank forces . . . through his front" to attack and paralyze his command and supply system before infantry and more tanks hit his trenches.²⁹ After the armistice, from Plan 1919 and a double-barreled dubious assumption that the Germans "were not defeated by the genius of General Foch, but by General Tank," Fuller developed a theory of mechanized warfare.³⁰ In the mid-1920s, Liddell Hart took up Fuller's theory, expanded it, and publicized it. Together he and Fuller created a vision of wars in which fleets of tanks would fight in much the same way navies did. The infantry as such would practically disappear because "fast tanks and slow infantry do not mix." Foot soldiers would be used chiefly to man permanent fortresses that nations would build to protect their vital centers against roving tank armadas. The "New Model Armies" would be small, expertly professional, and organized almost exclusively for highly mobile armored

and air operations—and, presumably, the wars they fought would be short.³¹ The British Army tested Fuller and Liddell Hart's theory—inconclusively in its opinion—in the summers of 1927 and 1928 with an "Experimental Armoured Force," which was then disbanded.³²

In Germany in the late 1920s, the recently retired senior general of the Army, Hans von Seeckt, predicted that a relatively small, mobile, high-quality professional army making a sudden attack could decide a war before a mass army could be mobilized or brought into play to oppose it.³³ In those same years Major Charles de Gaulle was trying to rouse the French military and politicians for another war against Germany, and in 1934 he brought together in a book his ideas on an armored professional army of the kind Liddell Hart and Fuller were promoting.³⁴ Of the theorists, including Liddell Hart and Fuller, von Seeckt had the most visible effect. Concern over an *attaque brusquée*, a fast charge across the border of the kind von Seeckt talked about, impelled the French government to invest 7 billion francs in a deterrent, the Maginot Line.³⁵

After January 1933, when the next war was no longer being thought about only in hypothetical terms, the military commands were not prepared to bank on the innovative theories, although they were more or less influenced by them. Germany reinstated conscription in 1935, and von Seeckt's biographer was not long in asserting—correctly—that the general had always regarded the mobile force as a part of, not a substitute for, the mass army.³⁶ Between 1933 and January 1938, the active contingent of the Soviet Army was increased from 850,000 to 1.5 million, and the mobilization base was greatly expanded.³⁷ The French Army's 1937 "Instruction on the Tactical Employment of Major Units" stated that technical progress had not "appreciably modified" past doctrine and the infantry, therefore, was to be "entrusted with the principal duty in battle."³⁸ The French military establishment, of course, was notoriously unreceptive to new ideas; but all armies, including Germany's,

saw armor in one way or another as an adjunct to the "Queen of Battles," the infantry.³⁹

Both innovative and conservative opinion agreed with pre-1914 theory on one score: the strategy of annihilation would prevail. Colonel Hermann Foertsch, who published a guide to German General Staff doctrine in 1939, wrote, "In general, the aim of annihilation will predominate, for it alone leads to victories."⁴⁰ Liddell Hart condemned "the method of attrition" as "not only a confession of stupidity, but a waste of strength" and argued for "a decisive blow as early as possible against some vital point."⁴¹ Germans, who agreed with Liddell Hart on almost nothing else, regarded the early annihilation of the enemy's armed forces as the primary objective of war.⁴²

The conservatives, who predominated in all armies, were a good deal less certain than their pre-1914 counterparts and the innovators that attrition could be ruled out of the next war. They foresaw a long war in which the contenders would mobilize and employ every means they could and in which there would be no patent answers, strategic or tactical, nor a *deus ex machina* in the form of one weapon or another. All armies would undertake to conduct mobile operations and to reduce the effects of attrition on themselves. Those nations that could afford it would fortify their borders and construct defenses in depth in peacetime. When war came, the best first move would be to use one's mobile forces to break through the enemy's defenses and strike deep into his territory, which would ensure that the greater part of the destruction would fall on the enemy. Since no nation could afford to acquire all of the material it would need beforehand, the mobilization would be prolonged, the first stage of the war would be a contest for advantage rather than for a decision, and the war in its further course would be a series of campaigns to demolish successive defense lines.⁴³

In the early to mid-1930s, the Soviet Army, under Marshal M. N. Tukhachevskiy, was moving away from the militia system of the civil war and seeking an organizational

and doctrinal parity with the Western European and Japanese armies. Soviet accounts credit Tukhachevskiy, V. K. Triandafillov, and others with having developed highly original theories of "deep operations," "activeness," and "carrying the war to the enemy's territory."⁴⁴ These concepts appear actually to have conformed to (and quite likely were derived from) the views current in other armies at the time, particularly the German Army. Probably their most specifically Soviet feature was the attendant presumption that "the Workers and Peasants' Red Army will be the most offensive-minded of all the armies that have ever existed."⁴⁵

THE LESSONS OF WORLD WAR II

With no more than a tinge of irony, it can be said that World War II was as much a satisfactory war as its precursor had not been. Mobility was its dominant characteristic from start to finish; the stranglehold of the defensive was broken. Although it was vastly more expensive and destructive—and longer—than the first had been, it did not end in the same fog of bitterness and frustration. The armies, victorious and defeated alike, went home feeling that the war had been well fought, at least on the battlefield. Professional opinion agreed in general with German Field Marshal Erich von Manstein's judgment that land warfare had been "freed from the paralysis of the trenches and the inferno of the pure battle of materiel" and the conduct of military operations had once again been elevated to an art.⁴⁶

The war differed from World War I in another significant respect: it vindicated previously held theories, even some that had seemed to conflict with each other. In the first phase, tanks supported by motorized infantry and dive bombers expanded the *attaque brusquee* into the blitzkrieg that swept across Poland and France and deep into the Soviet Union. The war was almost a pure game of skill—fast, decisive, and as much psychologically as physically devastating. In late 1942 the patterns changed, and from then on buildups and breakthroughs on successive

lines predominated. The Germans tried for a stalemate but against their enemies' enormous superiorities in numbers and resources only managed to prolong their own agony.

Paradoxically, the restoration of maneuver to the battlefield, in its earlier as well as its later form, did not eliminate the problem that had been thought of as peculiar to trench warfare—attrition. In this regard, the Second World War, as much as the First, was not primarily an exercise in the art of war but in its arithmetic. In the arithmetical sense, the victory was not to be won but bought with blood and resources and as much art as could be mustered. In terms of the war's inner dynamics, that the Allies eventually paid the price is less significant than that Germany had already become incapable of doing so before Stalingrad and the invasion of North Africa; Germany was merely selling off the remains of a failed investment at the best price it could get after November 1942.

After the fall of France, the blitzkrieg wore itself out pursuing victory into North Africa, the Balkans, and the Soviet Union. It was buried at Stalingrad, but it died of exhaustion on the steppes of southern Russia during the great Soviet retreat in the summer of 1942.⁴⁷ Adolf Hitler confirmed its passing when he undertook to accept a World War I-style battle of materiel at Stalingrad, saying, "We cannot give that [Stalingrad] up under any circumstances. We will never get it back."⁴⁸

Although the campaign in the Soviet Union imposed the heaviest strain, it was merely the most serious symptom, not the cause, of the German predicament, which resulted from a fundamental inability to convert a succession of quick and relatively cheap battlefield successes into a favorable resolution of the war. Each offensive led to another without bringing victory closer. In the meantime, countries that had been easy to defeat became difficult to control; allies needed more help than they gave; the area to be defended and the theater of war expanded enormously; and German manpower and other military resources were stretched thin, while those of her enemies, the United States especially, expanded.

Yet after the war ended, the blitzkrieg, as a combination of surprise, maneuver, economy of effort, and speed, stood as the closest approach yet to the means of deciding wars on the battlefield sought by the theorists before both world wars. But by then, of course, the nuclear weapon had interposed itself, and henceforth all other forms of warfare passed under its shadow, which lengthened and deepened with the advent of the intercontinental ballistic missile. The United States and its allies in NATO subsequently adopted a policy of defense and deterrence and contemplated a variety of strategies which assigned greater or lesser but always subsidiary roles to conventional forces.⁴⁹

A SOVIET VIEW OF THE FUTURE

In 1960, the Soviet Union adopted as doctrine the proposition that "a world war . . . would undoubtedly take on the character of a nuclear missile war."⁵⁰ The first extensive exposition of this doctrine, *Military Strategy*, edited by Marshal V. D. Sokolovskiy, maintained that the nuclear aspect would predominate in the future and that conventional forces would be "much less important," chiefly serving to engage those of the enemy with whom they were in contact at the moment the war began.⁵¹ In effect, the nuclear short war would preempt all kinds of conventional operations. Although this doctrine remains in force today, the exegesis has become less stringent. The long-standing adherence to combined arms has been reaffirmed. As Marshal Grechko put it:

In spite of the colossal might of nuclear missiles, Soviet military science does not absolutize such weapons. It is also not inherent in Soviet military science . . . to give preference in modern warfare to some certain individual service of the armed forces . . . [A modern war] will include active and decisive operations by all services of the armed forces.⁵²

More recently, conventional warfare has been restored to a place of its own in Soviet

strategy, which now is said to assume that a world war could begin and be conducted "for a certain period" with conventional weapons and that a "war in a continental theater of operations" could be nonnuclear.⁵³ A war in a continental theater could presumably approach the scale of World War II.

Concurrently, blitzkrieg theory has been reappraised. In the Sokolovskiy work on strategy, it and related conventional short-war theories were dismissed as being effective only against an opponent with poor morale.⁵⁴ A more recent approach has been to draw a distinction between the blitzkrieg that Germany conducted against the Soviet Union—a "bankrupt" and "adventuristic" form of warfare—and its other applications.⁵⁵ The 1939 German campaign in Poland has been found to have "vital significance for the military art" in that it demonstrated the pervasive import of strategic surprise at the outset of a war. Together, the campaigns before June 1941 are said to show that the initial period of a war plays a determinative role in its further conduct and its outcome, and that "the larger the means, the greater the effect" will be in the initial period.⁵⁶ Whether these conclusions can actually be sustained by the historical evidence which is said to support them is doubtful but also beside the point. More significant are the current and future contexts to which they apply and the implication that Soviet military thinking has gone far toward embracing the blitzkrieg theory it long rejected. In the Soviet analysis, surprise and the strength of the first attack are taken to have been the predominant features of the German blitzkrieg.⁵⁷ The current Soviet principles of war elevate surprise, once regarded as a transitory factor, to the number two position. Number one is a high state of war readiness.⁵⁸ One theorist has said, "Victory in war will be formed not so much from the sum of particular successes, but as a result of the effective application of a state's power at the very beginning of armed conflict."⁵⁹

As the Soviet strategists no doubt know very well, the German blitzkrieg depended not only on the strength of the first blow and

on surprise but also on a consistently high level of performance that had as its basis a combination of reliability, responsiveness, and initiative that the armies of its opponents, including the Soviet Army, could not match. The Soviet Army in World War II attained its consistency by accepting a low average level of performance, and it had problems with initiative, in particular, that it apparently has yet to resolve.⁶⁰ During the war, the Soviet forces assimilated as much of the blitzkrieg technique as they could handle and grafted it onto their own earlier theory of deep operations by means of broad frontal assaults. That graft probably still holds. How far the Soviets have gone toward achieving a true blitzkrieg capability can only be surmised (perhaps even the Soviet command itself cannot be certain).

The war of annihilation, lodestone of military theorists before each of the two world wars, has not visibly lost its power in the Soviet Union. Soviet strategy, it is said, "will have a decisive, active, and offensive character."⁶¹ Its objective will manifestly be to defeat, not deter, the enemy. Grechko's admonition to preserve a place for experience proportionate to its significance presupposes a continuing evolution in warfare, and the recent developments in Soviet military theory indicate that the place allotted to experience may well be a substantial one. It seems fair at least to suppose that Soviet military theorists—to use a favorite expression of their own—"do not rule out" the possibility of conducting another major war without, or with minimal, nuclear involvement.

That the Soviet Union could readily convert theory into practice in Europe has been apparent for some time. A conventional-force superiority of two-to-one or better constitutes an offensive capability so clear-cut as to be all but unexplainable in other terms.⁶² The outlook for an *attaque brusquée* or even a full-fledged blitzkrieg, while not devoid of uncertainties, would be about as promising as such things can be. The sudden need for a NATO decision on whether to generate a nuclear response to a non-nuclear attack could be expected to raise horrendous political and psychological

problems within the alliance, and NATO's conventional strategy and deployment have been authoritatively described as "recipes for short-term military disaster."⁶³

On the other hand, the experience of two world wars has shown strategies of annihilation coupled with short-war theories to be long-term invitations to disaster. The major wars of this century have settled down to be wars of attrition, and initial success has been no guarantee of ultimate victory. The best engineered blitzkrieg so far actually conducted, one which in its essential fine points the Soviet forces probably could not duplicate today, decayed and crumbled long before it had run the course. These considerations may well also have a place in Soviet speculation on the experience of the past. Published Soviet views on the subject notably do not rule out the possibility of a protracted war.⁶⁴

CONCLUSION

Short-war theory has become compellingly, if fatally, attractive twice during this century—in 1914 and again in 1939. In 1914 the military strategists were able to look back to the Franco-Prussian War 44 years earlier and conclude that a short war of annihilation would be easily achievable. In 1939 a younger generation of professionals had seen the possibilities provided by modern weaponry for conducting a war of maneuver, which would pass the advantage once again to the offense and generate an early resolution of a European war. In 1982, strategists once more tend to see any clash between the major powers as being one that will be over quickly—if it is nuclear, because of the weaponry; if nonnuclear, because of a perceived gross inequality in conventional forces. Dare we ignore the lessons of history and be wrong yet a third time?

NOTES

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7. J. F. C. Fuller in Sir Norman Angell et al., *What Would be the Character of the New War?* (London: Victor Gollancz, 1933), p. 49.
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10. Clausewitz, p. 90.
11. *Ibid.*, p. 99.
12. *Ibid.*, p. 42.
13. Foch, p. 42.
14. Von Bernhardi, II, 358.
15. See Jean L. A. Colin, *The Transformations of War* (London: Hugh Rees, 1912; rpt. Westport: Greenwood Press, 1977), pp. 296-321; Foch, pp. 44-45; and von Bernhardi, I, 53 and II, 376-405.
16. See Edward Mead Earle, ed., *Makers of Modern Strategy* (Princeton: Princeton Univ. Press, 1941), pp. 218-29; and Samuel R. Williamson, Jr., *The Politics of Grand Strategy* (Cambridge, Mass.: Harvard Univ. Press, 1969), pp. 126-30.
17. Foch, p. 43.
18. Colin, p. 299. See also Foch, p. 42.
19. Von Bernhardi, II, 69-91.
20. Eberhard Kessel, ed., *Generalfeldmarschall Graf Alfred von Schlieffen—Briefe* (Göttingen: Vandenhoeck & Ruprecht, 1958), p. 317.
21. Gerhard Ritter, *The Schlieffen Plan* (New York: Praeger, 1958), p. 138.
22. Hans Delbrück, *Geschichte der Kriegskunst* (Berlin: Walter de Gruyter, 1962), IV, 426-44, 514-30. See also Earle, pp. 272-75 and Marwedel, pp. 158-61.
23. Marwedel, p. 160.
24. Von Bernhardi, II, 410-31.
25. See, among others, J. F. C. Fuller, *A Military History of the Western World* (New York: Funk & Wagnalls, 1956), III, 229; and Cyril Falls, *The Great War* (New York: Capricorn, 1961), pp. 82-83.
26. Victor Wallace Germain, *The "Mechanization" of War* (London: Sifton Praed, 1927), p. 107.
27. *Ibid.*, p. 219.
28. See Giulio Douhet, *Command of the Air* (New York: Coward-McCann, 1942). Douhet's theory, first published in 1921, was not much known outside Italy until the 1930s. B. H. Liddell Hart, who advocated all forms of innovation, predicted a decisive role for air power in 1925; see B. H. Liddell Hart, *Paris or the Future War* (New York: Garland, 1972), pp. 37-53. For criticism of air power theory, particularly as put forward by Liddell Hart, see Germain, pp. 129-42.
29. J. F. C. Fuller, *Armament and History* (New York: Charles Scribner's Sons, 1945), p. 140; and B. H. Liddell Hart, *The Tanks* (New York: Praeger, 1959), I, 169.
30. Fuller in Angell, p. 58.
31. Liddell Hart, *Paris*, pp. 63, 78-83; and *Thoughts*, pp. 28, and 161; also, Fuller in Angell, pp. 64-69.
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34. On de Gaulle as a theorist see Aidan Crawley, *de Gaulle* (New York: Bobbs-Merrill, 1969), pp. 70-72; and

Alistair Horne, *To Lose a Battle* (Boston: Little, Brown, 1969), pp. 71-77.

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37. M. V. Zakharov, ed., *50 let vooruzheniy sil SSSR* (Moscow: Voen. Izdat., 1968), p. 198.

38. Horne, p. 76.

39. In the mid-1930s the Soviet Army may have gone the furthest toward mechanization. It set up several mechanized corps consisting of two mechanized (armored) brigades and a rifle-machine gun brigade. When experience in the Spanish Civil War, on the one hand, produced no battles in which armor played an independent role and, on the other, showed that infantry rarely advanced without tank support, the mechanized corps were disbanded and their parts distributed among the infantry. See S. A. Tyushkevich et al., *Sovetskiye vooruzhennyye sily* (Moscow: Voen. Izdat., 1978), p. 201.

40. Hermann Foertsch, *Kriegskunst Heute und Morgen* (Berlin: Wilhelm Andermann, 1939), p. 237.

41. Liddell Hart, *Thoughts*, pp. 52, 208.

42. Germaines, pp. 228-29.

43. Foertsch, pp. 228-44.

44. S. P. Ivanov, *Nachal'nyy period voyny* (Moscow: Voen., Izdat., 1974), pp. 72-85, 204-06. See also, among others, I. Kh. Bagramyan et al., *Istoriya voyn i voyennogo iskusstva* (Moscow: Voen. Izdat., 1970), pp. 90-114.

45. Institut Marksizma-Leninizma, *Istoriya Velikoy Otechestvennoy Voyny Sovetskogo Soyuz, 1941-1945* (Moscow: Voen. Izdat., 1961), I, 441. Hereinafter *IJOVSS*.

46. Erich von Manstein, *Aus einem Soldatenleben* (Bonn: Athenaum, 1958), p. 350.

47. On 6 July 1942, for the first time in the war, the Soviet Supreme High Command ordered a general retreat. Since Soviet doctrine holds strategies of attrition in low esteem and disdains the idea that the Soviet Union has or would adopt one based on sacrificing its own territory, this decision, as might be expected, is not given extensive treatment in the

Soviet literature. See *IJOVSS*, II, 421; and Institut Voennoy Istorii Ministerstva Oborony SSSR, *Istoriya Vtoroy Mirovoy Voyny, 1939-1945* (Moscow: Voen. Izdat., 1973-), V, 152.

48. Walter Warlimont, *Inside Hitler's Headquarters* (New York: Praeger, 1964), p. 285.

49. See Roger Speed, *Strategic Deterrence in the 1980's* (Stanford: Hoover Institution Press, 1979), pp. 103-12; and Andrew J. Goodpaster, "NATO and U.S. Forces: Challenges and Prospects," *Strategic Review*, 2 (Winter 1974), 6-17.

50. M. I. Cherednichenko, "On Features in the Development of Military Art in the Postwar Period," in *Selected Soviet Military Writings, 1970-1975* (Washington: GPO, 1977), p. 121.

51. V. D. Sokolovskiy, ed., *Soviet Military Strategy* (Englewood Cliffs, N. J.: Prentice Hall, 1963), p. 305.

52. Grechko, p. 150.

53. Ministerstvo Oborony SSSR, Institut Voennoy Istorii, *Sovetskaya Voyennaya Entsiklopediya* (Moscow: Voen. Izdat., 1976-80), VIII, 564. Hereinafter *SVE*.

54. Sokolovskiy, p. 128.

55. *SVE*, V, 362.

56. Bagramyan, pp. 122, 131.

57. S. P. Platonov, ed., *Vtoraya Mirovaya Voyna* (Moscow: Voen. Izdat., 1958), p. 36.

58. *SVE*, VI, 542.

59. V. Ye. Savkin, *The Basic Principles of Operational Art and Tactics* (Washington: GPO, 1972), p. 90.

60. See John Erickson and E. J. Feuchtwanger, eds., *Soviet Military Power and Performance* (London: MacMillan, 1979), pp. 114-17.

61. N. A. Lomov, ed., *Scientific-Technical Progress and the Revolution in Military Affairs* (Washington: GPO, 1973), p. 135.

62. See Richard D. Lawrence and Jeffrey Record, *U.S. Force Structure in NATO* (Washington: Brookings Institution, 1974).

63. Colin S. Gray, "Deterrence and Defense in Europe," *Strategic Review*, 3 (Spring 1975), p. 59.

64. See Bagramyan, p. 490; Lomov, p. 136, and Savkin, p. 92.

