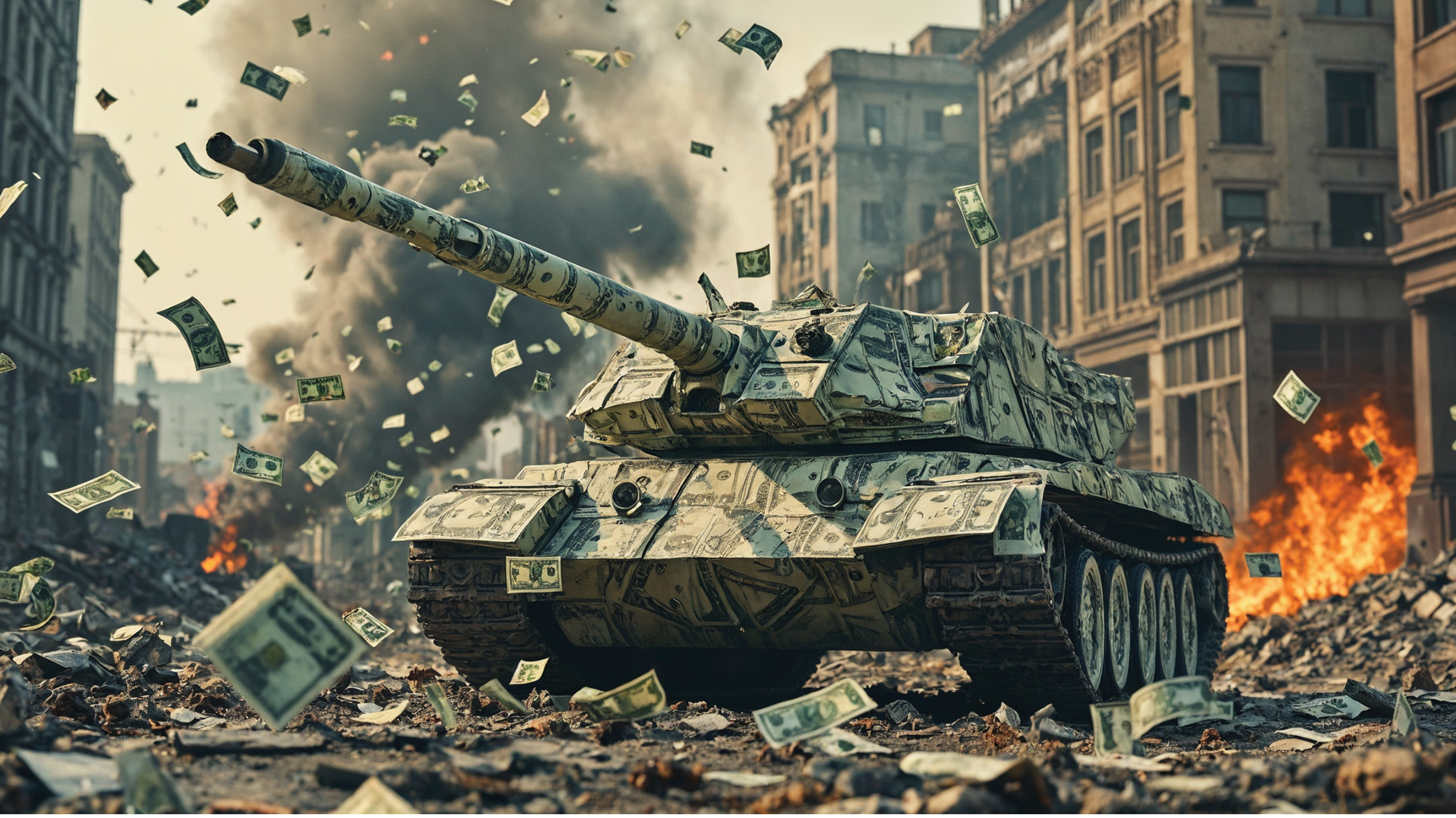

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Exploring Mental Models in Finance

How the Psychology of Money Assists Thinking About War and Strategy

Capt. Stein Thorbeck, U.S. Army

When it comes to victory in war, the intellectual concepts you hold in your head really, really matter.

—Dr. Michael Neiberg, Chair of War Studies, Army War College

The development of realistic physical maps through advances in cartography greatly increased capacity to think practically about how nations could wage wars.[1] The ability to examine realistically the arena in which nations fought presented a new level of planning capability that cemented strategy well within a sphere of cognition and foresight that had not been previously enjoyed. Commanders and political leaders could use these new mental models to conceive likely avenues of approach, lines of supply, and cover and concealment to enable advances when mobilizing for war.

While the arena is physical, our interpretations are not. Cartography is helpful to the extent it assists in perceiving at scale. Academic disciplines offer a type of cartography, and these disciplines provide their own set of maps. How might a strategist with a life sciences background differ from an engineer in fighting a war? Would their instrument of war be viewed as an organism or a machine? Where one searches for adaptation, malleability, and changes in the strategic ecosphere, the other focuses on problems of efficiency, function, and breakdown.[2] Neither is "better" in an absolute sense, but each could offer an advantage if used at the right time.

In this article, I explore war as an investor might think about it. That is, I use the psychology of financial behavior as a lens to examine war strategy in three areas. This lens could be useful to leaders looking to increase strategic effectiveness, yet it is only one in a long list of possibilities. Any academic field can offer insight and strength of decision to senior leaders. The purpose of this article, then, is to inspire rising leaders to aggressively seek new connections and paradigms from disparate academic disciplines to improve their thinking about war and build strategic acumen.

The Arena—On the Similarity of War and Finance: Finance as a Strategic Map for Uncertainty

No other human activity is so continuously or universally bound up with chance. And through the element of chance, guesswork and luck come to play a great part in war.

—Carl von Clausewitz[3]

I'm going to tell you everything you need to know about the stock market: nobody knows nothin'.

—Jack Bogle, founder of Vanguard Investments[4]

In book one of *On War*, Carl von Clausewitz makes the case that no other human activity such as that offered by a game of high-stakes poker may simulate war's robust cocktail of human emotion, risk, chance, and behavior control.[5] Although Clausewitz's analogy delivers its intended insight, a better analogy would account for risk across a longer period of time. In 1832, when *On War* was first published, the Frankfurt Stock Exchange may not have been first in mind for the student of warfare. But time is an extremely important component of war, and man's behavior in dealing with it cannot be simulated well in a game of cards. If Clausewitz were alive today, he might revise his previous statement to instead compare war to the modern stock market.

Where poker may leave a beaten gambler frustrated, investing for one's future is played for keeps. The human element is more pronounced, and the consequences are more severe, making more potent the parallels drawn. Moreover, by accounting for the aspect of time, insight can be gleaned from discussions of risk, endurance, impatience, and self-defeating behavior. The game of cards lasts hours, but the game of investing, like war, is measured in years and decades.

Comfort with, not control of, the uncertain is what separates the successful strategist from the herd. Lawrence Freedman, Oxford's Professor Emeritus of War Studies, conducted an exhaustive historical and cross-discipline search for strategic principles and found that "[successful] strategies were not so much a means of asserting control over situations but ways of coping with situations in which nobody was in total control."[6] For Freedman, there is a premium on understanding one's immediate environment and remaining coolheaded enough to adapt to it. How the strategist behaves in a particularly dynamic moment yields success or failure in the next phase of a continuously unfolding drama.

Similarly, in *The Psychology of Money*, author

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Morgan Housel asserts that winning in the financial world is more dependent on how one behaves than it is on how smart one is or in how much they know.[7] Fear induces us to make premature (and usually poor) decisions, whereas greed skews our ability to evaluate objectively as we thirst for unsustainable returns. Yet investors can improve their chances of success by (1) tailoring appetites and thinking long term, (2) building room for inevitable error, and (3) diversifying potentialities. These three approaches provide useful models to assist understanding of war and warfare. Let us now begin our exploration with the first, found in man's penchant for "more."

Three Areas of Comparison: The Allure of Battle and High Investment Returns

Wealth hastily gotten will dwindle, but he who gathers little by little will increase it.

—Proverbs 13:11[8]

The proverb quoted above represents an archetype of truth for any field. Success seems to come, or more accurately, success seems to stay with those most able to control their appetite for more of it. Should war be any different? Whoever can take the slow and deliberate path to consolidating gains—those most able to walk the boring path of the turtle—are poised for success in investing and probably so in war. Clausewitz hails Frederick the Great as the ideal strategist, but not so much for his prowess in tactical maneuver:

> Are we to be beside ourselves with admiration at the fact that the King wanted first to attack Daun's right flank, then his left, then his right again, and so forth? … what is really admirable is the King's wisdom: pursuing a major objective with limited resources, he did not try to undertake anything beyond his strength, but always just enough to get him what he wanted. This campaign was not the only one in which he demonstrated his judgement as a general.[9]

Housel believes "the hardest skill in finance is to get the goal post to stop moving."[10] Clausewitz, in praising the Prussian king, highlights this same and rarest of traits in war. The desire for decisive battle is the desire for high return. It is the false promise of glory that continues to draw men to their ruin. This search for quick and decisive victory in war appears to be an often-fatal flaw. Military historian Cathal Nolan's epic work *The Allure of Battle* examines this inclination toward decisive war throughout time and finds the idea is no less than a "short war illusion."[11] From Napoleon Bonaparte's misreading of Borodino to Germany's 1914 invasion of France; from Adolf Hitler's Barbarossa campaign of 1941 to American hopes for swift victory in Afghanistan and Iraq, all descended into an attritional warfare that eluded prewar planning. As sure as man's search for quick riches, so appears the Western strategist's search for his next Cannae.[12]

Napoleon's thirst for annihilation at Borodino is worth highlighting as a salient example of allure for high returns gone awry. Although the *Grande Armée* eventually achieved a tactical victory, it was one Russians had no intention of accepting. Here, Russian resources showed an astounding ability to continually provide options for Tsar Alexander I. The option to refuse a loss may be as much of a luxury as any could hope for, and it can only exist in correlation with one's ability to steward resources. This unfortunate occurrence for France spelled the beginning of Napoleon's end, who in 1812, risked it all. Unable to get the goal post to stop moving, he yearned for the highest "return" of his yet undefeated career, only to be beaten by a humbler enemy satisfied with more modest returns. Time and patience really are two of the universe's most formidable warriors.[13]

Consolidating gains continuously must be thought of in the same way the investor thinks about compound interest. Enabling time and patience to work their strategic magic requires a certain kind of mind. Yet the patient mind is not a personality trait, and endurance in war is not simply a matter of grit; it is enabled by possessing more options than one's enemy. Where all options are spent, there can be no patience. Therefore, increasing one's ability to maintain options prior to reacting is the premium currency in chaotic strategic environments.

Let us consider another analogy. The ability to generate income can be thought of as an offensive operation, while guarding one's current assets and controlling expenses are akin to a defense. If one wanted to become a billionaire today, one must play a very aggressive offense. Yet, if one wants to become a millionaire, still "winning" by most people's standards, one may adopt

Napoleon I (*seated at left*) watches the fighting during the Battle of Borodino on 7 September 1812. This bloody battle was part of the French invasion of Russia during the Napoleonic Wars. The *Grande Armée* was eventually victorious, but it failed to achieve Napoleon's desire for the Russian army's complete destruction and allowed the Russians to successfully retreat. (Vasily Vereshchagin, *Napoleon I on the Borodino Heights*, 1893; painting courtesy of Wikimedia Commons)

a strategy of "not losing"; that is, having an adequate offense while playing tremendous defense.[14] The likelihood of success of the very aggressive approach is de minimus whereas the other is closer to a repeatable formula. Resource-rich rivals like China and Russia are historically aligned with the millionaire's path of prudence and patience.[15] The important question then for the would-be strategist is not how to achieve victory, but at what scale do we consider a win a win?

With the above discussion on returns and risk-seeking in mind, one may ask whether a strategy of not losing is preferred to a strategy of winning. With finance as our lens for war, we likely arrive at an answer that mirrors Nolan's findings on what has worked most often. The Western way of war may be too historically aligned with a view of strategy resembling the billionaire's path to wealth.[16] In examining this tendency of civilian and warrior leaders alike, Nolan concludes, "The idea of decisive battle will always be more alluring than winning by attrition … yet exhaustion of the enemy has in modern times more usually achieved political ends in big wars fought among great powers, which suggests that more humility is needed."[17] If it is humility we need, then we must admit to ourselves that we have no idea what is coming next—and operationalize that admission with a margin of safety.

Enduring Friction and Chaos with the Margin of Safety: Planning on Your Plan Not Going According to Plan

Was Napoleon unique in his bloodthirst at Borodino? Probably to some extent yes, and most will never rise to lead a continental army to find out for

Humans are not necessarily risk seeking or risk averse in proportion to a reward's expected value. Instead, our behavior toward risk is relative to perceived chance of loss.

sure. But reasonable people fall victim to the same human dynamics in finance that befell the French emperor. All must learn to protect themselves from our own penchant for "more." Deliberately building in room for error assists in the fight against chance, fear, greed, ego, and envy. In *The Psychology of Money*, Housel discusses the importance of holding excessively large sums of cash. From a purely mathematical standpoint, this strategy is irrational. It carries high opportunity costs and inflationary risk. However, its real "return" is in its ability to enable sleep—thereby creating conditions for invested assets to stay invested (endurance) for the long haul. J. P. Morgan once explained this critical idea in his advice to a worried investor that he should "sell down to [his] sleeping point."[18]

Behavioral economists Daniel Kahneman and Amos Tversky demonstrated that people become either risk averse or risk seeking based on how they understand threat. Kahneman writes, "When you pay attention to a threat, you worry—and the decision weights reflect how much you worry. Because of the possibility effect, the worry is not proportional to the probability of the threat."[19] With limited perceivable options we are more prone to worry, and thus more apt to make costly mistakes.[20]

Humans are not necessarily risk seeking or risk averse in proportion to a reward's expected value. Instead, our behavior toward risk is relative to perceived chance of loss. The military strategist should quickly see the applicability in war and battle estimates. The battle becomes every bit as much about protecting the mind from perceptions of absolute loss as it is about facing down a formidable opponent. Maintaining a significant margin of safety is a needed component to tame our susceptibility to unreasonable levels of risk-seeking behavior that would otherwise occur.

A store of savings becomes a defensive asset to guard against temptation to "re-task" invested equities, which can have dire consequences if gains are to consolidate and compound. This margin of safety is a behavioral control mechanism and hedge against surprise. In *The Intelligent Investor*, author Benjamin Graham argues that the purpose of the margin of safety is to "render unnecessary an accurate estimate of the future."[21] While he was speaking specifically about purchasing securities at a heavy discount, the concept of leaving room for error is widely useful. Frederick the Great, Clausewitz's favorite resource-minded king, used to keep up to 330,000 tons of grain and three years' worth of troops' salary in silver reserves.[22] It is this critical room for error that enables flexibility, options, and decision space. Housel advises that endurance in investing comes from planning for the "gap between what could happen in the future and what you need to happen in the future."[23] By planning for this gap of uncertainty and thinking about what kind of bridge is required to cross it, strategists find a conceptual framework to prime the mind for reason. A commander armed with room for error is likely to behave differently than a commander fighting near the limit of his capability.

U.S. Army Field Manual 3-0, *Operations*, defines endurance as "the ability to persevere over time throughout the depth of an operational environment."[24] Endurance-minded leaders consider their assets, and more importantly, the replacement of such. What makes this tenet so important for the investor and strategist is in thinking how to prepare for surprise to prevent being completely wiped out. Surprises are dangerous not just because we are ill-prepared to respond, but they are dangerous psychologically because they skew perception about what options remain on the table.

While the all-volunteer approach to our military is a cornerstone of the Nation's defense strategy, wars are not usually won by volunteer armies. They are waged by nations at the expense of current and future resources taken from the economy.[25] We should strongly consider how historically rare it is that a nation's standing army and current munition stores have ever been enough to achieve decision in war. It was this uncomfortable historical truth that led former U.S. Army Training and Doctrine Command (TRADOC) commander, Gen. William DePuy, to state categorically that "wars are won by reserve officers and draftees."[26] During World War II, American leaders were unsure if its ninety divisions would even be enough to defeat Axis powers, leading to significant debate over whether such a "small" force could present a reasonable threat.[27] Today, we have a tiny fraction of the same force and arguably do not possess the infrastructure to mobilize on a grand scale if ever needed.[28]

Thinking of the margin of safety like an investor also highlights modern portfolio theory as a helpful paradigm. But instead of stock and bond ratios, we can think about optimal ratios of combatants forward to noncombatants at home in the productive economy. We can think of ratios of reserve troops to active standing troops, or numbers and sufficient locations of military entry processing stations, scalability of officer education curriculums, and rapid generation of junior leaders. Modern portfolio theory helps explain how endurance-minded investors weather the inevitable setbacks and surprises of life. Each of these examples could provide *margins of safety* for the supreme commander. From 1812 to Barbarossa to perhaps today, Eastern strategists have demonstrated competence in planning for their plans to not go as anticipated. Our war planners must recognize that standing militaries are not representative of a country's total war-waging capability. How well would our war portfolio weather the storm of large-scale combat operations (LSCO)?

In sum, thinking about systems and infrastructures designed to build room for error in a broad strategic context is helpful to assist leaders maintain a mindset capable of true endurance. The margin of safety is a vital mental model that can be applied to physical and nonphysical resources alike. Having a margin of safety to carry one through during the search for a new golden goose is the critical cushion of compounding. Importantly, it enables a degree of comfort in risk acceptance and a willingness to accept failure to enable disproportionately powerful events to take hold. The margin of safety is built for a "range of potential outcomes, and endurance lets you stick around long enough to let the odds of benefitting from a low-probability outcome fall in your favor."[29] Creating conditions for these outcomes leads to our third financial model.

Diversification of Failure and Maneuver Warfare

In the field of statistics, a tail event refers to an outlier, which is anything living at the extreme ends of a normal distribution—the standard bell curve. While the probability of occurrence of a particular value at either end may be small, the probability that outliers occur is not. And these tails can have a deceptively large influence over the whole, especially when time is taken into account. For example, one market research study used the returns on the Dow Jones Industrial Average during the period from 1900 to 2013 to compare a buy-and-hold investor to someone that missed only the five best trading days of each year. Each dollar of the buy-and-hold portfolio became $290 in 2013, whereas the other portfolio doomed each dollar to less than a penny.[30] By staying invested throughout the highs and lows, the buy-and-hold investor was able to benefit from the exponential gains of a few companies that dramatically changed the scope of the whole average's performance. People can be wrong much of the time, but by casting a wide and patient net, across assets or time, one can still come out far ahead by enabling participation when tail events occur.

Venture capital is built around this concept. Instead of attempting to purchase the most lucrative needle in the corporate haystack, these probability-minded investors choose to invest in a large group of start-up businesses—the haystack. Even if most companies are losers, they are positioned to gain from outlier companies in an outlier market when an outlier event brings outsized earnings potential. Investors in index funds benefit from the same principle. By purchasing a well-diversified basket of potential, the patient investor with a moderate appetite for risk is set to capitalize on the tails.

Tails apply to the world of ideas just as well. Netflix's CEO, Reed Hastings, has an operating philosophy that actively encourages failure to increase the odds of producing the next monster hit series. These are not just words. His management team measures Netflix's overall show cancel rate, and counterintuitively, Hastings gets worried when his shows aren't getting canceled at a *high enough* rate.[31] By promoting a high cancel rate, he creates space for his team to get aggressively creative. It only takes one runaway success to more than make up for previous lost production costs. Hastings understands the math and value behind outlier events and builds his strategic approach accordingly. This is a powerful paradigm to consider for the military. Actually, it is the essence of maneuver warfare.

Consider B. H. Liddel Hart's description of nature to describe the concept of maneuver:

> If we watch a torrent bearing down on each successive bank or earthen dam in its path, we see that it first beats against the obstacle, feeling and testing it at all points. Eventually, it finds a small crack at some point. Through this crack pour the first driblets of water and rush straight on. The pent-up water on each side is drawn towards the breach. It swirls through and around the flanks of the breach … thus nature's forces carry out the ideal attack.[32]

This extraordinary passage describes how the repeated "failures" of each droplet serves a greater purpose in facilitating a tail-event at some unknown point. Considered to be one of the greatest military strategists of the twentieth century, Hart does not describe the "ideal attack" as a careful sequence or master plan. He describes instead a real-time unfolding exploitation of previously unseen opportunity. Just so, picking individual stocks in an attempt to get rich is a loser's game. Victory in investing, just as in war, is not about how clever one is. It is about adjusting oneself to chaos and probabilistic thinking and enduring long enough to find the breakthroughs. While maneuver warfare often deals with the tactical, strategic leaders must be able to think this way. Their ability to create environments for action while balancing resources to stay in the game will benefit from the tails that inevitably occur.

The Cynefin Model, a framework for responding to various environments, demands action first in chaos—often in direct opposition to first instinct, which prioritizes understanding. If the outlook is uncertain, one should act, sense the environmental response, adjust, and repeat.[33] This is what maneuver warfare is supposed to address, yet in the chaos of strategic uncertainty, how confident are we that leaders are comfortable operating this way? General officers failing to make the cognitive leap from tactical thinking to operational and strategic competence is an identified problem.[34] The drive for certainty and fear of risk spells the healthy retirement portfolio that never was. By demonstrating an unwillingness to accept even moderate risk, so many are unable to win their golden years. Perhaps this is our undoing in strategic leader development as well. In asking what strategists could learn from those more astute in probability management and risk tolerance, such as the venture capitalist, tech CEO, or more commonly, the everyday index investor, we come to understand maneuver in ways that bring depth to the concept. It is appropriate behavior in chaos and fog.

Yet, where are officers trained to think deeply about risk? The Army's *Officer Evaluation Report Support Form* describes the core attributes and competencies of the successful military officer in over 2,500 words.[35] There is only one mention of risk, and even then, in reference to decreasing risk to balance the welfare of subordinates.[36] Field Manual 3-0's chapter on leadership in LSCO correctly discusses the conceptual importance of risk and uncertainty acceptance for senior leaders. But this is a fantasy if our officer development system contains a minimally articulated evaluation structure to match this need. If war is like navigating the investment market, then this omission when describing the attributes of our best players seems odd. To harness failure, we need to actively plan for it. In Housel's words, we need to plan for our plans to not go according to plan.[37]

Conclusion—A Question to Explore

In this article, we examined the usefulness of financial mental models to assist strategic leaders. While this may be useful for its own sake, the author really hopes to inspire readers to aggressively seek new mental models to assist in thinking about any aspect of the modern arena we call LSCO. We discussed the virtues of tailoring expectations to reasonable rates of return over time, building room for error through stewardship of resources to tame the mind and plan for the certainty of uncertainty, and thinking probabilistically through a diversification of potentialities to create conditions for "tail -like" events to occur. We remember Clausewitz's assertion that war is most like a game of cards. The field of investing may better embody his intention due to poker's omission of time.

Here, we arrive on an interesting question to consider. If war resembles enduring the market, how should we choose the best players to lead us? Both operational environments are fundamentally human endeavors, and the above concepts have been shown to be successful in fighting man's propensity for greed and fear. Therefore, would high net-worth individuals, those proven adept at resource management and wealth accumulation, make better strategic leaders? At the very least, could there be a place for demonstrated financial acumen in strategic leader development?

Famed historian Michael Howard once stated that military leaders find themselves in a bit of a predicament. They are mostly unable to practice their craft in a setting that brings real consequence. He offered a thought exercise to imagine a surgeon going his whole career operating only on training dummies. Where else can military leaders train their mind? Imperfect as it may be, he suggested these leaders study history.[38] To rival the stakes of fear, greed, courage, ruin, and glory, this article suggests one more possibility. The strategist well versed in investment theory and personal finance finds an inexhaustible source of education for the mindset required in the waging of wars. With both fields weighing so heavily upon the same psychological maps, we are left wondering whether adeptness at one translates to skill in the other.

In closing, I leave only the summative descriptions of sound investors and generals, offered by two of the greatest minds in each field. Ben Graham describes the intelligent investor: "In the world of securities, courage becomes the supreme virtue *after* adequate knowledge and a tested judgement are at hand."[39] Clausewitz describes the military genius: "Two qualities are indispensable: first, an intellect that, even in the darkest hour, retains some glimmerings of the inner light which leads to truth; and second, the courage to follow this faint light wherever it may lead."[40]

In the next war, what intellectual concepts will you hold in your head? And which will you have the courage to use to find that glimmer of light? ■

Notes

Epigraph. Michael Neiberg, "Mobilizing and Planning for World War 1" (lecture, Army War College, 16 February 2023).

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6. Freedman, *Strategy*, 609.

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8. Prov. 13:11 RSV.

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13. This is a slight paraphrase of Leo Tolstoy's *War and Peace* character Kutuzov, in which he explains to Prince Andrei, "time and patience are the strongest warriors." Originally referenced by Freedman, *Strategy*, 100.

14. Reference inspired by Tom Stanley and William Danko, *The Millionaire Next Door: The Surprising Secrets of America's Wealthy* (Taylor Trade Publishing, 1996).

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16. Colin Gray, "The American Way of War," in *Rethinking the Principles of War*, ed. Anthony McIvor (Naval Institute Press, 2005). Gray highlights the word "impatient" as one of twelve overarching characteristics. Additionally, Parker in *The Cambridge History of Warfare* describes an aggressive inclination to extreme violence (annihilation) as one of five aspects of the Western way of war.

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36. Ibid., 4. Listed under the instructions, LEADS "provides appropriate relief when conditions jeopardize success of the mission or present overwhelming risk to personnel."
37. Housel, *The Psychology of Money*, 135.
38. Michael Howard, "The Use and Abuse of History," *Parameters* 11, no. 1 (1981): 16.
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