

THROUGH A MIRROR DARKLY

The Face of Future War, 1871–2005

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Trying to predict the nature of future wars is nothing new. Given the stakes, it is not surprising that efforts to pierce the barrier of warfare's event horizon have long occupied security professionals. Accordingly, attempts to identify future enemies, theaters, tactics, and technologies have collectively represented an important component in strategic planning. Intelligence estimates, personality profiles of potential enemy leaders, and war plans of every hue and dimension provide tangible evidence of these efforts.

Nor has imagining the future of warfare been the exclusive domain of the national-security professional. A large body of film and literature has been devoted to imagining the wars of the future.¹ Some of these efforts, such as Robert

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Heinlein's *Starship Troopers* and its polar opposite, Joseph Haldeman's *The Forever War*, have been prize-winning moneymakers. Interestingly, Haldeman wrote his book as much to come to grips with his personal experience of combat as to achieve literary recognition and profit.

In contrast, official predictive writings of future wars are usually classified and not written with an eye to literary merit. Such scenarios of future conflict are written by security professionals for security professionals, using extensive analyses of military hardware and capabilities to craft their plans and predictions. These works move along official chains of command

and communication, and they rarely, if ever, attract public notice. The writings of Dwight David Eisenhower or Maxwell Taylor while they were attached to the Plans Division of the U.S. Army headquarters staff are two examples of such work. Others are the memos and briefings prepared by Lieutenant Colonel Earl “Pete” Ellis, U.S. Marine Corps. (Ellis, often called the “father of amphibious warfare,” became convinced in the 1920s that a U.S.-Japanese war in the Pacific was inevitable.) Disseminating and analyzing the works of such specialists have been the tasks of historians, not contemporary civilian publishers.

At the other end of the literary spectrum are found the works of fiction, particularly science-fiction, writers. These writings tend to be unencumbered by current technological constraints or serious military analysis. Here, the envisioned future battle is often simply a vehicle in which to explore character development and relationships or to recount adventures. The author is almost never a security professional. H. G. Wells is perhaps the best known of this breed of writers, which also includes Jules Verne, Arthur Conan Doyle, and, more recently, Orson Scott Card.

This article, however, deals with a narrow band of articles and books between the official analyses of the security professional and the imagined futures of the fiction writer. Each work that will be discussed here was penned by a security professional, sometimes retired but often on active service when writing. All of these authors benefited at first hand from contemporary military research and understood the nature of combat of their day. Profit, although presumably welcomed, was not their motive for writing. Rather, these authors had messages they desperately wanted to be heard and, officialdom having turned a deaf ear, placed their tales before the general public.

To do so required a fair amount of courage and the assumption of potentially significant risk, especially when the author was a serving military officer. Historically, military service cultures have been tight lipped about their work, particularly when it comes to potential future combat. Since entering the military as cadets or midshipmen, officers have been wrapped in intricate codes and customs of conduct. Common to all of these codes, both formal and informal, has been a prohibition against speaking ill of one’s seniors or service. There are good reasons for this behavior. In most democracies, serving officers are not expected to take part in, much less initiate, public debates. Literary talent is not necessarily seen as a desirable trait in an officer but rather as a source of distraction from more important pursuits. There is also a sense that any writing that exposes a particular military vulnerability increases the threat to the service not only from potential enemies but also from domestic politicians and internal service rivals. When these works touch on interservice feuds and arguments, the risk to military authors seen to be taking sides grows larger yet again.

Yet, write security professionals sometimes did. Since 1871 not a decade has gone by that has not seen at least one major contribution to this subgenre of literature. Each of these efforts has used the literary device of a “future history,” or what might be called “forward, looking back.”

As this article will show, these writers can be grouped in terms of their purposes into three categories, which we may call “Cassandrans,” “Prometheans,” and “Seers.” Each author picked up the pen with a different motivation and goal in mind. In some cases elements of more than one category are present, but it remains easy to identify the fundamental motivation of the author.

Cassandrans seek to sound the tocsin, to call attention to dangers and conditions that if not addressed will harm or even destroy the state. For these writers, setting the story in a future where calamity has already befallen the target audience is a means of driving the warning home.

In contrast, *Prometheans* are highly optimistic. Their writings are accounts of victories. The key to victory is usually some new technology or strategy. The guarantors of victory are the pioneers who, despite misgivings or apprehensions among mainstream military thinkers, have forged the new tool and learned how to use it. In the hands of Prometheans, the future is a land of validation and proof of concept.

Both Prometheans and Cassandrans clearly have axes to grind. *Seers*, in contrast, take a more dispassionate position and simply attempt to predict the future. Perhaps not surprisingly, the category of Seers tends to be the least populated of the three. This article will provide a brief chronological survey of major writings in this genre, from 1871 to 2005. In each instance the purpose will be identified, information regarding the author provided, and category assigned. Next, the degree to which the authors were successful in their predictions will be discussed.

THE BEGINNING

In 1871, despite all the cultural and bureaucratic obstacles to publishing a military critique in the public domain, Colonel (later General) Sir George Tomkyns Chesney’s *The Battle of Dorking* appeared in *Blackwood’s Magazine*, and a whole subgenre of literature was launched. Chesney, a Royal Engineer, had watched as the new German army, in particular its Prussian components, crushed France the year before. In doing so, the Germans proved they had the model modern army. It was well equipped and well supported. Huge reserves could be mobilized into service and be expected to perform almost as well as the most experienced regular units. Its artillery was first rate. The Great General Staff performed planning and logistics miracles. In short, the German army was everything the British army was not. The British army was tiny. It had next to no

reserves, its administration was antiquated, and its logistics were archaic. Much of its equipment was out of date. The army had never exercised a formation larger than a corps. Discussion of reform in Her Majesty's army had been building for more than a decade, but little had been accomplished. Chesney was clearly on the side of the reformers, and so he wrote his story.

In *Dorking*, an old man tells his grandchild how, years before, the power and majesty of the British Empire had been destroyed when a modern Prussian army made its way across the English Channel and shattered its gallant but hopelessly outclassed British counterpart.² All the weaknesses identified by the reformers, as well as others only hinted at, such as a plethora of septuagenarian generals, were instrumental in Chesney's account of the German capture of London, the loss of Britain's imperial possessions, the elimination of Queen Victoria's political power, and the relegation of the United Kingdom to the role of a third-rate power on the world stage. Chesney's Cassandra warning was manifest to every reader: if serious military reform was not undertaken and the Germans ever got across the channel, England was doomed.

Any modern author would be happy to have the reception *Dorking* found among both the reading public and political elites. The book quickly went through multiple editions, was translated into more than a half-dozen languages, and became the topic of parliamentary debates. These debates were often acrimonious. Some of Chesney's critics presaged the chest-thumping bravado of later "jingoos," suggesting that while Teutonic science had indeed triumphed over France, Britons were made of sterner stuff—should the kaiser's minions ever set foot on England's soil, they would quickly be defeated. Others, particularly representatives of the Royal Navy, took more defensible positions, pointing out that Chesney's whole premise—that the invaders find safe passage to the shores of Dover—required the absence of the fleet. This, they argued, strained credulity to the breaking point, for the Germans had no navy of which to speak and the British would never leave home waters completely unguarded.³

It is difficult to judge accurately the impact *Dorking* had in advancing the military reform movement. Its publication did coincide with one of the most significant periods of reform in the history of the British army and likely contributed in some degree to the successes enjoyed by the proponents of reform. However, it must also be admitted that compared to the armies of continental powers, the British military establishment remained thereafter woefully disorganized and conducted no large-scale exercises such as would be required to master the intricacies of contemporary warfare.

Dorking was much more successful in spawning literary imitations. Suddenly there was a major demand for "invasion stories." Similar story lines, albeit with different victims, appeared in numerous venues, some in the United States. The

most common form of publication was initial serialization in a magazine or newspaper, followed by issuance in book form if there was sufficient demand. These tales, clearly profit motivated, became less and less realistic, however entertaining. Chesney, nonetheless, had placed a new literary genre on the map. Within a decade, writers associated with Great Britain's naval establishment were writing both Cassandran and Promethean stories for British public consumption.⁴ It was the naval Prometheans who provided the most interesting writing of this time.

In his short story *In a Conning Tower: How I Took HMS Majestic into Action*, Hugh Arnold Oakley-Foster waxes eloquent concerning the advances that a certain new, and very costly, type of ship would bring to Britain's navy. This story came at a crucial junction of naval architecture. Advances in metallurgy, mechanics, engineering, propulsion, gunnery, and fire control now allowed the construction of revolutionary warships in which systems could be centrally directed from armored conning towers. Oakley-Foster's story, in which a lone British ironclad, superbly captained, restores English maritime dominance to the Mediterranean, extols the virtues of these ships.⁵

It is not surprising that Oakley-Foster trumpeted the superiority of and the need for the new ironclads. A successful diplomat and politician, he served not only as private secretary to the Chief Secretary for Ireland but as a member of Parliament. More important, Oakley-Foster was both secretary of the Admiralty from 1900 to 1903 and secretary of war from 1903 to 1905.⁶ *In a Conning Tower* was apparently well received, although it did not enjoy the success of *Dorking*. Again, the impact of the work on national decision making is hard to judge, but the Royal Navy did embrace ironclad technology with a will, as did every other naval power.

One of the more interesting examples of a Seer's writing appeared on the eve of the First World War. In Captain C. E. Vickers's *The Trenches*, a British army is locked in a desperate struggle with a continental foe. Both armies are entrenched, but the British forces must leave the safety of their lines and charge the enemy if success is to be achieved. In order to do so, however, the British must first bring their trenches close enough to those of the enemy to ensure that enough assault troops can reach the enemy positions to achieve victory. The dilemma is explained with apparent mathematical certainty: so many men can dig so much trench in a given period, in which time the enemy will inflict so many casualties.

Trenches reflected a growing awareness among security professionals that modern weapons were giving a battlefield advantage to soldiers in fixed defensive positions. This had been demonstrated during the U.S. Civil War, the second Anglo-Boer War, and the Russo-Japanese War. It was believed, nonetheless, that

sufficiently motivated and professional troops could carry enemy trenches if they could get close enough first, under protection, to avoid suffering debilitating casualties as they crossed “no-man’s-land.” This problem is solved in *Trenches* through the arrival of what amounts to a deus ex machina. An American salesman—rough, uncouth, and interested only in the bottom line—appears in the nick of time with an armored and tracked tractor that can safely dig trenches across a bullet-swept battlefield faster and more reliably than humans with picks and shovels could ever hope to. In the novel, the machine does its job, Britain’s troops are able to “jump off” from close enough to their opponent’s trench line, and victory is assured.

Trenches apparently failed to interest either the general public or British security elites. Given the speed with which the First World War engulfed Europe, this is surprising, considering how closely *Trenches* predicted both the stalemate of trench warfare and the convergence of technologies that would eventually break that stalemate. The growing power and reliability of the internal combustion engine, Caterpillar tracks, and armor were what made Vickers’s trenching machine successful. Had he equipped his machine with machine guns and cannons and driven it *over* enemy lines, his book would have effectively predicted the creation of the tank.

The two decades following the First World War were dominated by Prometheans, although, as will be argued, one Seer deserves special mention. Nascent technologies, particularly involving armored units and heavy bombers, had produced adherents who were as much missionaries as analysts. Notable examples include the U.S. Army general Billy Mitchell and the British armor zealots J. F. C. Fuller and B. H. Liddell Hart. The latter’s German counterpart included German generals Erwin Rommel and Heinz Guderian. Mitchell’s fellow airpower enthusiasts included the “Mahan of the air,” General Giulio Douhet of Italy.⁷

Opposing these champions of change, especially among the victorious Allies, were the major military establishments. In the main, senior leaders were unwilling to devote the required resources to fielding and validating the new units, tactics, and doctrines of air and armored warfare. Organizational theory would suggest that they were also reluctant to face the changes that would affect military structures and cultures should the new technologies be successful. Political support for such expenditures, again particularly in the West, was also lacking.

Given bureaucratic inertia and entrenched reluctance at senior levels to “see the future,” it was perhaps inevitable that the Prometheans of air and armor would take up the pen.⁸ Two notable results, of very different literary calibers, were *The Battle of Dora*, by the Englishman H. E. Graham, and *War in the Air*, by the German “Major Holders.”⁹ *Dora* extols the virtues of a British armored

brigade called into action on the European continent on behalf of the League of Nations in order to stop what is obviously German aggression. *Dora* argues not only for the utility of armored cars and tanks but also for an independent role for armored formations. Equipped with proper weapons and tactics, the armored brigade wreaks havoc on the enemy, cutting inside the decision-making loops of enemy commanders, panicking conscript soldiers, and channeling enemy forces into “killing zones.”

War in the Air presents an even more ambitious scenario. Forced into war with France, Britain’s “natural enemy,” England is saved from annihilation by only three hundred heavy bombers. These “giants” paralyze the French with a decapitating strike on Paris, destroy the inferior and fighter-heavy French air force in aerial combat, and then, despite being used in the less than optimum role of close air support, shatter a French invasion that has somehow managed to come ashore in the south of England. The message of *War in the Air* is a simple one: a state with a strategic bombing force need fear no rival, particularly if its leaders are willing to use a preemptive strategy.

Both Graham’s and Helders’s works give what can only be described as terror a central role in a successful war strategy. Graham’s tanks—invulnerable, rapid, and deadly—drain the will from their victims and increase the number of civilian refugees with which the invaders will have to contend. But this terror is small beer compared to what Helders envisions. Helders’s airplanes drop gas, high explosive, and incendiaries with the express purpose of terrorizing civilian populations to the point where they will riot in order to force their governments to sue for peace. The heavy bombers’ impact is as devastating psychologically as it is militarily.

Graham clearly belonged to the school of Fuller and Liddell Hart. He was one of the young officers of the interwar period who passionately believed in the power of the tank and sought to force change upon an unresponsive military establishment. As such, he is an interesting author and a good exemplar of the breed of security professionals who were willing to risk the wrath of their services in order to serve what they perceived to be the greater good.

Helders, cut from the same proselytizing cloth as Graham, is even more interesting from a personal point of view. “Major Helders” is a *nom de plume* for General der Flieger (that is, of Aviation) Dr. Robert Knauss, a die-hard proponent of the big bomber and one of the men who helped orchestrate Germany’s secret rearmament during the period between the wars. Unlike Graham, Knauss did not have to convince a government that it was time to increase the production of military equipment. His fight was with other military missionaries who were eager to secure what resources were available for armored formations, submarines, or tactical aviation.

Graham's *Dora* failed to connect with the public, but Graham and like-minded officers eventually were fairly successful in selling their "gift from the heavens."¹⁰ Although the fight was always uphill and the gains never as wide or deep as the armor missionaries wanted, Britain did come to embrace the idea of independent tank formations and increasingly exercised armor-specific formations on the Salisbury Plain. These efforts gained a boost as cavalry units, smarting under a universal realization of their obsolescence, seized upon armor as a way to retain their importance, and their customs and traditions as well, by replacing their flesh-and-blood mounts with mechanical ones.

Knauss's work was far better received than that of Graham. *War in the Air* was translated into several languages and conveyed well the idea of bombers always "getting through." It failed to produce results in Germany's revitalized war efforts, but that was largely due to the death (fittingly, in the crash of a Ju-89, the prototype for Knauss's "Giants") of General Walter Wever, Knauss's patron and Germany's leading advocate of the centrality of strategic bomber forces. While both Graham and Knauss were focused on Europe, a Seer was busy writing about what he believed would be the next Great War, a conflict between the navies of Japan and the United States for control of the Pacific Ocean and the resources of Asia. This was Hector C. Bywater, and his 1925 *The Great Pacific War: A History of the American-Japanese Campaign of 1931–33* gathered a great deal of attention indeed. Bywater was an intriguing individual. As a boy (he was born near Portsmouth, England, a British subject) he was fascinated by naval matters, and this interest never faded. At the age of nineteen he became a journalist for the *New York Herald*, covering the Russo-Japanese War of 1904–1905 from Tokyo. He continued his interest in and reporting of naval matters. In the years before the First World War he became an agent of MI5 (the British counterintelligence and security service), with the pay of a lieutenant commander, using his access as a journalist to spy for Britain. His portfolio eventually included both American and German naval activities.

Aided by his deep knowledge of naval matters, the disposition of U.S. and Japanese forces, and the dictates of geography, Bywater pictured a war in which the Japanese rapidly struck without warning, forcing the United States back across the Pacific and leaving Japan safe behind concentric island rings of defenses. The United States, far from accepting the initial losses or seeking an armistice, girded for battle, flexed its industrial muscle, made good its damage, and came sweeping back, forsaking a direct route to Japan in favor of an island-hopping strategy. Bywater gave pride of place to battleships, and his vision of the war's climactic battles owed more to Mahan than Douhet, but he did not discount the role of the aircraft, the submarine, or the amphibious invasion in his envisioned war.¹¹

In contrast to many works in this genre, Bywater's prose was slick and his story well paced and enjoyable. The book, initially declined by publishers in the United States as too provocative, appeared in Britain to rave reviews—one, in the U.S. Naval Institute *Proceedings*, by Admiral William S. Sims, commander of U.S. naval forces in Europe during World War I. Bywater then received what any writer can only see as a gift from heaven. Franklin Delano Roosevelt, then the Assistant Secretary of the Navy, took him on in the pages of the *Baltimore Sun*, claiming that such a war was not possible. Interest in the book duly skyrocketed; more editions were printed, it was translated into several languages, including Japanese, and naval officers from Washington to Tokyo analyzed the work in depth.

Whether or not Bywater's book directly impacted the actions of naval planners will likely never be known. What is known is that War Plan ORANGE was revamped. An anticipated direct strike at the Japanese home islands was scrapped and an island-hopping strategy substituted. When World War II eventually engulfed the globe, both the Japanese and the United States would use strategies very similar to those predicted by Bywater.

War accelerates all forms of change, and the Second World War was no exception. World War I had left security professionals at the doorway of mechanized warfare; World War II ushered in the atomic age. It also provided Lieutenant Colonel Robert B. Rigg ample opportunity to serve as a Promethean, delivering nuclear fire.

Rigg had started his U.S. Army career as an officer in the cavalry, literally on horseback. He transitioned to armor and also served as a military observer during Mao Tse-tung's victory over Chinese Nationalist forces. He then served in the Army research and development branch, working for Lieutenant General James Galvin, who had won fame in World War II as the Army's youngest, and one of its first, paratroop generals. In 1958 Rigg wrote *War—1974*, a future history of atomic war on the Eurasian continent.¹² His book, while perhaps deficient in literary style, concentrated on the technological advances and new tactics such a war would bring. In Rigg's Promethean vision, flying tanks, electronic sensors, missile-firing submarines, data networks, and vertical assault by troop-carrying helicopters were all featured. He also foresaw eternally orbiting atomic-powered aircraft, fuel supplies delivered by rocket to armored units in the field, and single-man "flying disks" used as observation platforms. In Rigg's war, command and control are decentralized, units not supremely mobile are incinerated in nuclear fire, and warfare consumes the human, fiscal, and material resources of entire nations.

Rigg's thinking reflected that of those in the Army who would eventually transform its organization from that of the Second World War and the follow-on

Constabulary in Europe and Germany to the “Pentomic Army,” designed to fight and win on nuclear, as well as conventional, battlefields.¹³ This concept survived into the early 1960s.

Rigg’s book was published during a period of continuing interest in nuclear weapons and the forces that would use them. Faint echoes of General der Flieger Knauss could be heard as U.S. Air Force generals, notably Curtis LeMay, argued that the combination of heavy bombers and nuclear bombs had rendered navies and armies all but obsolete. Rigg was as every bit as enamored with technology as LeMay, but his book clearly made the case for large, indeed very large, and capable ground forces.

Rigg’s book failed to catch fire with the American public, much less with a broader global readership. It could be that his depiction of epic devastation and apocalyptic destruction offered too little in the way of hope. Unlike those offered by earlier Prometheans, Rigg’s gifts did not promise reduced casualties or faster victory. Also, the end of the Eisenhower administration brought in the strategy of “Flexible Response,” which argued that Rigg’s nightmare could be avoided through the maintenance of conventional forces in Europe, a strong nuclear deterrent, and unconventional forces to handle contingency operations that would be encountered on lower rungs of the escalatory ladder.

If Rigg was the Promethean voice of the first half of the Cold War, General Sir John Hackett of the British army was the Cassandra emeritus of the second half. Hackett, like Riggs, had extensive experience on which to base his predictions, having served in the army for more than thirty years. During the Second World War he fought in Syria and Italy and had commanded the 4th Parachute Brigade during the Arnhem operation. After the war he continued to serve, eventually commanding the British Army of the Rhine, NATO’s northern bulwark against a possible Soviet invasion. In 1978 Hackett wrote *The Third World War August 1985: A Future History*, a future history of a cataclysmic Soviet-NATO clash in Europe.¹⁴

Deeply etched throughout Hackett’s book is a warning—that if the West did not increase defense budgets and field new and promising weapons systems, Soviet and Warsaw Pact forces would be able to achieve a military victory in Europe. NATO does win in Hackett’s account, but just barely, not decisively enough to avoid a limited nuclear exchange.¹⁵ Hackett clearly believed that if NATO truly wanted to avoid the horrors of a third world war, the way to do so was to strengthen its collective defenses, not weaken them, as seemed all too likely. Although dry in places and prone to lengthy examinations of command-and-control issues, *The Third World War* was highly readable and possessed an air of authenticity.

At the time Hackett wrote *The Third World War*, many serious military observers and political analysts were beginning to be concerned about the U.S.-NATO/Soviet–Warsaw Pact balance of forces. The Soviets were apparently making large strides among a variety of postcolonial and anticolonial movements. Russian advances in maritime platforms, armor, and, most especially, nuclear forces were significant and showed no signs of slowing. In the Mediterranean, Greco-Turk relations were growing increasingly strained, and the southern flank of the NATO alliance seemed in danger of unraveling.¹⁶ Growing calls for serious defense cuts in Britain’s defense budget, a growing reluctance among European youth to follow the colors, and a manifest resistance to the draft in the United States were all reasons to be concerned about the credibility of the West’s conventional deterrent.

Again in contrast to Rigg, Hackett enjoyed tremendous success with his book; eventually, more than three million copies were sold. The book was discussed throughout the NATO alliance, and no critic was able to mount a legitimate attack against Hackett’s credentials. Many of his recommendations were implemented, particularly regarding research into and the eventual fielding of certain types of weapons systems. While it would be substantially overstating Hackett’s influence to credit him with these shifts in NATO defense spending, *The Third World War* can be seen as a contributing factor to a growing willingness to put more resources into conventional deterrent forces in Europe.

After the Cold War and the successful conclusion of the first Gulf War, the U.S. military was able and willing to take on missions it had considered secondary to combat operations. These included a variety of peace operations, disaster-relief efforts, and counterdrug activities. Even more exotic tasks were undertaken, including detailing military doctors to urban hospital emergency rooms, sending military instructors to local classrooms, and (although this project was not carried out) running “tough love” boot camps for troubled teenagers. At the same time, the American public identified its military as an institution deserving the highest confidence and trust, easily scoring better in public opinion polls than Congress or the independent media. Military leaders, in particular General Colin Powell, were seen by some as more desirable presidential candidates than the men put forward by the major parties.

The combination of new missions and intense public support, among other factors, led Major Charles A. Dunlap, an active-duty U.S. Air Force lawyer, to write “The Coup of 2012,” first published in the Army War College’s journal *Parameters* in the winter of 1992.¹⁷ Dunlap presented his article in the form of an address to future war college students, looking back at the past decades. This was a classic use of future history.

Dunlap's argument is simple. Pressed by public demand to take on more untraditional missions, the U.S. military gradually becomes more and more involved in areas that previously had been the sole domain of civil organizations. Military discipline, planning, and resources typically produce successes that, in turn, bring increasing demands for deeper participation in civil life. Inevitably, a political crisis occurs, and a military leader assumes the reins of power. Unlike Cincinnatus, he does not relinquish control, and a military dictatorship ensues.

The brief and well written "Coups" attracted immediate attention from a wide variety of audiences. The article was quickly incorporated into war college and other syllabi. It made the rounds of senior officers in the Pentagon and sparked a lively debate about the nature and state of civil-military relations in the United States. Dunlap's career suffered no ill effects from his article; he is, as of this writing, a major general, serving as deputy judge advocate general of the Air Force.

The final example of this genre was published in 2005 in the pages of *The Atlantic*. Richard A. Clarke, an expert in counterterrorism and a staff member of both the Clinton and George W. Bush National Security Councils, had been a major figure in post-9/11 investigations. In his article, Clarke projects the United States ten years into the future, from which vantage point he explains how the war on terror has been lost.¹⁸ Clarke is a Cassandra of the first water. On every page he warns of the consequences of flawed policies, poor decisions, and strategic mismanagement. Terrorists seize upon every opportunity; they—and an ill-timed and mismanaged war with Iran—humble the United States.

Given Clarke's credentials and the intense public interest in the war on terror, it is surprising that "Ten Years Later" fizzled. The article generated a few letters to the editor but has passed into obscurity. There are several likely explanations for this lack of response. First, there have been no successful attacks inside the United States since 11 September 2001;¹⁹ the United States has spent a great deal of money and undergone substantial internal reorganization in order to improve homeland security. Further, it is possible that Richard Clarke, a vocal and highly visible opponent of the Bush administration, came across as too personally vested in his story. Clarke clearly felt his advice had been ignored and his talents underutilized, and "Ten Years Later" reflects this resentment. Also, at the time of publication Clarke made frequent appearances in a large variety of media venues; perhaps the public became surfeited with the former terrorism expert. For whatever reason, Clarke's work did not evoke the intense interest that the writings of Chesney, Bywater, Hackett, and Dunlap had.

GETTING THEIR WARS RIGHT

Clarke's "Ten Years Later" serves as an apt literary bookend to Chesney's *Dorking*. Between these two works lie 124 years of this peculiar subgenre of

predictive writing. The men selected for this article were all experienced professionals.²⁰ They had access to official intelligence and what can be termed “inside knowledge.” It is therefore reasonable to ask: Did they get it right? Which group—Cassandrans, Prometheans, or Seers—was most likely to be accurate?

The answer is somewhat subjective and surprising. With the exception of Bywater and, to a lesser extent, Vickers, none of the authors correctly predicted future conflicts.²¹ The Germans did not invade England in the nineteenth century. Great Britain fought no major naval duels in the Mediterranean in the 1890s. Great-power war, whether featuring armored units or air armadas, did not engulf Europe in the 1920s. The world did not have to suffer global nuclear war in the 1970s. The U.S. military has resisted any temptations to launch a coup d'état, and, say what one will about the global war on terror, any claim of a strategic American defeat at this point would be grossly exaggerated.

However, to dismiss these authors would be premature. A more nuanced look shows that if one concentrates not on the predicted wars but instead on the technologies, the prophetic power of the Prometheans begins to look rather impressive. For instance, Oakley-Foster's ironclads were to fight (though not with British crews) at the battles of the Yalu in 1894, of Santiago and Manila Bay in 1898, and Tsushima in 1905. Follow-on classes of battleships would retain almost all of the attributes that Oakley-Foster found so noteworthy. Armored brigades, much less armored divisions, would do all that H. E. Graham thought they would and more, particularly in the opening engagements of the Second World War. Although the utility of armored formations was to wax and wane over the years, the legacy of Stryker brigades in today's U.S. Army can easily be traced back to early tanks and armored vehicles so beloved by Graham. Graham's tactics, especially when combined with tactical airpower, would become the blitzkrieg, in battlefields from Poland to Egypt and Iraq.

General der Flieger Knauss would also have found justification in the emergence of massive fleets of heavy bombers and of strategic bombing campaigns designed to destroy the manufacturing capabilities of states and break the will of nations.²² However, it was the Allies who would build the air armadas, not the Germans. Also, the heavy bolt from the blue would prove less decisive than Graham's armored fist as a war-winning weapon. Public will was to prove much more resistant to being broken than anticipated, and bombing campaigns would fail to deliver the knockout blow their proponents believed they would.

Knauss, Graham, and, to a lesser degree, Oakley-Foster have one thing in common: they grossly underestimated the number of machines required to achieve their envisioned victories. Before World War II was over, there would be armored armies and corps. Knauss's entire national force of three hundred heavy bombers represents less than a third of the size of some of the air raids that

would be mounted over the Third Reich. Efforts to build fleets of dreadnought battleships may have helped trigger the First World War. In short, these Prometheans tended to oversell the capabilities of their particular “gifts from the gods.”

Of all the Prometheans, Lieutenant Colonel Rigg deserves the most credit for getting equipment trajectories correct. At first glance, such pride of place seems odd, especially in light of the rather fanciful illustrations of Rigg’s flying tanks and “big-helmeted men” published as exemplars of the technology he touted. However, when one considers the Russian Hind and U.S. Apache attack helicopters, “flying tank” does not seem so outlandish after all. Furthermore, the networked battlefield and soldiers, precision munitions, and warfare in the electronic spectrum are all among Rigg’s successful predictions.

What, then, of the track record for the Cassandrans? The short answer is that history did not bear out authors who raised the alarm and sounded the tocsin. This, however, does not mean they were fundamentally wrong. For example, the flaws in the British army identified by Chesney endured long after his death. There is little doubt that had the German and British armies collided under the circumstances he describes, the forces of the kaiser would have triumphed. As it was, however, the Royal Navy kept potential continental enemies at bay, and a British policy of avoiding European entanglements bought the time required between 1871 and 1914 to modernize and gradually create a truly modern army.

The case for Hackett’s *The Third World War* is more difficult to make. There is much less consensus on what would have been the results of a NATO/Warsaw Pact clash; thankfully, history has ensured that it will remain a question without an answer. Nor is it possible, by any means, to feel sanguine about such a conflict’s not escalating to a global nuclear exchange. What gave Hackett’s writing such power was that his warning was seen at the time as timely and plausible.

Events have borne out Dunlap’s “Coup of 2012” even less. The U.S. military, grounded from its creation in the notion of subordination to civil authorities, has indeed become more involved in operations other than war. However, these operations are nothing new; they have been part of the services’ mission set since the Revolutionary War. There have been outspoken flag officers before, and there undoubtedly will be again. In these cases, the American system has been self-correcting. Dunlap’s piece was well timed and well written, and it reflected responsible concern over the future employment of U.S. forces. But as a pre-scient warning of impending danger, it has been shown to be excessive and wrong.

At present, Richard Clarke’s writing seems in retrospect to have more in common with that of Dunlap than of Chesney. Terrorist actions against American targets have occurred neither when nor how Clarke predicted they would. Yet it

would be dangerous to dismiss Clarke's writing altogether. There are still several years to go before his ten-year leap into the future is truly history. Al-Qa'ida remains active, and its opposition to the United States is unabated. Despite the absence of a major attack in the United States since 2001, efforts to strengthen U.S. defenses continue. Thus while it appears that Clarke may have overstated his case, it is far too early to discard his warning.

This leaves the Seers—Bywater, with his *The Great Pacific War*, and Vickers, with *The Trenches*. Although only running sixteen pages, Vickers's work depicts the classic World War I battlefield with a high degree of fidelity. In his vision, machines, especially automatic weapons and modern artillery, force men to dig for their survival and accept a subterranean existence as a military necessity. This results in a nearly unbreakable battlefield status quo. In order to gain victory, a way must be found to close the range between the trench lines. On battlefields dominated by machines, only other machines can perform this feat.²³ Vickers correctly identifies the characteristics necessary for the machine that is needed: the vehicle must be armored, to survive on the fire-swept field; it must be tracked, to navigate a blasted, torn, and potentially muddy terrain; and it must be powered by an internal combustion engine, to be able to move the armor it carries and drive its tracks. Furthermore, it must be manned, because its operations will require human intelligence to succeed.

Given how well Vickers developed this futuristic vehicle, it is surprising that he missed a further, and last, essential characteristic and a more obvious strategy: a gun that would have turned the tractor into a tank, and a strategy of assaulting head-on rather than advancing entrenchments. It might be that as an engineer he was naturally inclined to think about fortifications and entrenchments. Still, as a foreshadowing of the reality of the First World War, *The Trenches* comes very close indeed.

Finally, we have Bywater and *The Great Pacific War*, and it deserves special attention. Although his timeline was off by a decade, Bywater correctly anticipated the strategic course of World War II in the Pacific. In his book the war is initiated by a bold and undeclared Japanese strike.²⁴ Bywater's Japanese invasion of the Philippines is all but identical to the actual operation later conducted by the Japanese. Bywater anticipates a gallant defense of one of the U.S.-held islands (Guam in his case, versus history's Wake). The United States is forced to adopt an island-hopping strategy, and in the end American industry, once placed on a war footing, overwhelms its Japanese counterpart. Aircraft and submarines play important roles in the war, even if the main naval battles in Bywater are Mahanian in nature. Taken all together, the effect is remarkable.

How did Bywater get his war so right? First, he understood the tyranny of geography. A Pacific war would place the Japanese in a strong strategic defensive

position, especially if they could quickly seize, fortify, and operate from distant island chains. Bywater also understood local hydrographic conditions; a study of the Philippines reveals only a few places suitable for large amphibious operations. Bywater also recognized that an island-hopping campaign, not a direct assault, offered the best chance to defeat a Japanese opponent. Bywater further saw how quickly the industrial potential of the United States could be harnessed and how quickly Japanese efforts to maintain parity would be overcome. Thus a large part of the credit for Bywater's prescience can be attributed to his experience with naval matters and his perception of the future battlefield.

There is as well a more personal, but yet still possible, reason for Bywater's accuracy. As has been mentioned, American naval planners, following the publication of Bywater's book, did modify War Plan ORANGE. Among other things, they increased the protection afforded the Panama Canal and adopted an island-hopping strategy in case of war with Japan. In the same period, the Japanese naval attaché to Great Britain, Captain Isoroku Yamamoto, spent an entire evening discussing the book with Bywater (over a bottle of scotch). In 1941, Admiral Yamamoto would, as commander in chief of the Combined Fleet, effectively run the Japanese navy. It was he who had the idea of an initial strike against the U.S. Pacific Fleet in Hawaii. Is it possible that Bywater's book, grounded in geographic reality and studied by both future combatants, became in this respect a self-fulfilling prophecy? Unfortunately, Bywater's life has spawned something of a cottage industry of conspiracy theories, so it is difficult to pursue this line of inquiry much farther.²⁵

What, then, are some general conclusions that can be derived from this subgenre of literature? First, while this eccentric subgenre of literature is small in size, there is no reason to believe it is extinct. Given the historical track record, a major addition to the volume of work can be expected at least once a decade. Each will have a reasonable chance of success and may even become the "talk of the (policy) town."

Second, categorizing the authors of such works as Prometheans, Cassandrans, and Seers is a viable approach. The material highlighted here as well as additional works in this genre all fit within these categories. In addition, the categories clearly capture the general thrust of the various writings.

Third, Seers, Prometheans, and Cassandrans all reflect the security angsts of their times. However, no one in any of these groups has been able truly to shatter the event horizon, in that contemporary political alignments, weapons systems, and other realities have prevented the accurate envisioning of a distant future. Thus the farther the event horizon, the less likely the author is to be correct.

Fourth, some fairly reliable “weighting” patterns emerge that make this methodology useful to the security analyst—in fact to anyone with an interest in future military planning, strategy, or forces:

- The Seers are more likely to be correct than either the Cassandrans or the Prometheans.
- The Prometheans are likely to identify important emerging weapons systems, tactics, and technologies correctly but are likely to overstate their value.
- Cassandrans are highly likely to be wrong, and future examples of this genre should be taken with a very large grain of salt. But it is this very lack of success that makes the Cassandrans’ writings so interesting.

Although this article has confined itself to writings by past security professionals, the value of a more comprehensive awareness among today’s security professionals of the larger field of predictive military literature should not be immediately discounted; Arthur Conan Doyle’s short story “Danger,” for instance, ranks as one of the more accurate Promethean accounts. It may well be, in fact, that writers without the cultural blinders and organizational baggage typical of military and political experts will be able to sense more accurately the shape of the future. In an era in which even the most traditional security professional acknowledges the impact of asymmetric forces, such insights may be more useful than ever.

NOTES

This article would never have been written were it not that several years ago I designed and cotaught an elective course of study entitled “Future Wars” at the Naval War College. My partner in that effort was Lieutenant Colonel Patrick Donahoe, U.S. Army, a remarkable soldier and scholar.

1. I am indebted to the pioneering work of Professor I. F. Clarke, former professor of English studies at the University of Strathclyde. Professor Clarke has produced several books on the subject of literary efforts to predict conflict, including *Voices Prophesying War: Future Wars 1763–3749*, 2nd ed. (Oxford: Oxford Univ. Press, 1992), and *The Tale of the Next Great War 1871–1914: Fictions of Future Warfare and Battles Still-To-Come* (Syracuse, N.Y.: Syracuse Univ. Press, 1996).
2. While Chesney scrupulously avoids identifying the Germans as such, his description of troop types, equipment, and tactics leaves no doubt as to the nationality of the invaders.
3. Chesney dealt with the pesky problem of British maritime superiority by inventing a crisis in the Mediterranean Sea that draws off sufficient naval assets to allow the enemy to land his invading army intact.
4. An excellent example of a naval Cassandran account is Capt. S. Eardley-Wilmot’s *The Next Naval War* (London: Edward Stanford,

Looking at some of the same works as this article, Dr. Clarke is more concerned with the broader field of apocalyptic literature and does not confine his studies to material created by security professionals only.

- 1894). Eardley-Wilmot tells the tale of a French victory, primarily through the use of subterfuge, mines, and torpedoes, over the Royal Navy. Four editions of the book were eventually published.
5. Like many of these writings, *In a Conning Tower* also, almost inadvertently, enters the realm of social engineering. Oakley-Foster's piece reduces the crew of the ironclad to near automatons, performing individual functions with machinelike reliability and being replaced when damaged or destroyed. The only personality that matters, the only human whose feelings may be taken into account, is the captain, whose experience, courage, and decision-making capacity constitute the brains and spirit of the ship.
 6. Clarke, *Tale of the Next Great War*, p. 377.
 7. Douhet's *Il dominio dell'aria* (*Command of the Air*) was originally published in 1921.
 8. Interestingly, while the airpower Prometheans acknowledged the growing role of armor on the battlefield and the armor Prometheans did likewise for the growing power of the aircraft, each saw the other as either a supporting or ancillary force. Thus, proponents of blitzkrieg tended to avoid popular fiction as a means of advancing their arguments.
 9. H. E. Graham, *The Battle of Dora* (London: William Clowes and Sons, 1931); and Major Helder [Robert Knauss], *The War in the Air 1936* (London: John Hamilton, 1932).
 10. Graham's work was in all likelihood doomed from the start. *The Battle of Dora* is one of the worst-written pieces in the entire genre. Characters are barely one-dimensional, the humor is forced, the writing uninspired. While a careful reading does produce useful bits of information and nuggets of insight, the book is hard sledding. Mercifully, it is rather short, running to only seventy-five pages.
 11. All of these elements of naval combat were the subject of debate at the time. Entrenched naval leaders believed that the submarine and aircraft were predominantly scouting vehicles and that the Gallipoli campaign of the First World War had proved the limitations of sea-borne invasion forces.
 12. Robert R. Rigg, *War—1974* (Harrisburg, Pa.: Military Service, 1958).
 13. General Gavin, Rigg's superior, was not among these. "Pentomic" referred to the new organizational pattern—five rifle companies in a "battle group," five battle groups in a division, etc.
 14. General Sir John Hackett, *The Third World War August 1985: A Future History* (New York: Macmillan, 1978).
 15. From a literary point of view, the limited nuclear portion of Hackett's war, essentially a Russian-initiated trade of Birmingham for Minsk, represents one of the most artificial and forced portions of the book.
 16. James Brown, "Challenges and Uncertainty: NATO's Southern Flank," *Air University Review* (May–June 1980), available at www.airpower.au.af.mil/airchronicles/.
 17. Charles J. Dunlap, Jr., "The Coup of 2012," *Parameters* (Winter 1992–93), pp. 2–20.
 18. Richard A. Clarke, "Ten Years Later," *Atlantic* 295, no. 1 (January–February 2005), pp. 61–77.
 19. This is most certainly not to imply that such an attack is now impossible.
 20. This genre has been exclusively populated to date by male authors.
 21. In fairness, the jury could be said to be still out in the case of Richard Clarke's "Ten Years Later," although his future time has so far proved inaccurate.
 22. Considering that he survived the war and spent some time in a French prisoner-of-war camp, it is possible General Knauss's self-justification might also have had a somewhat rueful component.
 23. In his own way Vickers acknowledges the role that U.S. manufacturing capabilities will play in future wars, if not perhaps in the First World War.
 24. Hector C. Bywater, *The Great Pacific War: A History of the American-Japanese Campaign of 1931–33* (New York: Houghton Mifflin, 1925; repr. New York: St. Martin's, 1991), p. 22 (of 1925 ed.).
 25. See William H. Honan, *Bywater: The Man Who Invented the Pacific War* (London: Macdonald, 1990).