

Chapter 1:

Old Thoughts, New Problems: Mahan and the Consideration of Spacepower

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Over a century ago, the rapid expansion of global overseas trade brought about by the advent of improved steam propulsion and advances in ship design and construction posed new national policy and security questions for the United States. First, to what degree did American economic prosperity depend upon being a major active participant in maritime commerce? Second, what were the naval implications of such action with respect to the extension and defense of important, if not vital, American interests? Third, what role should the U.S. Government play in the promotion of maritime commercial activity and the creation of the naval forces required to protect American overseas trade? And fourth, what changes, if any, were required with respect to the direction of American foreign policy? In 1890, Captain Alfred Thayer Mahan, a serving officer in the U.S. Navy, published *The Influence of Sea Power upon History, 1660–1783*. This book provided a comprehensive statement about maritime commerce, naval power, government policy, and international politics that became the theoretical point of departure for almost all discussion of what was widely regarded to be the most important national security problem of the day, both in the United States and around the world.

Today, the importance of space as a venue for economic and military activity in certain respects resembles the conditions of maritime commerce and naval power in the late 19th century. These circumstances prompt two questions: first, is a history-based exploration of prospects and possibilities of spacepower, in the manner of Mahan, a viable intellectual proposition? Second, does his work contain ideas that are applicable to spacepower or at least suggest potentially productive lines of inquiry? Addressing these issues, however, requires a sound foundation—namely, an accurate understanding of Mahan's major arguments and his manner of reasoning. Unfortunately, misunderstanding Mahan is the rule rather than the exception. His writing is rarely read, and the bulk of the critical literature is corrupted by serious interpretive error. What follows is a schematic representation of Mahanian argument that can be related to the consideration of the nature of the theoretical problem of spacepower.¹

Alfred Thayer Mahan's *The Influence of Sea Power upon History, 1660–1783* is widely regarded as the first important study of the relationship between naval affairs and international politics. Mahan subsequently published more than 20 additional volumes that extended and elaborated upon the views presented in this book. Inclusion in this book of a chapter based upon the traditional summary of Mahan's main ideas could be justified as an obligatory nod to tradition or an act of faith in the capacity of patristic writing to inspire strategic insight. Recent scholarship, however, has demonstrated that Mahan's thinking about seapower has been fundamentally misunderstood. This chapter will thus examine three areas where the new interpretation of Mahan affects

consideration of problems that are of interest today. The first is naval and military cooperation when fighting in inland or coastal waters. The second is the nature and role of naval supremacy with respect to a complex world system of trade. The third is the requirements of naval higher education in a period of rapid technological change. In other words, Mahan's work will be related to jointness and power projection, the expansion of the global economy, and the cognitive qualities necessary to fully grasp the process of radical changes in major weaponry and their use known as *transformation*.

There are three main arguments. First, Mahan believed that when one side in a conflict possessed absolute sea command or, in special cases, even temporary local control, naval operations in direct support of land forces could be of decisive importance. Second, Mahan maintained that naval supremacy in the 20th century would be exercised by a transnational consortium acting in defense of a multinational system of free trade. Finally, Mahan was convinced that the sweeping improvement of naval materiel by radical technological change had not eliminated tactical and strategic uncertainty from the conduct of war, and that the enhancement of executive ability through the rigorous study of history should therefore be the basis of naval officer education. Mahan is often portrayed as a purveyor of truisms about naval strategy and doctrine based upon misreadings of fragments of his writing or, all too often, upon no reading of the original texts at all. The resulting caricature is frequently either misapplied or dismissed as outdated. This chapter, which is informed by the study of all of Mahan's major publications and surviving correspondence, intends to demonstrate that there is good reason to recall the adage, "When you want a good new idea, read an old book."

Complex Interrelated Dynamics

Alfred Thayer Mahan was an officer in the Union Navy during the Civil War. Although never a participant in a major battle, his Active service included many months of inshore work in small warships enforcing the blockade of the Confederate coast. Nearly two decades after the end of hostilities, Mahan accepted a commission to write a book about naval operations on the Caribbean coast and up the Mississippi and Red Rivers in the War Between the States. In addition to being able to draw upon his own experience during this conflict, Mahan studied memoirs and documents and corresponded with veterans from both sides. The completed work, which was entitled *The Gulf and Inland Waters*, was published in 1883. Several years after the appearance of *The Influence of Sea Power upon History* and its two-volume sequel, *The Influence of Sea Power upon the French Revolution and Empire*, which came out in 1892, Mahan produced a biography of the admiral who commanded most of the Union operations described in his first book. *Admiral Farragut*, published in 1897, gave Mahan another opportunity to present his views on fighting in littoral and interior waters that involved cooperation between the Army and Navy.

During the Civil War, the lack of a fleet meant that the Confederacy could not mount an effective challenge to Union control of the high seas. Moreover, the naval weakness of the Southern States exposed their vital internal riverine communications and major ports to seaborne assault. Over the course of the 4-year conflict, the territorial integrity and

economic vitality of the South were compromised by the integrated action of the Union Army and Navy, which established Northern control of the Mississippi and captured New Orleans and Mobile. Mahan's two accounts of these campaigns demonstrate that he possessed considerable knowledge of the special characteristics of brown-water fighting, appreciated the necessity of connecting the activity of land and naval forces, and recognized that the success of joint operations had been a major contributor to the ultimate Union victory. In books written before and after the Farragut biography, Mahan criticized Nelson's advocacy of amphibious operations in support of land campaigns and in general opposed overseas expeditions. But these views were applied to circumstances in which the opposing side possessed—or was supposed to possess—the capacity to dispute sea command. Mahan thus reasoned that any attempt to project power from water to land risked naval assets that were needed to preserve the general control of the oceans upon which all depended. When the maintenance of maritime lines of communication was not an issue, he had no objection to using naval force in combination with an army to achieve a military objective and understood that such action could have great strategic value.

Indeed, Mahan attributed his initial inspiration for the idea that naval supremacy was of much larger historical significance than was generally recognized to his reflections on a historical case involving the use of uncontested command of the sea to achieve decisive military success. In his memoirs, he recalled that in 1885, he had chanced upon Theodor Mommsen's history of ancient Rome. While reading this book, Mahan was struck by the thought that the outcome of the wars between Rome and Carthage would have been different had the latter possessed the ability, as did the former, of using the sea as an avenue of invasion, instead of moving its armies over land. After some reflection, Mahan decided to apply the example of the victory of a state that could use naval force effectively over one that could not to the history of European wars in the late 17th and 18th centuries. This resulted in the first of the "influence of sea power" volumes in which Mahan closed the introduction with a lengthy examination of the naval aspects of Rome's defeat of Carthage. He ended the main narrative of *The Influence of Sea Power upon History* with an account of the British defeat at Yorktown in 1781. The outcome of this battle was determined by the reinforcement of American and French armies by sea and French naval control of surrounding waters, which prevented a British fleet from relieving the besieged British army. The Yorktown disaster prompted negotiations that ultimately ended the war and established American independence. In the book that made his reputation, Mahan thus used the survival of what was to become imperial Rome and the creation of the United States as powerful historical testaments to the transcendent value of using naval force in support of military operations.

But *The Influence of Sea Power upon History* also introduced a set of propositions about the relationship between the economic basis of national strength and the development and effective use of a navy. Seaborne trade, Mahan maintained in his first bestseller, was a critically important generator of wealth. In the event of war, a nation that could protect its own maritime commerce while disrupting that of its opponent could shift the balance of national resources decisively in its favor. A fleet capable of winning and keeping command of the sea was required to accomplish both of these tasks. In peace, a great

state was thus well advised to do everything it could to build the strongest possible navy. Over time, the cumulative effect of sound naval policy and strategy in peace and war was economic prosperity and territorial aggrandizement. Naval force structure and deployment were also important variables. Cruiser attacks on scattered shipping, Mahan believed, were incapable of inflicting prohibitive losses on a large merchant marine. Blockade of the enemy's main ports—implemented by a fleet of battleships capable of defeating any force that was sent against it—was the only way to accomplish the complete or near-complete stoppage of overseas commerce required to achieve a significant strategic effect against a great maritime power. For this reason, Mahan made the number of battleships the measure of naval potency, and the destruction of the enemy battle fleet through decisive engagement—for the purposes of either securing or breaking a blockade—the main operational objective of naval strategy.

These interrelated arguments addressed major concerns of Mahan's own time. From the 1880s, the general expansion of European navies in response to increasing imperial rivalry was accompanied by intensive debate over the relative merits of a naval strategy based on commerce-raiding by cruisers as opposed to one based on command of the sea by battleships. In addition, the advent of steam propulsion and metal hulls had vastly increased the efficiency of maritime transport, which in turn caused a sharp upturn in overseas commerce and the wealth generated by this kind of activity. Mahan's choice of European great power conflict during the late age of sail as the vehicle for his argument also favored discussion of the general struggle for naval supremacy over case studies of combined operations along coasts and rivers. So although Mahan clearly recognized the importance of power projection from sea to land, it was his examination of the contest for command of the sea and its political-economic consequences that created the immediate wide audience for *The Influence of Sea Power upon History* and later publications. The resulting association of Mahan with arguments about naval supremacy exclusively distorted perception of his identity as a strategic theorist, setting the stage for misleading comparisons with writers who focused more attention on the relationship of land and seapower, such as C.E. Callwell and Julian Corbett. But a far greater problem was created by the serious misunderstanding of the basic character of Mahan's rendition of European naval history in the age of sail, which led to the drawing of faulty inferences about Mahan's fundamental views on grand strategy.

The "influence of sea power" series began in the mid-17th century with a situation in which three major maritime states—France, the Netherlands, and England—were roughly balanced with respect to naval prowess and accomplishment. It ended in the early 19th century with the wars of the French Revolution and Empire, during which Britain's Royal Navy more or less ruled the waves. In addition to the two works named previously, which provided an overview of the entire period, there were two supporting case studies: a biography of Admiral Horatio Nelson and an account of the War of 1812. In terms of plot, the entire series could be read as the story of the rise of Britain's naval supremacy and its consequent achievement of economic and political preeminence in Europe. In terms of moral, the series seemed to say that Britain's sustained, aggressive use of a large fleet to obtain territory, wealth, and power could be emulated by any state that had the mind and will to follow the British example. Mahan, many believed, had produced an

analytical history that was intended as a grand strategic primer for his own times, and in particular for the government of his own country. He was indeed a proponent of a much-strengthened U.S. Navy. It was thus not hard to imagine that he hoped that his homeland would become the world's greatest power in the 20th century by the same means that Britain had used to achieve this status in the period covered by his histories. And the fact that the United States ultimately rose to the top in large part through the effective use of naval supremacy only reinforced the propensity to draw inferences such as these about Mahan's underlying motive.

Careful consideration of Mahan's actual writing in the "influence of sea power" series, his political-economic outlook, and his punditry about the future course of world politics, however, makes it impossible to accept the foregoing characterizations of his account of naval warfare in the late age of sail and their intended application to the 20th century. The first installment of the series is about the failure of France to exploit its maritime assets properly, which, in Mahan's view, allowed Britain to achieve major successes in war virtually by default. Mahan chose to close the book with a disproportionately lengthy account of the American Revolution, a conflict in which sound French policy and deployments resulted in Britain's defeat and the loss of a vast and rich colonial territory. In the wars of the French Revolution and Empire, the navy of France was compromised from the start by political upheaval and institutional disintegration. The second installment was thus about Britain's use of naval supremacy to contain a militarily preeminent France through a strategy of attrition. Mahan did not hold that the ultimate outcome was preordained—that is, naval supremacy as such guaranteed victory. Given the evenness of the balance between the opposing sides, he argued in both the second and the third installments, the triumph of Britain depended upon extraordinary operational naval leadership in the person of Nelson. In the concluding installment, Mahan's main theme was that inadequate American naval strength was the fundamental explanation of diplomatic failure before the War of 1812, and naval operational impotence, with all its attendant serious strategic drawbacks, during the conflict.

Britain and its naval strategy did not, in short, represent the focus of the "influence of sea power" series. Mahan's histories did not comprise a simple morality play about a single state acting according to a prescribed general course of action but rather provided a complex picture of the interrelated dynamics of naval and maritime commercial activity on the one hand, and international politics on the other. Mahan's essentially liberal political-economic views, moreover, meant that he rejected the mercantilist conception of a world consisting of competing players with mutually exclusive interests. Mahan believed that free trade between nations promoted increases in the volume of international exchanges of goods that worked to the benefit of all participants. The great expansion of French overseas shipping after the War of the Spanish Succession, he argued in the first installment of the series, was attributable to peace and the removal of restrictions on commerce, not government initiatives. In the second installment, Mahan observed that seapower was an organism that included not only organized naval force but also free maritime enterprise. While the former depended upon state funding and direction, the latter thrived in the absence of government interference. During the wars of the French Revolution and Empire, Mahan maintained, the British state was able to

exploit the prosperity produced by an international sea-based mercantile system that it could protect but did not possess. It was not, in other words, the owner of seapower, but rather its custodian.

Mahan believed that Britain had been both the defender and main beneficiary of seaborne trade in the late 18th and early 19th centuries because Parliament had been dominated by a small group of men with close ties to maritime commerce. Such an oligarchy was predisposed to favor heavy spending on the navy, which produced a fleet strong enough to defend a merchant marine that carried a large proportion of the world's overseas trade. Over the course of the 19th century, however, the democratization of the British political system undercut the manipulation of government policy by a mercantile elite. As a consequence, Mahan argued, the British state of the late 19th and 20th centuries had lost the will to finance a navy capable of defending what had become a much larger and increasingly multinational system of oceanic economic exchange. Moreover, in Mahan's view, no single democratized power could be capable of assuming such a burden. For this reason—and the fact that he was convinced that free trade conditions provided large benefits to all major maritime countries—Mahan concluded that in the 20th century, naval supremacy would be exercised by a transnational consortium of navies. The basis of such a system, he insisted, would not be formal agreement, but the absence of important conflicts of political interest coupled to a common stake in the security of a highly productive form of economic activity. Mahan was thus convinced that Britain and the United States would cooperate without recourse to a treaty, and that in such a relationship the latter would serve as the junior partner. To play even this supporting role effectively, Mahan insisted America needed a larger navy. He did not advocate the creation of an American Navy that was stronger than every other unless the British navy was weakened by inadequate financing or war with a competing European enemy.

Mahan offered his views on the future course of international affairs in articles written for periodicals that were later collected and published as books, and in several occasional book-length monographs. Mahan contemplated a range of possible courses of events. These included the containment of an expansionist Russia by an international coalition, war between Britain and Germany, and even a cataclysmic collision between European and Asian civilizations. What he did not do was apply a crude reading of the great power contests of the late age of sail to the industrial future by imagining the rise of a hegemonic United States through offensive naval war and mercantilist economic policy. And while his realist temperament prompted him to argue that war and the threat of war would be likely facts of life for the foreseeable future, Mahan did not rule out either the possibility or desirability of general peace founded upon the workings of an international system of free trade. In such a world economy, he was confident that the energy and entrepreneurial spirit of the American people would enable them to compete successfully.

In the second half of the 19th century, the onset of industrialization transformed naval materiel within the span of a generation. When Mahan was a midshipman at the United States Naval Academy just before the American Civil War, he was trained on wooden sailing ships armed with muzzle-loading guns. By the time he retired from the Service at the end of the century, steel warships propelled by steam and equipped with breech-

loading guns of much larger size and power were standard. The sudden obsolescence of much of what had constituted traditional naval fighting practice as a result of rapid technical change, and the virtually worldwide sense that what really mattered in war was the possession of the latest and therefore most capable naval armaments, undermined the self-confidence of naval executive officers. Conversely, naval officer technicians could celebrate the wonders of technical improvement and claim that the critical importance of qualitative advantage in materiel had made their activity central to the efficiency of the Navy. Moreover, administrative burdens were magnified by the needs of managing the new technology and also the expansion of the American fleet that began in the 1880s, which created a large class of naval officer bureaucrats with pretensions to higher status that were not directly connected to executive command at sea.

These developments alarmed Mahan. By dint of intellectual patrimony and personal experience in the greatest conflict ever fought by his Service up to his time, he had decided opinions on the paramount value of effective leadership in war and how it might be developed. Mahan's father, Dennis Hart Mahan, a distinguished professor at the United States Military Academy at West Point, believed that great executive leadership was of crucial importance in war. The elder Mahan observed that at critical junctures, a commander would be confronted with complex, contingent, changing, and contradictory information, which meant that decisionmaking could never be reduced to the mechanistic application of rules or principles. The development of the kind of temperament required to facilitate sound judgment under such circumstances, he was convinced, could be encouraged by the study of detailed and analytically rigorous operational history. There can be little doubt that this outlook was imparted to his son, in whom it was later reinforced by the younger Mahan's direct observation of command decisionmaking in the Civil War. Alfred Thayer Mahan's first publication of 1879 was an essay on naval education, in which he attacked what he regarded as the overemphasis of technical subjects and called for much greater attention to the study of what amounted to the liberal arts. Such an approach, he maintained, would develop the moral qualities that officers required to be able to make decisions in the face of danger and uncertainty. The vital role of moral strength with respect to executive command and the appropriate means of improving it in naval officers became a theme in Mahan's later writing that was no less important to him than his examination of the relationship between naval affairs and international politics.

In *The Influence of Sea Power upon History*, Mahan argued that while tactics changed as the character of armaments changed, the validity of the basic principles of strategy was relatively unaffected by technical progress, and human character was an absolute constant. History, therefore, might have little to say that was of current applicability to tactics but a great deal that was pertinent to strategy and operational command. Mahan devoted as much attention in the main narrative of this work to the strategic direction of naval operations as he did to his grand strategic argument about the relationship between naval supremacy and the course of international politics. He also made a few observations about the critical effect of individual moral character on the exercise of naval command. In later installments of the "influence of sea power" series, he remained

no less attentive to strategic questions and, through his treatment of Nelson's leadership qualities, wrote at length about the moral dimensions of executive decisionmaking in war.

In several of his articles, Mahan maintained that the essence of effective command was rapid and judicious risktaking while bearing the burden of full responsibility for the outcome of action. This set of characteristics was alien to the scientific *mentalité* of the engineer, which dealt deliberately with the discovery of certainty about physical matters through controlled experiment, and the bureaucratized mindset of the administrator, which countenanced delay and fragmented accountability. In peace, an executive leader had few if any opportunities either to display his capacity for war command or acquire experience that would enable him to develop it, while technicians and bureaucrats flourished in the pursuit of engineering innovation or administrative expansion. For Mahan, therefore, serious naval history of the kind that he had produced in the "influence of sea power" series served two major practical functions. First, it reminded the Navy of what executive war command was and why it was important. And second, it provided a sound educational basis for developing it in officers who had no war experience. The latter task was accomplished through the telling of stories about naval decisionmaking in war that prompted readers to imagine the psychological dynamics as well as material circumstances that conditioned the direction of operations in a real conflict.

Mahan lacked the powers of technical ratiocination that were needed to evaluate properly a complex engineering problem such as capital ship design. His criticisms of the all-big-gun battleship in the early 20th century, therefore, failed to take into account several significant factors, which exposed his analysis to swift and thorough destruction. But Mahan was not a naval technological Luddite. If he was a critic of many of the claims made for mechanical innovation, it was because he was convinced that such progress had not eliminated uncertainty from decisionmaking in war and that the decadence of the naval executive ethos was thus a dangerous weakness. His antidote to the technological determinists of his time was history rather than political science. This was because he believed that the verisimilitude that accompanied detailed narrative about things that had actually happened could engage the minds and feelings of students of command in ways that a summary statement of lessons or abstractions could not. Mahan's preference for historical representation over the construction of explanatory systems when dealing with the past is in line with much that has been argued by proponents of chaos and complexity theory. And his recommended remedy to moral dilemma—confidence in intelligent intuition—is one that is supported by the findings of cognitive science. Viewed in light of the work in these cutting-edge areas of inquiry into the natures of human learning and behavior, the writings of Mahan may be regarded as not just relevant, but revelatory.

A Cognitive Point of Departure

For nearly 100 years, Alfred Thayer Mahan's pronouncements on naval affairs and international politics were too famous to be ignored but were also too extensive, difficult, and complicated to be easily understood as a whole. From the start, most writers on naval history and strategy misperceived his work, and successive generations compounded the errors of their predecessors, which created a large literature whose shortcomings further

obstructed access to the meaning of the original texts. As a consequence, Mahan's basic ideas have been misrepresented as follows. First, sea control was always the central question of naval strategy. Second, the ideal of national grand strategy was the achievement of naval supremacy as the prerequisite to international economic and political preeminence. And third, success in naval warfare depended upon the correct application of certain principles of strategy. These propositions add little to discussions of current naval concerns, which consider the American possession of sea control and a monopoly of superpower status practically as givens and are dominated by contemplation of the transformation of fighting practice by radical technological innovation.

The major arguments of Mahan revealed by comprehensive and rigorous critical examination, however, are very different than has been supposed. Moreover, the issues that prompted him to put pen to paper were remarkably similar to those of today. He began both his naval and writing careers dealing with joint operations in coastal waters. Mahan was confronted by the rapid expansion of a global system of free trade and uncertainty about what America's proper naval role under such conditions should be. And his generation witnessed a "revolution in naval affairs" occasioned by the replacement of preindustrial with industrial naval armaments, which raised large questions about the nature of war command and the education of those who would exercise it.

Mahan's contemplation of these problems produced the following conclusions. First, close cooperation between land and sea forces is essential for the success of joint operations, whose outcomes could determine the victor in a major war. Second, the cost of building and maintaining a navy that is unilaterally strong enough to command the seas is too high for any single power, and for this reason sea control in the 20th century and beyond would be the responsibility of a transnational consortium of navies. And third, great advances in technology do not diminish reliance upon the good judgment of naval executive leaders, who could best be prepared for high-level decisionmaking in war by the proper study of history.

Identifying Mahan's basic attitudes toward power projection from sea to land, naval supremacy, and the relationship between technological change and officer education does more than correct academic error. What were believed to be Mahan's ideas created a body of theory—whether through acceptance, modification, or rejection—that forms an enduring element of the thought processes of most senior military officers and civilian defense professionals. Changing what has long been a cognitive point of departure, therefore, has significant implications for anyone concerned with the future of national security policy and military strategy.

Mahan has been widely regarded as the discoverer of what he supposedly believed were universal truths about naval strategy that were to be applied directly. The fact is that Mahan's propositions were observations about particular phenomena rather than general lessons. When dealing with Mahan, the focus of inquiry should not, for this reason, be upon the statement of principle or delineation of precedent, but rather on his choice of issues and the complexities of the historical cases that were his main subjects. The crucial linkages between his past and our present, in other words, are not to be found in his

conclusions, but in his questions and his conduct of the inquiry. These are still worth engaging because Mahan faced problems that were similar to those that confront states and their militaries today, and he did so with a powerful intelligence that was informed by rich experience and wide reading. History was the venue for Mahan's scholarly labors, because he understood both the limits of theory and the power of narrative when it came to matters of human behavior and social organization under the conditions of war. While there is much more that can and should be written about the general and particular aspects of armed forces and national military power, approaching—to say nothing of matching—the intellectual standard of Mahan's pioneering achievement will not be easy.

Applying Mahan to Space

Mahan's major concerns and his questions about them can be restated in terms of spacepower as follows:

- What is the economic significance of the development of space activity, and to what degree does future American economic performance depend upon it?
- What are the security requirements of space-based economic activity?
- What role should the U.S. Government play in the promotion of space-based economic activity and its defense?
- What kind of diplomatic action will be required to support space-based economic activity and its defense?

Mahan's writing about seapower suggests the following answers. First, activity in space will, in manifold ways, have large and growing economic effects, and will therefore be highly significant for the economic future of the United States. Second, the security requirements of space-based economic activity will involve costs that are beyond the means of any single nation-state, including the United States. Third, U.S. Government policy can support the economic development of space and contribute to the defense of such activity, but the dynamics of both will be largely determined by private capitalism and other nation-states with major interests in the space economy. And fourth, American diplomacy should encourage international economic activity in space and be directed toward the creation and sustenance of a multinational space security regime.

Mahan's views on education and professionalism raise the question of what kind of study would best serve the development of a distinctive approach to spacepower. Mahan would almost certainly have opposed tendencies to think of space problems in primarily technical or operational terms. He used the history of naval and maritime affairs in the age of sail to formulate productive insights about such activity in his industrial present and future. His contention was that analysis of the distant past had utility in spite of very great differences in political-economic perspective (mercantilism as opposed to free trade) and technology (wooden construction and sail power as opposed to steel ships and steam propulsion). A similar approach to spacepower would be to use the history of industrial navies in the 20th century as the basis of significant thought about certain salient aspects of spacepower. Such an expedient would in effect transpose the venue of historical study forward—that is to say, the history of the 20th century would serve as an

instructive platform for the 21st as Mahan had used the history of the 18th century to guide the 19th. In addition, the naval subjects studied would change, emphasis being shifted from the examination of campaigns and wars to the consideration of technological change on the one hand, and patterns of change in grand strategic, strategic, operational, and tactical practice on the other. A great deal of attention would also have to be paid to such matters as the forms of transnational political, economic, and military and naval cooperation, and the interplay of economics, finance, legislative and executive politics, and bureaucratic administration with respect to the design and production of weapons. The writing of such a history would require use of state-of-the-art historical techniques and knowledge of an enormous scholarly literature and would demand imaginative speculation about important matters that have not yet been investigated. No such history exists, and bringing it into being would be an enormous undertaking.

Notes

1. An earlier version of this article was published in 2001 as "Getting New Insight from Old Books: The Case of Alfred Thayer Mahan," in the *Naval War College Review*. The article is presented here in its entirety, with slight modification, and is followed by a commentary on its relevance to the discussion of spacepower.