"The Foundation of Naval Science": Alfred Thayer Mahan's *The Influence of Sea Power on History* and the Library of Congress Classification System

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This is a story about how the Library of Congress classification system came to have its standalone Naval Science class. It's an important story because it illustrates how classification happens in practice, and how classification is influenced by both ideological assumptions peculiar to a given society and specific historical events.

We're going to start, not at the beginning, but in the middle of things.
We'll begin on November 24, 1896, with Librarian of Congress Ainsworth R. Spofford.

The Library was about to move from the Capitol building into the newly-built Thomas Jefferson building. And on this day Spofford was testifying to a joint Congressional committee gathering information on the condition of the Library in preparation for the move.¹

In this particular session the committee asked Spofford to explain the Library’s classification system. One by one, in reverse order, he went through the 44 divisions. Each time he gave a broad overview of the subjects within that division. Each time his Congressional interrogator, Representative Lemuel Quigg of New York, asked about a particular book or author. When Spofford listed the contents of division 29, on geography and travel, Quigg asked about Marco Polo and Captain Cook. When Spofford described division 26, on metaphysics, Quigg asked about Immanuel Kant. So when Spofford enumerated division 15, the technical arts and sciences, he explained that it was a “very large division, with numerous subdivisions,” and listed

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among the subdivisions “steam engines, railways, inventions generally…machinery, canals, iron and steel, printing…Then there are naval science and military art and science, each a very large division.” To all this Quigg asked, “Is Captain Mahan’s work there?” Spofford replied, “Yes, sir.”

Today Immanuel Kant, Captain Cook, and Marco Polo are recognizable names. But who is this Captain Mahan, and what is his importance that Quigg so readily identified him with a particular class of books? To answer that question, we need to drop back a decade and more from the Congressional testimony of 1896, to debates about politics and economics in the America of the 1880s.

After the United States’s Civil War, as white settlers colonized the interior of the country, U. S. mercantile and political interests became concerned about what would happen to economic growth once the settlement process had been completed. They began to look beyond their borders, at Latin America and overseas, as potential markets for American goods as well as sources of raw materials. Some in Congress and in the Navy bureaucracy, in favor of mercantile expansion, also argued that a greatly expanded and professionalized navy would be necessary to secure trade. And such an expanded navy with an essential role for America’s well-being, would need officers ready for the task.

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2 *Condition of the Library of Congress*, 77-78, 80, 82.

The Navy thus established a Naval War College on a small, isolated island in Narragansett Bay, Rhode Island, in 1884, taking over an old building that was previously the Newport Asylum for the Poor. At first the goal of the college was to serve as a post-graduate course for naval officers. The first president of the Naval War College was Stephen Luce.⁴

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From the beginning Luce had ambitious goals for the Naval War College, goals that encompassed yet went beyond merely serving as a post-graduate course for naval officers. In 1885 the secretary of the Navy, an ally of Luce's, proposed that the school encompass the whole of "the study of naval warfare and international law and their cognate branches." Luce brought to this study of naval warfare the belief that it should be conducted scientifically, using the methods that had been successful in increasing the knowledge and prestige of what today we'd call the humanities and natural sciences. Science, for Luce, was the discovery of general laws through a close study of particulars -- a process of induction rather than deduction. We know this approach today as positivism.  

To study naval warfare as a science, one merely had to compile the mass of facts that could be derived from naval battles throughout history, and use those to develop a set of general principles. Those principles, being universal, could then be applied to modern problems. Further,

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Luce wanted to use a comparative method, in which the study of naval science would be coordinated with that of military science. This comparative method would take advantage of the accumulated knowledge of the latter field. For Luce, the comparative method was the only way to "raise naval warfare from the empirical to the dignity of a science." Military science had its foundational scholar in France's Baron Jomini; through these scientific methods Luce hoped naval science would produce a figure equal in stature.⁶

To teach naval history at the War College Luce hired a friend and fellow-traveler, Captain Alfred Thayer Mahan. Mahan was well-known in naval circles as the author of a book on naval warfare during the Civil War, and as a committed advocate of a stronger navy. For his position at the Naval War College he prepared a series of lectures on naval history, concentrating on the Age of Sail between 1660 and 1815.

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Four years later, in 1890, Mahan would publish a revised version of some of the lectures, as *The Influence of Sea Power on History, 1660-1783*. The bulk of the book is a rather dry narrative history of naval engagements primarily between France and Britain. But at the recommendation of his publisher Mahan added an introduction that laid out the importance of understanding the study of naval principles as a science, and a first chapter that explicitly tied the lessons of naval history to the United States' present situation.7

For Mahan as it had been for Luce, science was a positivist enterprise: the collection of specifics in order to derive general principles. Yet Mahan's ambitions were larger. Luce had wanted to study battles from the age of sail in order to arrive at principles from which could be derived the proper course of conducting a battle in the modern age of steam. Luce's interests were thus primarily tactical. Mahan's, in contrast, were strategic. Mahan wanted to study not merely the course of battles, but the geopolitical deployment of "sea power" and to show how "sea power" had influenced the course of history. The principles thus arrived at could then lay

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out the proper course of political strategy for an entire country. For Mahan, then, naval science was as essential to understanding history as any other social science.\(^8\)

The first chapter laid out a set of six "elements of sea power" with particular attention to how the United States was related to each. Taken together, Mahan argued that the United States was a peaceful, unaggressive country with limited external trade that had not yet become aware of its need for a navy. Yet a canal was being built in Central America to connect the Atlantic and Pacific oceans. No longer could the United States stand aloof. The country needed to boost its external trade. Such trade would need the protection of a strong navy. And both merchant vessels and the navy would need secure ports of call in all areas of the world, but especially in the Caribbean, the gateway to the canal. Such ports would be most secure were they not under foreign control but colonies ruled directly by the United States. The first step towards becoming a sea power was to grow the country's fleet of merchant vessels -- the merchant marine. Increasing the merchant marine would have the additional benefit of producing a class of seamen well able to join the navy in case of war. Mahan concluded that Americans had the national character for the work of becoming a sea power and a colonizer -- "an instinct for commerce, bold enterprise in the pursuit of gain.... an inherited aptitude for self-government and independent growth."\(^9\)

None of Mahan's ideas were new. But they were an articulate repackaging of what had been said in the halls of Congress and within the navy for since at least 1880. And the book was

\(^8\) Mahan, *The Influence of Sea Power*, 2-10.

a tremendous success. It's been called the second-most influential book on American policy of
the nineteenth century, behind only *Uncle Tom's Cabin*.\(^\text{10}\)

Mahan was an incessant publicist of his own work, sending copies to political luminaries
in the United States and Great Britain. The publisher, Little, Brown and Company of Boston,
pushed the book hard as well. Major literary magazines in both the US and Britain gave it
favorable reviews. Not that these reviewers were unbiased. The reviewer for *The Critic* was
Mahan's superior at the Naval War College, Stephen Luce. And the reviewer for the *Atlantic
Monthly* had himself written a history of naval actions in the war of 1812 and was a fairly well-
known political figure. You may recognize him.\(^\text{11}\)

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\(^{10}\) Robert Seager, *Alfred Thayer Mahan: The Man and His Letters* (Annapolis, Md.: Naval

\(^{11}\) Seager, *Alfred Thayer Mahan*, 209-213.
one on the War of 1812, published in 1892 and 1905 respectively. Mahan was also much in
demand to write books on other aspects of naval science, including a biography of Admiral
Horatio Nelson. He found that writing for magazines was even more profitable and pumped out
articles for the major monthly magazines of the day, especially Harper's and the Atlantic
Monthly. Other publishers rushed to print books on naval history and naval strategy as well.\textsuperscript{12}

When the United States went to war against Spain in 1898, it was in pursuit of the precise
issues Mahan had written about: control of strategically-placed locations that would make good
colonies and bases for American shipping and American naval force. And the war produced a
craze for books on naval science. Mahan helpfully collected several of his magazine articles into
a book titled \textit{The Interest of the United States in Sea Power, Present and Future}. Little, Brown
and Company ran advertisements like this one for "Timely Books on Naval Subjects." Note that

\textsuperscript{12} Seager, \textit{Alfred Thayer Mahan}, 265-271.
it's mostly books by Mahan; of the three others, Mahan has written the introduction to one and "assisted" with another, along with that Roosevelt fellow again.\footnote{13}

We know the Library of Congress was aware of the increase in books relating to the Spanish-American War as well as the public's interest in the same.

In early 1898 Publishers' Weekly announced that the Library of Congress had compiled a bibliography of works relating to Cuba, which they would send to any library free of charge. Dozens of requests poured in from libraries across the country. Melvil Dewey asked for fifty copies to distribute to his library school students. By the end of the year the Library of Congress had produced similar bibliographies on Hawaii, Spain, and the Philippines.\footnote{14}


In 1898, soon after the move into the Jefferson Building, the library began to keep the public reading room open during the evening. The extended hours proved popular. Librarians found that "the evening readers are mainly students. The character of the books they select shows that as a rule they read, with serious aims, history, science, military and naval works, and much pertaining to the Antilles, Manila, and Spain."\textsuperscript{15}

And this publishing boom and concomitant public surge of interest in naval matters returns us to the Library of Congress and the question of classification.

This classification tree is drawn by Spofford himself sometime in the 1890s to illustrate the Library of Congress's system. The three major branches are based on Thomas Jefferson's division of the faculties of the mind into memory, reason, and imagination, which divided the collection into, respectively, history, philosophy, and fine arts. “Naval affairs” is the sixteenth of seventeen sub-branches off of technology, which is itself a branch of history, and the fifteenth of forty-four divisions overall.

In his testimony to Congress, Spofford was fully confident that his system was the best. It had stood the test of time. But other librarians called to testify disagreed strenuously. Both Melvil Dewey, director of the New York State Library, and Herbert Putnam, head of the Boston Public Library, believed Spofford's classification was a relic of an earlier age.16

Spofford's method, they explained to the congressional committee, only seemed to work because Spofford's thirty-five years at the Library meant he could find anything quickly. Of course he did not think it was a problem. But it was a "fixed-location" scheme that catalogued

books according to the room, shelf, and position where they sat in the library. Such a system made it difficult to add new works between the old. Instead, Dewey advocated a more flexible scheme based on the principle of relative location, in which books would be cataloged based on the books they sat next to on the shelves. He compared such a classification to an army, in which you could find an individual soldier merely by knowing his brigade, regiment, and company numbers. Perhaps not coincidentally, he himself had created such a classification. Putnam concurred that a relative-location scheme was appropriate, but argued that the Library of Congress could not merely take up a pre-existing system. The Library had unique emphases to its collection; it would do better by creating its own or at least heavily modifying an existing system.17

But both Dewey and Putnam advocated a system that would be based on the same positivist scientific methods that Luce and Mahan advocated for naval science -- except that instead of collecting historical instances and inducting a general principle, the librarians would separate the existing collection of books and create a classification based on the patterns that emerged from the subjects of those books.

So in 1898 work began on the reclassification of the collection. Spofford was largely sidelined: he had retired as Librarian of Congress and returned to his old post of Chief Assistant

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Librarian. The new Librarian of Congress, John Russell Young, and his chief of cataloging, J. C. M. Hanson, decided against using Dewey's system.  

Instead, they began to adapt, and heavily revise, another relative-location scheme, the Expansive Classification devised by Charles Ammi Cutter. Naval science was classified under the general category "Art of War."

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In 1899 Hanson produced a first draft of an outline. Unlike in the Cutter system, here naval science is listed, split off into a class along military science. I don't know what the "etc." refers to.

Young passed away that year, and was replaced as chief librarian by Herbert Putnam, formerly of the Boston Public Library. Putnam at first questioned the need for a new classification scheme and stopped Hanson's work in hopes that they could instead adapt Dewey's existing classification. But Dewey refused to allow changes to his system, and in 1901 Putnam allowed Hanson to continue his work.
That same year Hanson, along with chief classifier Charles Martel, produced a second draft of the classification. Now military and naval science had been folded back in with engineering.
But the final classification, produced in 1904, would reverse that trend and more. Now naval science was not just separated from engineering, but had been removed from military science as well into a coequal top-level class.

According to Francis Miksa, the 1904 classification represented Hanson and Martel's map of the universe of knowledge. We argue, then, that given Luce and Mahan's belief that with positivist methods the history of naval affairs could be raised to a science, it surely marked a success for them that naval science had finally been acknowledged as its own domain of knowledge. Yet knowledge, in the 1904 classification, was no longer a reflection of faculties of the human mind. Rather, knowledge was defined by the books that had been produced with those specialized disciplines. Luce and Mahan's success, then, was a result not of skillful thought so much as a sophisticated marketing of ideas congenial to the country's imperialist elite, via publishing vehicles that appealed to a public engaged in the consumption of information.19

Naval science, of course, has its own subclasses. A quick general note: these subclasses bear a resemblance to the aspects of naval science that Mahan considered key to understanding a nation's relation to sea power. Under VM, for example, is covered lighthouses and life-saving.\footnote{Library of Congress. Subject Cataloging Division et al., \textit{Classification. Class V: Naval Science} (Washington, D.C.: Government Printing Office, 1910), 5. http://archive.org/details/classnavalscienc00libriala.}

Note especially subclass VK, which includes the merchant marine. Mahan believed the merchant marine essential for naval strength. And it became so associated with the navy that it wound up classified there as well, rather than under commerce, for example.

Delving deeper into the VKs, we come across this entry. The printed classification here is from 1910, the pencil addition from the 1940s or later. VK541 is seamanship, and subtopics of that include sailing --though small boat sailing is in the GVs, sports and recreation. But sometime in the 1940s or 1950s was added a subclass of seamanship for Boy Scouts and Girl Scouts, or in parentheses grouped as Sea Scouting.\footnote{\textit{Classification. Class V: Naval Science}, 61.}
And it turns out that the Sea Scouting program within Boy Scouts was initially conceived as junior training in the merchant marine. In 1911 Robert Baden-Powell, founder of the Boy Scouts, wrote a guide titled *Sea Scouting for Boys*, in which he argued that it was essential to train more British boys for the merchant marine, because foreign sailors could not be relied upon, especially when war came and the merchant marine would need to support the Royal Navy.22

Baden-Powell was writing in the British context, but this was precisely the same argument that Mahan and others in the United States used to emphasize the importance of an Americanized merchant marine. So this little hand-written notation in the printed Naval Science classification serves as a reminder of just how complex are the processes through which our libraries are organized, how a science rooted in naïve positivism combined with imperialist and colonialist ideologies, and the commercialization and capitalization of the book publishing industry, in the making of the Library of Congress classification system.