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# The Foundations 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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## ABSTRACT

*This article is a history of the creation of the Naval Science class within the Library of Congress Classification System (LCCS) during that system's fashioning and development at the turn of the twentieth century. Previous work on the history of classification and especially of the LCCS has looked closely at the mechanics of the creation of such systems and at ideological influences on classification schemes. Prior scholarship has neglected the means by which ideologies are encoded into classification systems, however. The present article examines the history of a single class by looking at the ideological and political assumptions behind that class and the means by which these assumptions were written into the LCCS. Specifically, we argue that the Naval Science class resulted from a concerted effort by naval theorists to raise their field to the status of a science, the interest of Washington's political class in this new science as a justification for imperial expansion, and a publishing boom in naval matters as the American public became eager consumers of such work during the Spanish–American War. This complex narrative thus illustrates the manifold influences on the creation of any classification system and asks us to consider that multiplicity of influences, whether we as librarians teach about existing systems or work to build new ones.*

**Keywords:** *Alfred Thayer Mahan · classification · critical librarianship · imperialism · Library of Congress · Library of Congress Classification System · naval science*

## RÉSUMÉ

*Cet article relate l'histoire de l'ajout de la catégorie Sciences navales au système de classification de la Bibliothèque du Congrès (B.C.) durant son élaboration et son essor au tournant du vingtième siècle. Les travaux antérieurs sur l'histoire de la classification, notamment celle du système de classification de la B.C., ont examiné de près les mécanismes de création de tels systèmes et*



*les influences idéologiques sur les schémas de classification. Cependant, les études précédentes ont négligé les moyens par lesquels les idéologies se retrouvent encodées dans les systèmes de classification. Le présent article examine l'histoire d'une seule catégorie en se penchant sur les hypothèses idéologiques et politiques à l'origine de celle-ci, ainsi que les moyens par lesquels ces hypothèses ont été intégrées au système de classification de la B.C. Plus précisément, nous avançons que la catégorie des Sciences navales résulte d'un effort concerté par les théoriciens navals pour faire de leur domaine une science ; de l'intérêt porté par la classe politique de Washington à cette nouvelle science pour justifier l'expansion impériale ; et de l'essor de l'édition sur le sujet pour satisfaire un public américain devenu friand de ces travaux au cours de la guerre hispano-américaine. Cet exposé illustre ainsi la complexité des influences variées qui s'exercent sur la création d'un système de classification, et nous invite à examiner la multiplicité des influences à titre de bibliothécaires qui enseignent les systèmes existants ou qui s'emploient à en créer de nouveaux.*

**Mots-clés :** Alfred Thayer Mahan · bibliothéconomie critique · classification · impérialisme · Library of Congress · sciences navales · système de classification de la Bibliothèque du Congrès

**I**T is a most unusual day when a member of the United States House of Representatives evinces an interest in systems of classification. Yet November 24, 1896, was such a day. Librarian of Congress Ainsworth R. Spofford came before Congress's Joint Committee on the Library to testify on the condition of the library in preparation for its move to a new building. In the course of that testimony, Spofford was asked to describe the method by which the library's books were organized. Spofford explained that the library was separated into forty-four broad divisions, and he described these divisions one by one, in reverse order. For each he gave a broad overview of the subjects within that section, while his Congressional interrogator, Representative Lemuel Quigg of New York, often asked about the location of 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 he listed 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?" and Spofford replied, "Yes, sir" (US Congress 1897, 82).

Today the names of Immanuel Kant, Captain Cook, and Marco Polo remain instantly recognizable. But "Captain Mahan," so familiar to Quigg and Spofford that no first name was necessary and so clearly associated by them with a particular field of knowledge, is all but forgotten. Yet Mahan's intellectual influence on the United

States was enormous. His theories on the importance of a strong navy to national well-being served to justify the imperialist policies of the 1890s and beyond. And those same theories, when published, marketed, and consumed in the form of books and magazine articles, served as an important influence on the establishment of the Naval Science class in the present Library of Congress Classification System.

The Library of Congress Classification System was created in the years following Spofford's testimony to Congress and the library's move to the new Jefferson Building with its famous domed reading room. That system is still in use today, both at its namesake and across the vast majority of academic and research libraries in the United States and Canada. It divides collections of books into twenty-one basic classes, each identified by a single letter of the alphabet. All but three of those classes are further divided into subclasses, represented by two- or three-letter codes. The top-level classes range from what today we consider broad: P for Language and Literature or H for Social Sciences—to narrow: J for Political Science, and most especially, V for Naval Science (Library of Congress 2014). The story of this last category—of how the Library of Congress Classification System came to have a stand-alone Naval Science class—is important for librarians because it illustrates how classification happens in practice and how classification is influenced both by ideologies present in a given society and by the specifics of historical events.

This article engages with three facets of the library literature on classification systems. First are those works that focus on the history of the Library of Congress Classification System (LCCS) and in particular how the mechanics of the system evolved, who the persons responsible were, and why specific decisions were made. In contrast, works in the second group are concerned not with how the system was created but with ideological biases against women, minorities, and LGBTQ persons within classification and cataloguing systems. Though this work has focused on the Library of Congress Subject Headings (LCSH) and the Dewey Decimal Classification (DDC) rather than on the LCCS, the critiques apply equally to the latter. These studies of bias have inspired the work of a third group: recent authors who draw from both the historical chroniclers and the critical cataloguers to search for the origins of the ideological biases of the LCCS within the details of its historical development.

Those who trace citations of the history of the LCCS back far enough will inevitably arrive at Leo E. LaMontagne's *American Library Classification, with Special Reference to the Library of Congress* (1961). LaMontagne's focus was first on identifying the intellectual origins of the LCCS within the history of European thought. He distinguished three main streams of thought in classification: an educational and philosophic system dating back to ancient Greece, a system based on the one Francis Bacon offered in *The Advancement of Learning* (and used for the DDC and for the Library

of Congress before the current classification system), and an evolutionary system, exemplified by Charles Cutter's *Expansive Classification*. Cutter's classification had followed the "evolutionary idea" by "putting the parts of each subject in the order which that theory assigns to their appearance in creation." For example, zoology proceeded "from the protozoa to the primates, ending with anthropology." Book arts followed the history of the book, from production to distribution to use (Cutter quoted in LaMontagne 1961, 210). It was this last evolutionary system that the LCCS followed, starting with Cutter's classification as a model and adapting it for the Library of Congress's particular collection. LaMontagne's account of the origins of the LCCS thus took into account both the intellectual currents of the 1890s and the physical collection that was to be the subject of the classification.

Edith Scott's 1970 dissertation, "J. C. M. Hanson and His Contribution to Twentieth-Century Cataloging," is a biographical study of one of the key figures in the creation of the LCCS. Hanson headed the cataloguing division of the Library of Congress from 1897 to 1910. He and chief classifier Charles Martel were the primary architects of the new system, adapting older systems, making innovations of their own, and shepherding their charge past their often-doubtful superiors. Scott made extensive use of the primary sources housed at the Library of Congress to construct a detailed chronological study of the LCCS's formation and early development.

Francis Miksa's *The Development of Classification at the Library of Congress* appeared in 1984. Miksa found earlier work by LaMontagne and Scott worthwhile—indeed, these works were the basis for all existing histories of the LCCS. But the history of the classification lacked intellectual context. Historians had focused on the details of the formal schemes and the identities of their creators, rather than studying the conceptual process of how classification schemes were created, including the "problem of subject specification and how [librarians] viewed the universe of subjects" (Miksa 1984, 74).

Miksa treated classification problems as if they were puzzles that librarians solved using the tools of their time. He thus successfully introduced an intellectual context that had previously been lacking. But like LaMontagne and Scott before him, Miksa took no interest in the content under classification or in the larger cultural trends that might have influenced the components of the classification. Further, Miksa argued in 1998 against reading cultural trends into the history of library classification. In a history of the DDC, Miksa argued that this classification was an explicitly practical system, designed by librarians for the convenience of their patrons. In its hierarchy and organization, the DDC had parallels to the scientific classifications arising in many fields during the late nineteenth century, but librarians were not overly influenced by scientific culture.

Scholars over the past decades have come to question this explicit divide between library classification and the larger culture. They have contended that the specifics of a classification are indeed influenced by their cultural context. Classifiers do not work in an intellectual vacuum—they are people living in a specific, historically grounded society. In particular, Hope Olson argues in *The Power to Name* (2002) that not only are library classification and cataloguing practices reflective of the racism and sexism present in the larger culture, they actually serve to reinforce those values. This argument has gained acceptance among many librarians. Even Francis Miksa, though disputing Olson’s methodology, accepts her fundamental point that the DDC and LCSH marginalize and exclude most people, especially women and minorities (Miksa 2007).

Olson’s work, like that of LaMontagne, Scott, and Miksa, is largely theoretical. But librarianship has a long tradition of practical, active resistance to biased classification and cataloguing. A “critical cataloguing” movement active since the 1960s has worked to replace, one by one, offensive subject headings and classification names with modern alternatives. The best-known critical cataloguer, Sanford Berman, has concentrated on the LCSH. In his 1971 book *Prejudices and Antipathies*, Berman demonstrated the biases of the LCSH via hundreds of pages of examples, showing by accretion that these headings embody a racist, sexist, classist, and colonialist worldview. He called on all librarians, but especially those at the Library of Congress, to begin “the reexamination of inherited assumptions and underlying values,” despite the seemingly overwhelming nature of the task. Berman himself proposed alternative subject headings and asked other cataloguers to become activists, to “locate, examine, and report—to library periodicals and LC itself—any further outlandish or unjustifiable forms, as well as recommending totally new heads required by our fast-changing times” (Berman 1971, 187).

More recently, Emily Drabinski has questioned the work of Berman and the critical cataloguers, arguing that their practices implicitly assume the existence of a true, objective classification that can eventually be reached. Drawing on queer theory, she argues that categorization and classifications are “always already” subjective and contingent. Thus, rather than cataloguers working to change offensive terminology, the onus lies on public services librarians to help the public interpret it (Drabinsky 2013, 8).

Another approach to the study of classification schemes is illustrated by two recent articles that critically examine the biases of the LCCS by placing them in historical context. Colin Higgins (2012) has argued for understanding the LCCS as a product of a late nineteenth-century imperialist and racist worldview. Moreover, the classification was constructed to describe a pre-existing collection, that of the

Library of Congress, for a Congress populated by wealthy white men. Higgins notes in particular that the Naval Science class was a natural division for a scheme created around the time of the Spanish-American War.

Rochelle Smith (2015) has looked closely at one particular aspect of the LCCS, its division between art and craft. She argues that their separation into different classes reflects a post-seventeenth-century sensibility that art was different from and superior to craft. The Library of Congress's decision to separate them has served to reinforce that sensibility within American culture, even to the present day.

The present article continues the project of Higgins and Smith in identifying the historical roots of biases in the Library of Congress Classification System. We complicate the process, however, by arguing for the importance of not merely ideas influencing the system but the vectors by which those ideas came to pervade society. Specifically, we focus on the extension of a positivist method of knowledge beyond the traditional realms of science, as well as on the commercialization and capitalization of the publishing trade. The complexity of this single story is such that we believe it illustrates the depth to which just one aspect of the Library of Congress Classification System is rooted not only in the ideologies but also in the specific events of the late nineteenth century. No public services librarian, no matter how engaged or knowledgeable, is able to interpret the history of each such class or subject for patrons.

After the United States' Civil War, as white settlers colonized the interior of the continent, US 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 (Adams and Kohout 2014). Some in Congress and in the navy bureaucracy, in favour of mercantile expansion, also argued that a greatly enlarged 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 (Seager 1953).

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 graduate course for naval officers. The first president of the Naval War College was the veteran commander and commodore of the navy's training squadron, Stephen Luce (Hayes and Hattendorf 1975).

From the beginning, Luce had ambitious goals for the Naval War College, goals that encompassed yet went beyond merely serving as a 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 [1885] 1975, 49–50). 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 the natural sciences. Science, for Luce, was the discovery of general laws through a close study of particulars—a process of induction rather than deduction. The idea that one could apply the empirical methods of natural science to human society in order to bring about progress—known as positivism—originated with the French philosopher Auguste Comte and was popularized in the US by the work of historians such as Henry Thomas Buckle, John Fiske, and Herbert Baxter Adams (Fuchs 2011).

To study naval warfare as a science, then, the scholar had to compile the mass of facts that could be derived from naval battles throughout history and use them to develop a set of general principles. These principles, being universal, could then be applied to modern problems. Further, Luce believed in 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." So, Luce concluded, "let us confidently look for that master mind who will lay the foundations of that science" (Luce [1885] 1975, 56, 68).

To teach naval history at the War College, Luce hired a friend and fellow traveller, 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.

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.

For Mahan as for Luce, social science was a positivist enterprise that collected specifics in order to derive general principles. Yet Mahan had larger ambitions. 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. His interests were thus primarily tactical. Mahan's, in contrast, were strategic.



Mahan wanted to study not only the course of battles but also 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 provide the basis of political strategy for an entire country. For Mahan, then, naval science was as essential as any other social science to the understanding of history.

In the first chapter of *The Influence of Sea Power*, Mahan laid out a set of six “elements of sea power” with particular attention to how each related to the present condition of the United States (Mahan 1890, 25). At first, Mahan conceded, sea power might seem irrelevant to the United States, which saw itself as a peaceful, unaggressive country with limited seaborne trade. It was commonly assumed that the United States had no need for a strong navy. Yet that position, Mahan argued, was no longer tenable. The United States had explored and settled, and was rapidly developing, its interior. To continue its economic growth, then, the United States must necessarily look to the sea. Moreover, delay equaled danger, but opportunity beckoned. Plans were underway to build a canal in Central America to connect the Atlantic and Pacific Oceans. That canal would move a primary shipping lane from the distant Cape Horn to waters very near American shores. If the United States were to take advantage of that new canal, it would need to significantly boost its merchant fleet. That fleet 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 if they were under the control not of foreign powers but of colonies ruled directly by the United States. The first step toward becoming a sea power was to increase 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” (Mahan 1890, 57–58).

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 since at least 1880. His book was a tremendous success. Stephen Luce, in his 1885 lecture “On the Study of Naval Warfare as a Science,” had hoped for the emergence of a foundational scholar of naval science equal to any in the field of military science. In 1899, Luce added an annotation to his own copy of that article: “He is here; his name is Mahan” (quoted in Hayes and Hattendorf 1975, 68, n. 71). And Mahan’s biographer considered *The Influence of Sea Power* the second most influential book in American policy of the nineteenth century, behind only *Uncle Tom’s Cabin* (Seager 1977).

To understand how *The Influence of Sea Power* became so well known, it is necessary to view the book within the context of a publishing industry undergoing transformation in the late nineteenth and early twentieth centuries. For most of the nineteenth century, the largest publishing houses, such as Scribner's, J. B. Lippincott, and Harper & Brothers, made their profits through sales rather than advertising. The publishers sold books to retailers, who in turn resold to the public. The same publishers also produced magazines, which were seen not as separate entities but as wholly connected with the sale of books. Magazines were money losers, their cost of production outrunning income from subscription fees. But their primary purpose was not to make an immediate profit but to serve as advertising for the publisher's books. Magazines contained pages of announcements heralding the latest output from that house, as well as excerpts of nonfiction works, serialized novels, and glowing reviews by well-known figures. It was the intimate connection between the magazine and the larger publishing house that first gave such magazines the name "house organs." Richard Ohmann describes the magazine as a "signifier" of the publishing house, calling attention to the house's particular qualities and its sophisticated level of culture (2009, 106).

The 1890s saw a major change: the increasing commodification of the publishing industry. Authors and their literary agents began shopping themselves to multiple publishers for better terms. Publishers devised ways to repackage the same material in several different forms, allowing the same text to be sold more than once. Advertising grew along with commodification. It was the era of the "boomed book," in which a publisher would spend vast sums to advertise a particular book, hoping to recoup the costs once it became a bestseller (Ohmann 2009, 114). As advertising became ever more important, publishers began to sell more and more space in their magazines, to such an extent that magazines went from being money losers to money makers (Ohmann 1996).

When the Spanish-American War broke out in 1898, publishers saw opportunity. Newspaper publishers may have taken the lead—the story of the "yellow press" that uncritically pushed the country towards war is well known (Smythe 2003). But the book and magazine industry did its part as well. In the lead-up to the war, publishers foresaw a demand for books on war-related subjects, including military and naval science. They rushed new books to press and revised older works for republication (Kaplan 2009). Retailers were at first more hesitant to purchase these works. But a writer for *Publishers Weekly* predicted that "active hostilities will stimulate trade" and that the publishing industry would accrue great profit from public interest in the war. The fall 1898 book season was indeed unusual in that its focus was on what *Publishers Weekly* referred to as "timely" books: "Books on Cuba, Puerto Rico and the Philippines

... books on Hawaii following the annexation of the Islands. . . . numerous other volumes on imperialism, the Monroe doctrine, colonial government, protectorate government, international law and similar subjects, all inspired by the events in the Caribbean and the Pacific” (Tebbel 1972, 58–59, quoting *Publishers Weekly*, 30 April 1898, 739, and *Publishers Weekly*, 24 September 1898, 365).

It is important not to overstate the actual readership of Mahan’s books. Sophisticated, authoritative works of nonfiction such as Mahan’s served as flagships for the publishers’ offerings. But it was more narratively oriented works that were the bulk of the material printed. The influence of the yellow press on public tastes was obvious, especially in the season’s fiction selections. Both adult and juvenile publications offered tales of “sailor and soldier heroes . . . armies and navies . . . Spanish history and . . . descriptive stories about Spain, Hawaii, Cuba, Egypt, etc.” (Tebbel 1972, 9, quoting *Publishers Weekly*, 24 September 1898, 365). The boom period in subjects related to the Spanish-American War ended quickly. By the next year the public seemed to have lost interest, and new books on these subjects sold poorly, though fiction and other works with “the human note” held up better. The publishing industry looked down on its readers, noting that even adults were reading juvenile works that neglected larger national questions in favour of action, “just what the big children wanted, you see” (Tebbel, 1972, 61–62, quoting *Publishers Weekly*, 23 June 1900, 1223–1224).

Mahan did not write his books for children, big or otherwise. But nor did he believe that his books’ intrinsic worth would be enough to bring them attention. So, following the commercial and advertising trends of his time, Mahan served as an incessant publicist of his own work, sending copies to political luminaries in the United States and Great Britain. His publisher, Little, Brown and Company of Boston, pushed *The Influence of Sea Power* hard as well. Major literary magazines in both the US and Britain gave it favourable reviews. Not that these reviewers were unbiased: the reviewer for *The Critic*, for example, was Mahan’s superior at the Naval War College, Stephen Luce. The reviewer for the *Atlantic Monthly* had himself written a history of naval actions in the War of 1812 and would go on to serve as assistant secretary of the navy before becoming president of the United States—Theodore Roosevelt (Seager 1977).

The success of *The Influence of Sea Power on History, 1660–1783* led to two direct sequels by Mahan, one covering the period up through the French Revolution and Napoleonic wars and the other 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 he 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 (Seager 1977).

When the United States went to war against Spain in 1898, it was in pursuit of the precise goals about which Mahan had written: control of strategically placed locations that would make good colonies and bases for American shipping and American naval forces. The war produced a craze for books on naval science. Mahan helpfully collected several of his magazine articles into a book titled *The Interest of the United States in Sea Power, Present and Future*. As part of its promotion of Mahan's new book, Little, Brown and Company ran an advertisement for "Timely Books on Naval Subjects." Mahan was everywhere: of the seven books advertised, he had written four, introduced one, and "assisted," along with Roosevelt, with a sixth ("Little, Brown and Company's Spring Books" 1898).

### Timely Books on Naval Subjects.

#### Captain Mahan's Works on "Sea Power."

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FIGURE I "Timely Books on Naval Subjects"

We know that 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 it. In early 1898, *Publishers Weekly* announced that the Library of Congress had compiled a bibliography of works relating to Cuba, which it would send to any library free of charge (Van Duzee 1898). Dozens of requests poured in from libraries across the country. Melvil Dewey asked for fifty copies to distribute to his library school students (Dewey 1898). By the end of the year, the Library of Congress had produced similar bibliographies

on Hawaii, Spain, and the Philippines. Also in 1898, soon after the move into the new 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,” who requested books on “history, science, military and naval works, and much pertaining to the Antilles, Manila, and Spain” (Library of Congress 1898, 43).

How then did this publishing boom and concomitant public surge of interest in naval matters influence the creation of the current Library of Congress Classification System? During his testimony to Congress in 1896 on the state of the library, Librarian of Congress Spofford had explained to the committee the classification system that was then in use. The system was rooted in Thomas Jefferson’s division of the faculties of the mind into the three areas of memory, reason, and imagination, a division itself derived from the work of Francis Bacon. Each of these three represented one of the major sections of the library collection. Memory corresponded to works of history, reason to those of philosophy, and imagination to the fine arts. These three areas then branched into the forty-four divisions. This was the level that Spofford had enumerated to Congress one by one (US Congress 1897). In a hand-drawn tree of the classification system, Spofford included sub-branches for many of the forty-four divisions. On this tree, Naval Affairs was shown as the sixteenth of seventeen sub-branches of Technology, itself the fifteenth of forty-four branches overall and an offshoot of the trunk labeled History (Spofford 1890).

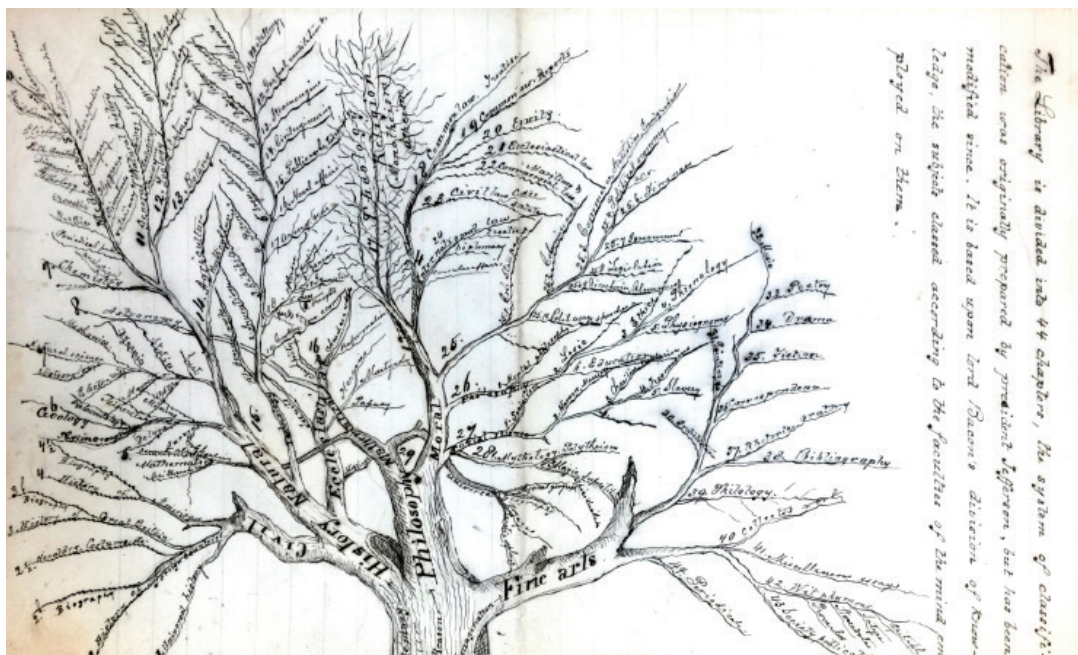


FIGURE 2 Tree of Knowledge

Though Spofford, in his testimony to Congress, had listed Naval Science as an example of the materials within the Technology classification, this did not mean naval science or naval affairs had any formal status within the system. By the 1890s, the Library of Congress collection had far outgrown the existing classification system, which provided only for the forty-four classes. Further sub-classification was only by reference to the physical shelf on which books of a given subject were placed (LaMontagne 1961). Spofford's answer to Quigg on the contents of the Technology class thus described the material within the larger class rather than delineating a set of formal sub-classes.

Yet Spofford remained fully confident in the existing system. It had stood the test of time, and he defended it to Congress on that basis. Other librarians who were 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 (US Congress 1897). Spofford's method, they explained to the congressional committee, seemed to work only 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 catalogued in relation to others sitting next to them on the shelves. He compared such a classification to an army, in which an individual soldier could be found by knowing only 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 he 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 to create its own or at least heavily modify an existing system (US Congress 1897).

Both Dewey and Putnam advocated for 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 analyze the existing collection of books and create a classification based on the patterns that emerged from the subjects of those books. This required librarians to address not only the books currently on the shelves of the library but also the backlog of uncatalogued material that was literally piled throughout the building.

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 Librarian. The new Librarian of Congress, John Russell Young, and his chief of cataloguing, J. C. M. Hanson, decided against using Dewey's system.<sup>1</sup> Instead, they began to adapt and heavily revise another relative-location scheme, the Expansive Classification devised by Charles Ammi Cutter, so named because it comprised not a single scheme but several of them, designed for different sizes of libraries. In the largest version of the Expansive Classification, naval science was placed within the class titled Art of War. The successive drafts of the Library of Congress system would move naval science from place to place. In the first draft, produced in 1899 by J. C. M. Hanson, naval science shared a class with military science.

Young passed away that year and was replaced as chief librarian by Herbert Putnam. Putnam at first questioned the need for a new classification scheme and stopped Hanson's work in hopes that the library 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. The final classification, produced in 1904, would reverse that trend and more. Now naval science was separated not just from engineering but from military science as well. Naval science now merited its own top-level class.

According to Francis Miksa (1984), 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 now implicitly defined according to the scientific discipline that produced it, and the books were arranged according to discipline. The acceptance of naval science as a discipline, then, was due not merely to a scientific rigour in Luce and Mahan's thought but also to their 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.

Each class within the Library of Congress Classification System has a set of subclasses; naval science is no exception. These classes encompass a wide array of entries that, though related to naval affairs, might under different circumstances have been placed differently. One example is the merchant marine, which is within subclass VK. The Military Science class that parallels Naval Science contains no similar subclass related to commerce and transportation on land. Alfred Thayer

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1. The following discussion is drawn from LaMontagne 1961, 234–37 and Miksa 1984, 19–41.

Mahan and his peers, however, believed that the merchant marine was inextricably entwined with sea power. The purpose of naval strength was to ensure the access of commercial interests to overseas markets. Simultaneously, a robust merchant marine staffed by able sailors served as a reserve of ships and manpower for the navy to draw on in times of war. Thus, it would have been natural for librarians building a class whose very existence and name were based on Mahan and Luce's ideas to accept a broad definition of naval science, one that included both the merchant marine and the infrastructure that supported it, such as lighthouses and life-saving (both in subclass VM) (Library of Congress 1910).

VK	NAVIGATION. MERCHANT MARINE	VK
401	<b>Study and teaching.</b>	
421-524	Country divisions. Table I.	
	Special schools.	
525	United States.	
529	Foreign.	
531	<b>Training.</b>	
533	Apprentices.	
535	Officers.	
537	Examinations.	
541	<b>Seamanship.</b>	
543	Sailing.	
544	Small boat sailing, see GV 811.	
545	Miscellaneous topics.	Boy scouts. Girl scouts (See
547	Use of oil in storms.	
	Cf. 587.	
	<del>Navigation and nautical astronomy.</del>	
	Cf. QB, Astronomy.	
549	History of the science of navigation.	

FIGURE 3 Class VK

Not all maritime pursuits were classified under Naval Science. Figure 3, of a 1910 schedule updated by hand in the 1930s or later, illustrates how exceptions might be carved out. Small boat sailing, for example, was placed within the GV subclass, comprising sports and recreation. But the sea-scouting program of the Boy Scouts and Girl Scouts is placed not within GV but squarely within the Naval Science class, under subclass VK541, Seamanship (Library of Congress 1910).<sup>2</sup>

This placement occurs because the sea-scouting program was initially conceived as junior training for the merchant marine. Robert Baden-Powell, founder of the Boy Scouts, wrote a guide titled *Sea Scouting for Boys* in 1911, in which he argued that it was

2. The *terminus post quem* of the insertion is dated to the Girl Scouts' addition of the Sea-Scouting program in the 1930s.



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. Baden-Powell was writing in the British context, but this was precisely the same argument that Mahan had used to emphasize the importance of an Americanized merchant marine.

This piece of ephemera—a little, hand-written notation about the classification of sea scouting—illustrates how deeply the assumptions of Stephen Luce and Alfred Thayer Mahan had been written into the Naval Science class. It also serves to remind us how complex were the processes by which that class was created. Luce described Mahan's ideas as the "foundations" of the discipline of naval science. If disciplines are founded on ideas, then collections are founded on books. And the publication of one particular book, Mahan's *The Influence of Sea Power on History, 1660–1783*, led to a boom in publishing on naval matters, a boom made visible in the physical collection of the Library of Congress and reflected in the setting aside of a top-level class for Naval Science in the new classification system. The history of that class, then, shows us how a science rooted in positivism combined with imperialist and colonialist ideologies and with a newly commercialized and capitalized book-publishing industry to help make the Library of Congress Classification System.

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