Technological Diffusion in Early-Meiji Naval Development, 1880-1895

Cathryn Morette

Abstract
This paper will focus on the first period of naval development during the Meiji Era, 1880-1895, when the Japanese navy relied heavily on Western support. Western nations such as Britain and France supplied technology, advisors, and vessels, which when combined, had a major role in the early organization of the Imperial Japanese Navy. These years, and the role of these European powers, were foundational in Japan’s spectacular rise to world power at the turn of the twentieth century, highlighted most prominently through their naval success during the Sino-Japanese War of 1894-1895. Nevertheless, this success could not have been accomplished without the theory of “Advantage of Backwardness” and the unprecedented naval torpedo warfare strategy of the Sino-Japanese War.

Introduction

The Imperial Japanese Navy is emblematic of the rise of Japan as a world power. In 1868, when Japan emerged from self-imposed isolation to join the comity of nations, its influence in the world counted for nothing. But in a few short years, due to prodigious effort, Japan created the foundations for political, economic, and military power. Within a generation, Meiji Japan built a navy that prevailed against China in 1895. A decade later, an even more modern Japanese navy defeated the Russian fleet, an event Theodore Roosevelt considered the “greatest phenomenon the world has ever seen.”533 In this meteoric rise, the success of the Imperial Japanese Navy played a decisive role.

The Tokugawa period (1600-1868) eliminated any Japanese overseas navigation and curbed the few military seafaring traditions the nation possessed. A historically insular nation, only twice in nine hundred years did Japan attempt to

invade Asia – once in the seventh century and once in the sixteenth century.\footnote{534} From 1880 to 1920, Japan invested in the development of an army and navy, relying heavily on Western support and influence to do so. Japan used a two-phase policy in acquiring technology from abroad: first, by relying almost entirely on Western tutelage; and second, by beginning licensed production while at the same time continuing the study of foreign technology and purchase of ships.\footnote{535} The first phase, which lasted from 1880 to 1895, was foundational in Japan’s spectacular rise to world power at the turn of the twentieth century. Dissemination of Western naval technology, primarily in the form of mentorship and procurement, provided an intrinsically motivated nation a robust foundation to create an indigenous, innovative naval strategy and a world-class navy who, in its utmost infancy, defeated China in the Sino-Japanese War in 1895. Japan could not have accomplished this without the support of Britain and France – in terms of ships, advisors, and school systems – from 1880 to 1895, but this success is also due to the theory of “Advantage of Backwardness” and the unprecedented naval strategy used in the Sino-Japanese War.

**Historiography**

There is a debate between historians about the significance of the European technological diffusion on the modernization and success of the Imperial Japanese Navy. Many respected historians have argued that the West was indispensable in the Meiji Restoration and the change that followed. Kamikawa Kimura, author of *Japan-American Diplomatic Relations in the Meiji-Taisho Era*, argues that Matthew Perry’s arrival in Japan was the impetus for the Meiji Restoration. W.G. Beasley, author of *The Rise of Modern Japan*, similarly argues Western pressure to open Japan galvanized a national impulse to change, and that Japan entered the Meiji Restoration to offset a perceived Western threat. Nobutaka Ike states, in his


article “Western Influences on the Meiji Restoration,” that once reform was underway, Western political theory was central to the changes that occurred. Unlike Kimura or Beasley, Ike doesn’t believe that Japan was completely sealed off and isolated; he argues, instead, that Japan strategically allowed specific information from the Chinese and Dutch to permeate their border and believes this information likely influenced the future government structure.536

David Evans and Mark Peattie’s highly regarded work, Kaigun: Strategy, Tactics, and Technology in the Imperial Japanese Navy, 1887-1941, begins where these historians leave off – with the development of the Imperial Japanese Navy. The authors brilliantly examine the role of transportation and global dissemination of naval technology, but only from the perspective of its benefits to Japan. They attribute the success of the Japanese navy in the Sino-Japanese war to support from Britain and France, and to intangible factors they describe as, “fortunate position and timing,” a theory more commonly known as “Advantage of Backwardness.”537 In comparison, historians Graham Gooday and Morris Low discuss the role of transportation and global dissemination of naval technology from a European perspective. They argue that the technological diffusion benefitted both Japan and European countries, including Britain and France. Gooday and Low are two of the historians situated on the other side of the debate, arguing that indigenous Japan played a crucial role in the development of the Meiji Restoration and the technological diffusion of Western information that followed.


537 Evans and Peattie, Kaigun, 9.
symbolic representation of the rise of modern Japan in the Meiji Period (1868-1912)," and sees the Meiji Restoration and the change that followed suit to be indigenously driven. 538 Schencking’s argument challenges the prevailing historiography of an apolitical Japanese navy, and supports this with displays in which Japanese political parties played a critical role in the emergence of the military, particularly the navy.539 In addition to the role of political parties, Miwao Matsumoto, author of “Reconsidering Japanese Industrialization,” argues that the private sector played a critical role in the transfer of technology to Japan from 1880-1920. In his article, he suggests that the technological diffusion did not occur as freely as other historians have described, and touts private Japanese companies as responsible for fostering much of this interaction. In his words, “private companies played a unique and independent role in transferring, assimilating, and producing new technologies, in addition to the well-known role in implementing infrastructures already established by the government sector.”540

Both arguments contain truths that cannot be dismissed, and should be considered more holistically. While Evans and Peattie focus extensively on the role of Britain and France when discussing the development of the Imperial Japanese Navy, in their conclusion of Kaigun, the authors propose a more moderate perspective. In the words of Schencking, “this middle path, Evans and Peattie argue, was situated between the extreme options of relying entirely on Western support and the potential pitfalls it entailed or solely emphasizing indigenous design, which would have significantly delayed the maturation of Japan’s navy.”541 The success of the Imperial Japanese Navy arose from foundational Western imports in terms of shipbuilding, weaponry, and naval education, but the naval strategy that emerged during the Sino-Japanese War contained unique Japanese

539 McBride, review of Making Waves, 834.
541 Schencking, review of Kaigun by David C. Evans and Mark R. Peattie, 492.
characteristics that were indigenous innovations. This naval strategy, which highlighted agile torpedo boats and quick-firing guns, was less westernized than many historians consider. Following the Sino-Japanese War, this hybrid strategy would further develop domestically and was the impetus for future Japanese success. This may seem to discredit the argument that Japan's naval success was entirely Western driven, but it simply serves as a caveat. The role of the West is indisputably foundational, but the Japanese played a key role in shaping the resources and naval strategy brought to them by Britain and France. In addition, besides the brief discussion in *Kaigun*, most historians have failed to credit the theory of “Advantage of Backwardness” in Japan’s ability to so quickly materialize a world-class navy. This paper serves the purpose to provide the evidence and argument for this perspective.

**Meiji Restoration (1600-1868)**

From 1600 to 1868, Japan underwent a period of isolation. In the 1620s and 1630s, the Tokugawa rulers came to the conclusion that Japan’s existing relations with Europeans should be discontinued, in part due to concerns about the potential corruption that could arise from the exposure to Christianity. Christianity was savagely persecuted in Japan, followed by an end to foreign trade – save for small-scale trade with China and a Dutch trading post. Meanwhile, European powers took their new warships to the waters, and by the mid-nineteenth century, India and nearly all of Southeast Asia were under European control. Although Japan ruled as a superficially “closed” nation, the nation was by no means industrially underdeveloped or uninformed. Instead, the Tokugawa rulers selectively appropriated sources of foreign expertise that were imported and

---

studied. Nonetheless, the Tokugawa period of isolation eliminated any Japanese overseas navigation as well as the need for military or naval protection. This in turn curbed the few military seafaring traditions the nation possessed, creating a massive disadvantage for Japan.

In 1852, Commodore Matthew Perry arrived in Japan, armed with a letter from the White House and the intentions to foster relationships with the closed nation. With Perry’s arrival, only a collection of sail and oar powered coastal ships, and a few vintage cannons stood between the insular nation and the foreigners. On July 25, 1852, Commodore Perry was welcomed ashore and presented with the opportunity to deliver a letter to the governor of Uraga – shattering Japan’s self-imposed isolation. With Perry’s return in 1854, a treaty was signed at the Convention in Kanagawa, agreeing to protect shipwrecked Americans and provide water, fuel, and food to ships passing through, but it contained no statement concerning foreign trade. Nevertheless, this treaty would be quickly followed by similar treaties with Britain and Russia.

The Meiji Restoration, which began in 1868, rose from the Shogunate’s inability to cope with the pressing problems arising from the growing economic and political pressure as well as Tokugawa’s weakness to foreigners. It is often considered that this foreign encounter with Matthew Perry and his crew served as a “wake up call” for Japan’s leadership. The opinion of Ii Naosuke, Lord of Hikone, was that Japan could not expect safety by sticking to the ancient seclusion policy, but could change with the times and conduct foreign trade. The government that

---

546 Evans and Peattie, *Kaigun*, 4-5.
emerged in the mid-1860s was chiefly preoccupied in carrying out new policies designed to move Japan rapidly toward the forefront of world history by the turn of the 20th century.\textsuperscript{552} This new government placed priority on the strength of the military under the concept \textit{Fukokukyonei}, meaning to “enrich the country, strengthen the army.”\textsuperscript{553} Meiji leaders knew, furthermore, that Japan could only protect themselves from the West by adopting Western technology.\textsuperscript{554} In addition, the idea that Japan could raise her international position to the level of Western powers by absorbing Western civilization was growing more and more popular.\textsuperscript{555} Much of this thought was directed at the development of a premier military to protect Japan’s now vulnerable coastline and to potentially expand Japan’s purview beyond her current borders.\textsuperscript{556} Based on this belief, the Japanese government engaged the West by consulting foreigners as advisors, sending young men abroad, and adopting Western military and naval technology. Key to Japan’s ability to quickly modernize was the role of transportation and global dissemination of naval technology.

Much of this dissemination occurred through the employment of foreign advisors from Europe and North America in the late nineteenth century. Generally speaking, the Meiji leaders saw the employment of foreigners as a necessary but temporary evil and, thus, sought to educate Japanese to replace the foreigners as quickly as possible.\textsuperscript{557} The average length of a service contract for a foreign advisor was around five years, and by the turn of the century, native Japanese were in total control of decision making in most aspects of the Meiji government. In the early years of the Meiji period, there were three thousand hired foreign professionals in government service. Most of these employees came from the four countries most

---


\textsuperscript{553} Nish, review of \textit{The Meiji Restoration} by W. G. Beasley, 719.

\textsuperscript{554} Ibid., 719.

\textsuperscript{555} Kimura, \textit{Japan American Diplomatic Relations in the Meiji-Taisho Era}, 72.

\textsuperscript{556} Edward J. Drea, \textit{Japan’s Imperial Army: Its Rise and Fall, 1853-1945} (University Press of Kansas, 2009), 24.

\textsuperscript{557} Gooday and Low, “Technology Transfer and Cultural Exchange,” 104-105.
significant to Japan’s foreign relations at the time: Great Britain, France, the United States, and Germany.  

Technology Transfer from Western Europe and North America (1880-1895)

The early Meiji navy was a ragtag collection of vessels thrown haphazardly together, but the period following the separation of the navy from the military in 1872 was characterized by incredible development. With an independent budget and advisors, the navy finally could develop beyond infancy. Not only did the Japanese have a lack of seafaring ships and weapons, Japan also lacked the necessary manpower. In the words of Evans and Peattie, “Without a strong maritime tradition, and, as yet, without a strong, modern sense of nationhood, Japan had no significant pool of men long familiar with the sea or experiences in disciplined national service.” Therefore, critical to Japan’s ability to develop a navy was their ability to first acquire the information to do so. Similar to many other aspects of the Meiji government, during the first decades of the Meiji era, the navy received foreign support in the form of advisors. While the reinforcement of Japanese military traditions was fundamental to the navy, in the years immediately following 1872, they relied on a Western model. In its search for a model, Britain was a logical choice due to her consistent dominance of the seas. In 1870, an imperial decree designated the British navy as the model for Japan’s naval development, and three years later, at the request of the Japanese government, a 34-man British naval mission arrived in Japan. One member of this party was Lt. Commander Archibald Douglas, who directed instruction at the Naval Academy in Tsukiji for several years and served as an advisor to the navy until 1879. While Douglas was not at the cutting edge of naval technology, his role within the navy and the Naval Academy substantially advanced the development of the navy and

558 Ibid., 105.
559 Evans and Peattie, Kaigun, 9.
560 Ibid., 11.
561 Ibid., 12.
established the British tradition within the Japanese navy in terms of seamanship, uniforms, and officer training.\textsuperscript{562}

In addition to this British naval mission, the Imperial Japanese Navy had two key British advisors during the late nineteenth century. The first was Lt. Commander L.P. Willan, RN, who was hired to teach gunnery and navigation at the Imperial School from 1879-1885, during which he provided instruction in contemporary naval tactics to 31 naval cadets. These men would go on to be the leaders and shapers of the navy during the next decade. The second was Captain John Ingles, RN, who is argued to be responsible for developing Japan into a respected navy. Ingles arrived to Japan in 1887 to serve as an instructor at the Imperial Naval Academy and as an adviser to the general modernization of the Japanese navy. Ingles educated the Japanese navy technologically and transformed the navy into a legitimate fighting force, by introducing concepts including blockade, counter-battery fire, and tactics for modern steam ships.\textsuperscript{563} To do so, Ingles provided a necessary gap-analysis on the navy to determine its current state and what would need to be accomplished to create a modern, competitive navy. For this reason, he was one of the initial supporters of steam ship technology.

By the end of the 1870s, Japan began to turn away from dependence on large, foreign assistance missions. They were very expensive, and besides, Japan was beginning to develop confidence in the naval arena. Moreover, the men trained by Douglas, Willan, and Ingles, began to become leaders in their own right, and the young Japanese men that had been sent abroad were returning with expertise that made these foreign assistance groups unnecessary.\textsuperscript{564} In the words of Evans and Peattie, “while the Japanese fully recognized the need to keep abreast of the latest development in Western naval technologies, foreign naval advisers were now more selectively chosen, both in numbers and in nationality.”\textsuperscript{565} Nonetheless, this small

\textsuperscript{562} Ibid., 12.
\textsuperscript{563} Ibid., 12-13.
\textsuperscript{564} Ibid., 11-12.
\textsuperscript{565} Ibid., 12.
number of advisers and counselors continued to prove essential in the strategic development of the Japanese navy.

In December of 1897, The Engineer published a photographic montage of “Pioneers of Modern Engineering Education in Japan,” which depicts a selection of Japanese and Western teachers who had worked to transform Japan’s engineering, military, and naval programs. In the words of Gooday and Low:

The predominance of Japanese figures in this representation is highly significant: it is an acknowledgment by British observers that the industrialization of Japan—the "Britain of the East"—was not a feat accomplished solely by Western experts who transferred their science and technology to passive Japanese recipients.

The role of foreigners allowed the Japanese to quickly learn from them and then replace the majority of the foreigners by the 1880s. However, equally important to note is the sizable number of Japanese figures depicted. The Engineer’s photographic montage focuses primarily on native teachers active in Japan after 1880 and excludes the several foreigners who therefore trained this indigenous workforce the decade prior. These foreign aid and teachers were critical to allowing indigenous Japanese to rise to prominence and excellence by 1880. These Japanese naval officers were trained at the Imperial Naval Academy, which was established in Tokyo as Japan’s first naval academy in 1869. Under the leadership of Western advisors, the academy was formed in Western tradition where men learned traditional Japanese military values, naval science, general education subjects, and trained for physical fitness over a period of four years.

---

567 Ibid., 99.
568 Evans and Peattie, Kaigun, 10.
569 Ibid., 10.
With construction of the Imperial Naval Academy well under way, Japan began the process of building a fleet to complement the new manpower. Yet, in the mid-1880s when Japan was ready to begin this process, Japanese shipyards were not advanced enough to construct a modern warship. For this reason, Japan again looked west. The first Japanese warships launched from British port at the end of the 1870s. The three ships, two armored corvettes and one armored, steel hulled frigate, were team driven and barque-rigged—the highest quality and most modern technology of the day. Japanese navigational and technological skills were so inadequate that the ships had to be delivered to Japan by British crews. While still inadequate to properly utilize these naval marvels, the ships provided invaluable hands-on training to officers in training and to the neophyte naval architects.\footnote{570}

In the mid-1880’s, Japan contracted for two, second-class steel decked cruisers named “Naniwa” and “Takachiho.”\footnote{571} Prior to their arrival in Japan, Cpt.

\footnote{570} Ibid., 13-14.
\footnote{571} Ibid., 15.
Ingles pronounced them the finest warships of their type anywhere in the world. Japan briefly turned to France for its foreign naval construction; Japan wanted to maintain relations with a range of naval powers, and French naval constructors had proved vital in developing the first Japanese naval yard at Yokosuka, the site of some of the only domestic construction of small ships according to Western design, prior to the turn of the century.\textsuperscript{572} In addition, France was surpassing British intelligence in warship design with their concept of small, fast warships that proved effective in the Sino-French War of 1883-1885. This vessel style was referred to as torpedo boat and Japan placed an order for 48 to be built over an eight-year period.\textsuperscript{573} To supplement this fleet, Japan ordered Kotaka, the largest torpedo boat of its time, from Britain in 1888.\textsuperscript{574} 1887 serves as the year that a modern Japanese naval force first emerged.\textsuperscript{575} In the 1880s, famed French architect Emile Bertin was brought to Japan on a two-year contract to guide the expansion of the Japanese navy and supervise the reconstruction of the 48 ships.\textsuperscript{576} This period allowed Japan to embrace the revolutionary new technologies embodied in torpedoes and torpedo boats. While in Japan, Bertin designed the Sankeikan class of warships, whose designs attempted to match several heavy warships of German design that had been acquired by the Chinese.\textsuperscript{577}

By securing some of the West’s best naval technology early on, Japan was afforded time to develop a sizable naval infrastructure in order to produce similar vessels in a later period. By mid-1880s, Japan was phasing out sail-powered and reinvesting in steam-driven warships, and they also began to take first steps to be able to construct their own vessels. In 1884, Japan imported machinery and

\textsuperscript{572} Ibid., 15.
\textsuperscript{573} Ibid., 15.
\textsuperscript{574} Ibid., 17.
\textsuperscript{576} Evans and Peattie, \textit{Kaigun}, 15.
\textsuperscript{577} Ibid., 17.
temporarily hired men from Britain.\textsuperscript{578} This period also saw the emergence of small maritime construction enterprises. These enterprises prospered because of contracts with the navy to build torpedoes, machinery, and smaller warships, and their importance would grow in the years leading up to the Sino-Japanese war (1894-1895).\textsuperscript{579} Miwao Matsumoto, author of “Reconsidering Japanese Industrialization: Marine Turbine Transfer at Mitsubishi,” argues that the private sector played a critical role in the transfer of technology to Japan from 1880-1920.\textsuperscript{580} Matsumoto touts the crucial role the British played in transferring modern technological information to Japan, describing the British as the “naval architects of the world.”\textsuperscript{581} Britain also supplied the Meiji government with more foreign employees than any other Western country: to the tune of 1,034 people from 1868 to 1900.\textsuperscript{582}

By the early 1890s, Japan’s navy comprised of a small, but growing number of light, fast warships that were effectively unarmored and powerfully armed. One of the most important aspects of the intensive technological borrowing of the late 19\textsuperscript{th} century was that the exposure to foreign experts allowed Japan to begin developing revolutionary and complex battle tactics on their own. With a robust foundation, provided by the advisors from Britain and France and new, hands-on experience on Japan’s first warships, Japan was now ready to begin discussing naval strategy. With Japan’s young men returning from abroad and a fresh class of domestic naval leaders, Japan’s indigenous naval strategy was comparable to those being developed in Europe and the United States. For instance, while tacticians in Britain were developing the classic T-capping maneuver—in which a line of warships crosses in front of a line of enemy warships, and is believed to be the most effective means by which to destroy an enemy battle fleet—officers at the Japanese Naval Staff College were creating the same.\textsuperscript{583} Japan did not adopt Western tactics

\textsuperscript{578} Ibid., 14.
\textsuperscript{579} Ibid., 14.
\textsuperscript{580} Matsumoto, “Reconsidering Japanese Industrialization,” 74.
\textsuperscript{581} Ibid.” 76.
\textsuperscript{582} Ibid., 76.
\textsuperscript{583} Schencking, review of \textit{Kaigun} by David C. Evans and Mark R. Peattie, 492.
at face value instead they blended the imported strategy, tactics, and technology with their own styles of warfare.\textsuperscript{584} Due to Japan's complete lack of ships and weaponry prior to 1880, Japan did not have large, armored warships like Britain or France. Instead, investments were made into agile torpedo boats and arming the warships they did have with a few big guns that were supplemented with numerous medium-sized firing guns.\textsuperscript{585} This was unlike many large Western powers, but proved incredibly successful in the Sino-Japanese War. This success can also be attributed to the theory of “Advantage of Backwardness,” which states that with highly developed mentor, underdeveloped countries can leapfrog technological advancements and innovation by adopting the technology, business models, and systems of other countries. For Japan, this allowed their navy to reach world-class caliber within two decades, and with minimal trial and error. This became a uniquely powerful formula for the Imperial Japanese Navy; with no existing navy or naval thought prior to 1880, Japan could consider the Western tactics, ships, and education system unbiased to a Japanese tradition. Yet, without the time or the finances to support a fully Westernized warship model, Japan adopted a unique naval fleet strategy that would prove incredibly effective in the Sino-Japanese War.

\textbf{The Power at Play: Sino-Japanese War (1894-1895)}

Japan was embarking on an ambitious modernization process, aimed at gaining military parity with the established Western powers. The Sino-Japanese War became a stadium for this spectacle.\textsuperscript{586} On the eve of the Sino-Japanese war, at surface level, China's navy appeared superior to Japan's newly organized fleet. The Chinese navy consisted of four regional fleets, which, in total, was comprised of twice as many ships as Japan possessed. In addition, China possessed two German-


\textsuperscript{585} Evans and Peattie, \textit{Kaigun}, 18.

built battleships for which Japan had no counterparts, and which provided China with an advantage in terms of firepower. The Chinese had foreign advisers and technicians aboard their ships, whereas no foreigners would serve with the Japanese warships at sea. That being said, these supposedly superior factors proved irrelevant once the war began. Chinese ships were armed with short-barreled guns in twin barbettes in echelon that could fire only in restricted arcs. In comparison, Japan utilized new, quick firing guns on their agile ships. Evans and Peattie consider the additional flexibility of Japan’s artillery at sea to be China’s major disadvantage in the Sino-Japanese War.

The Sino-Japanese War contained two decisive naval battles that alerted both China and the West to Japan’s new naval prowess: The Battle of Yalu and the Battle of Weihaiwei. These battles were the first major battles between modern, ironclad ships. In September 1894, en route to Korea, the Japanese fleet stumbled upon a small convoy of Chinese ships, instigating the Battle of Yalu. The Japanese overwhelmed these ships and destroyed a cruiser and gunboat, captured a gunboat, and sank a loaded transport ship. While Japan severely injured the Chinese fleet, a handful of important Japanese warships were also damaged in this battle.

In the Battle of Weihaiwei, the Japanese utilized their torpedo boats. While the attacks were by no means spectacular (Evans and Peattie argue that they were, in fact, a complete failure), this was the first use of torpedo boats in East Asian waters, making the strategy unprecedented. Japan sank, captured, or ran aground all but two of China’s remaining warships of their once substantial fleet. In the end, the Japanese won the Battle of Weihaiwei through broadside naval gunfire, which is the effect of a “line ahead” tactic, a classic tactic where ships create an end-to-end line. Line ahead was the formation that preserved the greatest flexibility and simplicity of movement. It minimized tactical confusion and maximized

---

587 Evans and Peattie, Kaigun, 38.
588 Ibid., 38-39.
589 Ibid., Kaigun, 41.
590 Schencking, Making Waves, 83.
591 Evans and Peattie, Kaigun, 46-47.
broadside fire. In this strategy, Japan’s speed was critical, as fast ships allowed the fleet to cut across the enemy fleet’s approaching path and to concentrate fire at the decisive moment on one of the weakest portions of the Chinese formation. Moreover, one of the principal factors in the Japanese victory was clearly its superiority in firepower, namely their quick-firing guns. Torpedoes proved to be, at the very least, a moderate success.\footnote{\textit{Ibid.}, 48-49.} China’s traditional approach to warfare was compared unfavorably with that of modern Japan.\footnote{Wippich, review of \textit{The Sino-Japanese War of 1894-1895} by S. C. M. Paine, 259.} At the end of the war, Tokutomi Soho exulted: “Now that we have tested our strength we know ourselves and we are known by the world. Moreover, we know we are known by the world.”\footnote{Marius B. Jansen, Samuel C. Chu, Shumpei Okamoto, and Bonnie B. Oh, “The Historiography of the Sino-Japanese War,” \textit{The International History Review} 1 (1979): 191.} It was only when Japan had shown its ability to equal the West in killing and destruction that the West accepted it as civilized. Nonetheless, this conflict with China over Korea led to the realization for Japan that their small fleet was remarkably outmatched by potential adversaries, and would lead to massive expansion of domestic naval construction efforts.

The Sino-Japanese war was a turning point in the modern history of East Asia.\footnote{Janse n, Chu, Okamoto, and Oh, “The Historiography of the Sino-Japanese War,” 191.} Japan—the West’s model pupil—had effectively learned the lessons of modern warfare. In the words of David C. Wright, “After the loss of Port Arthur, Western newspapers quickly did an about-face in their coverage, declaring Japan the triumphant and pre-eminent power in East Asia. Japan had modernized and China had not, despite decades of exhortation by the former to the latter.”\footnote{David Curtis Wright, review of \textit{The Sino-Japanese War of 1894-1895} by S. C. M. Paine, \textit{The International History Review} 26 (2004): 641.} Japan’s advantages lay in their recent and ultra-modern investments in a small quick fleet with quick firing guns, and China’s lack of recent similar investments. After the war, Japan, Paine states, “became the yardstick by which China always
fell short.”597 Lone, author of Japan’s First Modern War: Army and Society in the Conflict with China, 1894-1895, considers the war to have been a political failure for Japan, as it provoked anxiety in the West concerning Japan’s imperial ambitions, and cost her the support of Korea.598 Still, the war accomplished for Japan its outright goal: to be perceived by Western nations as a force to be reckoned with.

Following Japan’s surprising and stunning win at the Battle of Yalu, foreign military observers attributed Japan’s success to its modernity and westernization. That being said, in reality, Japan did not rely solely on foreign experts and world-class warships to lead themselves into this modern era. While Westerners provided information concerning war tactics and warship construction, Japan’s naval officials played an equally critical role in the navy’s success. It was Japanese naval officials who had to acquire the funding necessary to develop this world-class, modern navy. J. Charles Schencking argues that Japan was able to develop their navy only by, "lobbying oligarchs, coercing cabinet ministers, forging alliances with political parties, occupying overseas territories, conducting well-orchestrated naval pageants, and launching spirited propaganda campaigns.”599 He argues that Japanese political parties played a critical role in the emergence of the military services, particularly the navy.600 In his article, “The Imperial Japanese Navy and the Constructed Consciousness of a South Seas Destiny, 1872-1921”, he explains that for the navy to secure a percentage of the domestic budget, as early as 1872, navy officials had to construct a separate, strategic identity from that of the army.601 Therefore, he describes, the Imperial Japanese Navy focused its efforts on

600 Ibid., 834.
expansion into the South Seas, specifically Nan’yo.\footnote{Schencking, “The Imperial Japanese Navy and the Constructed Consciousness of a South Seas Destiny, 1872–1921,” 770.} Miwao Matsumoto, author of “Reconsidering Japanese Industrialization: Marine Turbine Transfer at Mitsubishi” argues that technologies did not automatically flow from other countries as freely as other historians have described.\footnote{Matsumoto, “Reconsidering Japanese Industrialization,” 94.} Instead, private companies, such as Mitsubishi, played a critical role in the transfer of technology to Japan. Nonetheless, private companies and the Meiji government could not have accomplished the naval modernization at such speeds without the technological diffusion and expertise provided from Britain, France, and the United States during the late nineteenth century.

In addition, some of the success afforded to Japan can be assigned to no single country or group of people. Instead, Evans and Peattie argue that some of Japan’s backward circumstances in men and material would have posed formidable obstacles to the modernization of Japan’s maritime force had it not be for fortunate position and timing, a concept more universally known as the “Advantage of Backwardness.”\footnote{Evans and Peattie, \textit{Kaigun}, 9.} Evans and Peattie divide this concept into the following factors: the West’s current preoccupation with China, Japan’s lack of outdated navy, and the recent technological breakthroughs made by Western nations in naval technology. The Japanese navy came into being during a period of rapid technological change and tactical confusion among the world’s navies.\footnote{Ibid., 32.} Japan’s Meiji Restoration overlapped with the beginning of Western revolutions in transportation, communication, and modes of production. Therefore, Evans and Peattie argue that Japan was able to take immediate advantage of this without having to pass through the, “long scientific revolution that preceded the rise of industry in Europe.”\footnote{Ibid., 10.} The rapid revolutionary changes in naval technology that developed in America and Europe were available immediately in Japan because of

\footnote{\textsuperscript{602} Schencking, “The Imperial Japanese Navy and the Constructed Consciousness of a South Seas Destiny, 1872-1921,” 770.}
\footnote{\textsuperscript{603} Matsumoto, “Reconsidering Japanese Industrialization,” 94.}
\footnote{\textsuperscript{604} Evans and Peattie, \textit{Kaigun}, 9.}
\footnote{\textsuperscript{605} Ibid., 32.}
\footnote{\textsuperscript{606} Ibid., 10.}
increased communication capabilities. The impact of these technologies, however, would not have been felt if Japan had a standing navy at the time. It was equally important that the infantile Japanese navy was not burdened with the sunk cost of obsolete equipment. In addition, the people affiliated with the navy were not attached to outdated techniques since no one had training or naval experience. And finally, during the key years of Japanese naval construction – 1880 to 1895 – Western nations who originally threatened Japan were preoccupied with potential expansion into China, providing Japan with the necessary time to develop their Imperial Japanese Navy in peace. This extremely fortunate timing allowed Japan to incorporate fully-developed Western technology into their emerging navy, with zero sunk costs and little external threat that could have pressured Japan to develop a mindlessly Western navy. Instead, what emerged around 1895 was a hybrid of western technology and successful strategy with traditional Japanese values. And finally, the period of intense technology diffusion into Japan from the West did not simply benefit Japan. The Battle of Yalu was the studied by naval staffs around the globe, as it was the first fleet encounter since the battle at Lissa in 1866.

**Impact of the Sino-Japanese War**

In mere decades, Japan went from a closed, insular, nation to one of international recognition and prestige. By the 1890s, with only two decades of military and naval development, Japan was militarily and economically strong enough to assert her independence. This belief of historians is supported by Japan's success in the Sino-Japanese war and her ability to accelerate military and naval development prior to World War I. The Sino-Japanese War proved to be an important turning point for the Japanese navy, as it entered into the second phase

---

607 Ibid., 10.
608 Ibid., 9.
609 Ibid., 47.
of development, which would be characterized by the emergence of a Japanese centric strategy and production schedule:

The Sino-Japanese War provided the departure point for modern Japanese naval thought in the same way that American naval thought crystallized around the concerns of Mahan and the lessons of the Spanish-American War. Until that point, the navy’s frame of reference had been entirely Western, and certainly, Western tactical ideas, now readily available in the numerous translations of Western naval commentaries, were still pervasive during the succeeding decade. Yet, a more purely Japanese naval doctrine also began to develop during the same period.\textsuperscript{611}

Evans and Peattie argue that it was the decade between the Sino-Japanese war and the Russo-Japanese war that brought along the maturation of the modern Japanese tactical doctrine based on its new experience and on foreign example.\textsuperscript{612} During the years 1894-1895, a body of thoroughly professional doctrine began to emerge, shaped by a nucleus of incisive, imaginative, and informed young officers who, working within the Naval Staff College, helped the navy prepare to do battle with its potential enemies at sea and with its service rivals at home.\textsuperscript{613}

Following the Sino-Japanese War, the leader of the navy during the late Meiji era, Yamamoto Gombei, called for a dramatic expansion of the navy. The expansion centered on the acquisition of additional battleships, but for the first time, in conjunction with world-class vessels that would be built in Japan’s own shipyards.\textsuperscript{614} By 1902, Japan was designing and constructing her own torpedo boats. The quality of these boats was in line with the superb “thirty-knotters” used

\textsuperscript{611} Evans and Peattie, \textit{Kaigun}, 50.
\textsuperscript{612} Ibid., 67.
\textsuperscript{613} Ibid., 51.
\textsuperscript{614} Ibid., 57-58.
by the Royal Navy.\textsuperscript{615} Japanese specialists were also beginning to produce their own designs for machinery, munitions, weapons, explosives; most of these domestic advances in naval technology represented an effort in research and development by the Japanese.\textsuperscript{616}

**Conclusion**

This paper has focused extensively on the role of westerners in Meiji naval development. Western nations such as Britain and France supplied technology, advisors, and vessels, which when combined, had a major role in the early organization of the Imperial Japanese Navy. However, this "industrialization" or, perhaps, "modernization" of the nation was by no means simply a process of "Westernization" by uncritically pro-Western forces in Japan.\textsuperscript{617} Instead, much of the success of the Imperial Japanese Navy is due to the domestic technology, indigenous talent, and culture of the Japanese. In the words of Gooday and Low:

> The arrival of Americans in Japan in 1853-1854 is often portrayed as the "opening" of Japan and as the beginning of rapid, almost miraculous industrialization during the Meiji period (1868-1912). This ethnocentric emphasis on the agency of Westerners in developing Japanese science and technology overlooks the importance of domestic processes of urbanization, industrial development, and trade during the preceding Tokugawa period (ca. 1600-1868).\textsuperscript{618}

Thus, rather than taking at face value the asserted industrial "modernization" of Japan in the Meiji period, one could argue instead that this was, in many ways, a strategic reinforcement of the nation's traditional institutions under the diplomatically expedient banner of "Westernization."

\textsuperscript{615} Ibid., 62.
\textsuperscript{616} Ibid., 63.
\textsuperscript{617} Gooday and Low, “Technology Transfer and Cultural Exchange,” 100.
\textsuperscript{618} Ibid., 102.
This theory also understates the complex and contrasting ways in which the careers of non-Japanese scientists and engineers were molded or redirected by their participation in Japan's imperial borrowings from other cultures. In the words of Gooday and Low, “Far from being immutable sources of Western technocratic wisdom, these imported experts found that their Japanese experiences changed their lives at least as much as their activities helped to change Japan.”619 The once popularly held belief that the diffusion of western technology into Japan was one-sided is incorrect; instead, the time foreigners spent in Japan significantly impacted their research and led to critical breakthroughs. In addition, Japanese dealings with foreign scientists and engineers were not always harmonious or even transparent620. The Japanese understood modern science and technology in terms of not only their utility to the nation's industrial development—but as something they could graft onto traditional Japanese values that remained largely intact despite Western incursions from 1880-1895. In particular, the Meiji looked to science and technology to further their aim of defending Japan against future invasions from other imperial powers.621 With speed and success, Japan assimilated Western techniques and synthesized them with indigenous Japanese values, and in the process, they created one of the strongest navies in the world. Between 1866 and 1914, there were only five major sea battles worldwide. Of those, Japan fought and won in three.622 In a short amount of time, Japan managed to surpass countries including China, Russia, and France who had served as models for the infant navy only decades prior.623 This success can be contributed to correctly interpreting the lessons of the Sino-Japanese war, Japan’s major investment in warships, their strategy of pairing small, quick ships with quick-firing artillery, and superb naval leadership and training. Of these, Japan owes Britain and France for their foundational training

619 Ibid., 100.
620 Ibid., 101.
621 Ibid., 127.
622 Evans and Peattie, Kaigun, 504.
623 Ibid., 64-65.
program and warship design, but this list also highlights the indigenous accomplishments of the Japanese. By the turn of the century, the West’s model pupil embraced tradition and technology, learned key naval lessons from foreign advisors and in battle, and developed an emerging domestic infrastructure to become a naval leader in its own right.