MORE THAN THE SUM OF THEIR PARTS: THE ORIGINS OF THE

OLYMPIC CLASS LINERS

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For Mom, John and Gramma who provided the encouragement to make it happen.
ABSTRACT OF THE THESIS

More than the Sum of Their Parts: The Origins of the Olympic Class Liners
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Almost immediately after the waves closed over the stern of the R.M.S. *Titanic* on April 15, 1912, authors began pumping out articles, books and essays about the history and greater meaning of the world’s worst shipwreck. Very few authors over the ensuing 101 years wrote much about *Titanic* in the bigger picture of Edwardian technology, foreign relations, or business. This thesis argues that the massive ships that crowded the North Atlantic created wealth and prestige not only for the companies that owned them and the nations whose flag flew from the mast.

Between 1871 and 1911, the ships of the North Atlantic transformed a means of transportation into commercial status symbols and tools of national interest. Driven by consumer, popular and government interests, rivalry stoked intense pressure to innovate. This thesis explores how business changed to meet the challenge to innovate; the means business used to raise capital, and, finally, how the trans-Atlantic trade changed from privately owned firms into government-business partnerships that fulfilled nationalistic visions.

This thesis documents the evolution of ideas about the relationship between the private pursuit of wealth and the government pursuit of global status using such primary resources as excerpts from diaries, newspaper articles, and essays from leading businessmen of the era. Secondary sources include books from both the U. K. and the U. S. The research shows a rapid transition from privately held, family shipping businesses to multinational conglomerates. It further documents how business interests in Great Britain and the United States eventually joined to produce the great liners that also fulfilled the goals of foreign policy in both nations.
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INTRODUCTION:
NOT JUST A BOAT RIDE

It was a dark and stormy night on April 30, 1907 when a short Irish lord welcomed a tall English businessman into his home in Belgrave Park, London. The oppressive fog of the Thames cloaked the evening, adding an air of mystery to the proceedings.\(^1\) William Pirrie, 1st Viscount Pirrie, head of Harland & Wolff Ship Yards, sat across from J. Bruce Ismay, chairman of the White Star Line and president of J. P. Morgan’s shipping combine, the International Mercantile Marine. Discussion ran to their rival Cunard and its steamers, *Mauritania* and *Lusitania*, the world’s largest liners, which had recently gained the Atlantic Blue Ribband for speed. The conversation circled around how to top Cunard's achievement, with three ships so large and luxurious they would capture all the world’s attention.

The late 19th and early 20th centuries saw the rise of modern industry. In America, great ”Robber Barons” such as Morgan, built industrial empires of vertically and horizontally integrated businesses. Railroads were the prime examples. Owners controlled the steel mills that provided the raw materials for rails, engines, and railcars. Frequently, these companies grew so large that they became national and even international interests. No industry exemplifies this process of globalization better than the merchant marine.

During the 1800s and early 1900s, the oceans were the only means of moving goods all over the globe. The great liners brought tremendous prestige to the nations they served. With cargo and passenger liners everywhere, the United Kingdom maintained a global network of trade, communications, and defense. For more recently established powers such as the United States, a merchant navy provided the means to expand the economy and be a player on the world stage. Although Great Britain dominated the shipping world, business

leaders in the United States were eager by the late 1800s to gain a foothold in shipping for industrial and nationalistic reasons. Eventually, the growth of the U.S. culminated in its near international monopoly of Atlantic shipping. But why did shipping become so important that governments became involved in the operations of independent companies and then larger monopolies? Why did both the United States and Great Britain invest so substantially in shipping?

Over time, shipping became a means of extending influence. Sending ships to a certain location ensured the growth of a town and local industry. This in turn brought materials back to the home country. Strategic points could be defended, a watchful eye kept on potential enemies, fuel and communications stations established, and far flung possessions bound further together. Encouragement of private enterprise also fueled new technologies that could later be used for national defense should the need arise.

Most important of all, ships built for peaceful purposes could be requisitioned for military use in emergencies, especially if they were built with that purpose in mind. Shipping owners could expect huge subsidies for ships built to naval specifications, thereby ensuring income streams and tying the welfare of the merchant marine more strongly to the welfare of the nation and vice-versa. Business provided a starting point, but eventually international businesses and government partnerships provided the means for greater technological advancement and more massive construction. Few events demonstrate this quite as clearly as the path that led to construction of the Olympic, Titanic and Britannic.

More than a simple story of competition between shipping firms, the story of the Olympic class highlights the evolution of business, government policy, international monopolies and the forces each exerted on the other. Without the ships that served the British Empire, there would have been no empire. And without the empire, the great ships would not have been needed or built. When American business threatened control of those ships, the British government sprang into action to save its merchant navy.

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Previous studies of the great liners, and the Olympic class in particular, have not examined these issues in relation to each other. While there have been hundreds of studies on Titanic, J. P. Morgan, Alfred Mahan, shipping and technology, few have looked at the interconnections that made the Olympic class possible. In the origins of the Olympic class, we can see the beginnings of today's multi-national corporations. It is a merging of business, technological and nautical history into a very complicated web, which may explain why it has so frequently been overlooked.

Andrew Porter's *Victorian Shipping, Business and Imperial Policy* is one of the few books that brings those stories together. Porter's work focuses on the Castle Line of Donald Currie that primarily served ports along the West African coast. It details the use of subsidies in the growth of the shipping business and how a deft businessman brought that together with a growing market in South Africa that needed shipping services. Other scholars such as John M. Brinnin and John Maxtone-Graham, both authors of accounts of ocean liners on the North Atlantic trade, tend to focus on the ships themselves, or social histories of the people who sailed and worked them. Stephen Fox's *Transatlantic* focuses more on business history and technical innovation, examining the influence of Samuel Cunard and others. However, he leaves aside most of the financial machinations that went into the creation of the International Mercantile Marine and its implications on shipping. Only Roy Anderson's *White Star*, Robin Gardiner's *History of the White Star Line* and Wilton Oldham's *The Ismay Line* examine the White Star Line in any depth, but they too tend to stop at a cursory look at the relationship with Harland & Wolff Shipyards. The development of technology, subsidies, the nature of competition and international policy or monopoly is left almost

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entirely unexplored. This leaves an incomplete picture of the forces that produced the Olympic class ships.

Examined fully, the relationship between the White Star Line and the Harland & Wolff Shipyards shows how businesses of the time worked together in ways that not only profited owners and stockholders, but provided services that could change world events. More than recent "crony capitalists" who strip bare all they find in search of profit, White Star, Harland & Wolff and others like them provided valuable services. Only Andrew Porter's work begins to look at this phenomena. Recent works on railroads can be illustrative. Books such as *Railroaded*, 9 which examines horizontal and vertical integration and the changes that integration brought to industry and rail transport, provide a helpful comparison since Morgan was deeply invested in railroads prior to building the International Mercantile Marine. In fact, IMM's structure was clearly inspired by the railroads. IMM's constituent shipping lines were supported by a master shipbuilding firm in the same way that railroads were directly supported by steel mills controlled by the monopoly. Both monopolized railways and the monopolized shipping lines improved the world around them while serving national and international policy objectives. Although these businesses certainly existed to make profits, which they did in great abundance, they also left infrastructural improvements behind. But here is where the comparison to modern economics ends. Whereas the modern "crony capitalist" builds nothing, the "robber barons" in general, and Morgan, Ismay and Pirrie in particular, built things. The great liners took immigrants to new opportunities and brought new products, medicines, communications, and services to places otherwise out of reach. In times of conflict they provided defense as auxiliary cruisers and carried armies and provided hospitals for the Allied powers in two world wars. 10

To fully examine the importance of shipping to the world at the time, as well as the importance of the Olympic class, newspapers, Parliamentary records and the American and British inquiries into the *Titanic* disaster provide clear evidence. British newspapers, in

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particular, carried shipping rumors and quotes from shipping magnates in detail. Likewise, parliamentary debates reflected the events of the day such as Morgan's efforts to form his combine. These are invaluable at showing how parliamentary representatives reflected the mood of the people and the issues that private business raised in government and national defense arenas. Additionally, reprints of materials such as the booklet from White Star's display at the Chicago Exposition of 1893\(^{11}\) and *Britannic*'s launch booklet,\(^{12}\) which are available from the Titanic Historical Society, and reprint editions of *The Shipbuilder* that detail the growth of shipping in general and White Star and Harland & Wolff’s efforts in particular detail valuable information. Besides these, journal articles from the time and after detailed the economic rise and fall of the International Mercantile Marine provide insight into the financial standing of the company.

Ocean liners of the late 19th and early 20th century were far more than simply the sum of their parts. They represented new technologies, economic growth, changing business practices and corporate rivalries. Nations used them to confirm their status as world powers and defend themselves during war. The origins of the Olympic class of ocean liners is that story.

\(^{11}\) *White Star Line, A Resume of Twenty Year's Progress for the Chicago Exposition* (Liverpool, England: The Liverpool Printing and Stationary Company Ltd., 1893)

CHAPTER 1

HARLAND & WOLFF AND WHITE STAR: A COST PLUS RELATIONSHIP

February 26, 1914 dawned bright and clear in Belfast, Ireland. It was a momentous day for the city, the White Star Line, and Harland & Wolff. Rising up from the yards stood the gigantic hull of a new steamer only moments away from sliding into the water. Nearly nine hundred feet long and 50,000 tons, the new R.M.S. Britannic, sister to Olympic and Titanic, stood as one of the proudest achievements of the shipbuilder's art.\(^\text{13}\)

A button was pushed at the appointed hour and the massive hull slipped gracefully into the water. As ship met sea, applause and cheers rang out. The launch of Britannic was more than just a single event. It was the culmination of an expanding victory of a business relationship that made ocean travel faster, more reliable, profitable and luxurious over the last half century.\(^\text{14}\) It had taken forty-three years of constant technological design, testing, and refinement by the White Star Line and the Harland & Wolff to get to this day. A challenge had been taken up to build the biggest, finest, most powerful steamship possible to provide regularly scheduled Atlantic crossings. In this charge the White Star and Harland & Wolff enjoyed reputations as world leaders and the Olympic class confirmed that reputation. The technological and architectural advancements Olympic, Titanic and now Britannic demonstrated the refinement which the companies' unique partnership made possible over the course of many decades.

Thomas Ismay operated a successful line of mail packets serving Australia having purchased the name, goodwill, and house flag of the bankrupted White Star Line and

\(^{13}\) Royal and United States Mail Steamer, 8.

\(^{14}\) White Star Line, A Resume, 1-6.
rebuilding it in 1867. This success led to Ismay being approached by an investor to found a steamship line on the Atlantic during an informal game of billiards between Liverpool businessmen in 1869. Merchant Gustav Schwabe told Ismay that he was looking for new shipping investments. Schwabe was already a shareholder in the Bibby Line, a Harland & Wolff client, and he was an uncle of Gustav Wolff, the shipyard’s cofounder. Schwabe promised Ismay financial backing for the formation of a new steamship line on the condition that Harland & Wolff built all the new company’s ships. Thomas Ismay started the Oceanic Steam Navigation Company with shareholders that included Gustav Schwabe, Edward J. Harland and Gustav Wolff, adding steam to his already successful sailing packet line.

The new White Star Line and Harland & Wolff would enjoy a unique relationship. Harland & Wolff agreed never to build ships for any company in direct competition with White Star. In return, White Star never used any other shipbuilder. In fact, White Star never bothered with a traditional “contract” at all, but made a general agreement with Harland & Wolff regarding the price of the ships they built. The relationship was explained by J. Bruce Ismay, Thomas' son, “They have carte blanche to build the ship and put everything of the very best into that ship, and after they have spent all the money they can on her, they add on their commission to the gross cost of the ship, which we pay them. We have never built a ship by contract.” The commission in the original agreement between Thomas Ismay and Messrs. Harland & Wolff was a four percent profit on the cost of each ship. This relationship gave Harland & Wolff a reliable income stream which allowed the shipyard to continue expansions and investments over time.

White Star further benefited from the unusually good relations Harland & Wolff enjoyed with labor. While shipbuilding was a dangerous profession, Harland & Wolff workers enjoyed relatively high pay, especially for skilled labor such as joiners, upholsterers,

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17 Oldham, *The Ismay Line*, 33
and pipefitters. By 1914, skilled laborers earned as much as 77 shillings a week ($518.45 in 2012).\(^\text{20}\) Those labor disruptions that did occur mainly erupted between skilled and unskilled workers at the yards. By comparison, the average for shipwrights throughout Great Britain was 41 shillings.\(^\text{21}\) Harland & Wolff usually took a hands-off approach, but readily negotiated with unions when needed.\(^\text{22}\)

The arrangements between shipping company and owner allowed Harland & Wolff engineers far more latitude than many competitors. Other lines had to be more cost-conscious, or labored under less cozy relationships with the builders of their ships. White Star, however, benefitted from experimentation in design and layout that Harland & Wolff pursued. In addition to the basic ship, Harland & Wolff fitted out the vessel, meaning that they decorated and furnished the liners they built. All shipyards fitted out ships as part of construction, but in their unique partnership White Star again enjoyed better results than others, such as their main competitor, Cunard. Besides getting the best product possible from Harland & Wolff, White Star also got a ship that had the best interior design, furnishings and decoration money could buy, rather than sub-contracted with additional costs. Additionally, Harland & Wolff usually carried out repairs and upgrades. This insured minimal time in refit as the shipbuilder was already intimately familiar with the ship they were modifying. In many instances the same yard crew that built the ship carried out modifications. As White Star ships changed over time from the original design specifications, Harland & Wolff could conduct maintenance more quickly.

Other lines used multiple builders for multiple ships, even of the same class. For example, Cunard’s three-ship Abyssinia class of 1870 took shape with two different builders, resulting in different fuel requirements, speeds, and one sister, Parthia, which was smaller than the other two.\(^\text{23}\) White Star benefited from one design team and one yard, often using the same basic engine design. This standardized fuel requirements and made support logistics


\(^{21}\) HC Deb 30 July 1925 vol 187 cc671-3W

\(^{22}\) Moss and Hume, Shipbuilders to the World, 168.

\(^{23}\) Duncan Haws, Merchant Fleets: Cunard Line (Hereford, UK: C. I. Thomas and Sons, 1987), 40-41.
less complicated. The drawback of White Star's relationship with Harland & Wolff lay in that multiple ships could only be built one, or sometimes two, at a time. Thus it took longer for White Star to bring their ships online.

White Star's first steamer, *Oceanic*, had several features that set her apart from all other ships on the Atlantic at that time. One observer exclaimed she looked “more like an imperial yacht than a steamer.”

Edward Harland, who personally designed most of the ship, pointed out reasons for *Oceanic*’s success: “Another feature of novelty in these vessels consisted in placing the first-class accommodation amidships, with the third-class aft and forward.” Prior to this change, all liners had placed their cabins in or near the stern of the ship where vibration and smells from the engine room, as well as the cork-screw motion of the ship in heavy seas, were most severe. “These and other arrangements greatly promoted the comfort and convenience of the cabin passengers, while those in the steerage found great improvements in convenience, sanitation, and accommodation… In short, for the first time perhaps, ocean voyaging, even in the North Atlantic, was made not only less tedious and dreadful to all, but was even rendered enjoyable and even delightful to many.”

At 420 feet long and 40 feet wide, *Oceanic*’s more streamlined hull, one of the first taking advantage of the new science of hydrodynamics, allowed for higher speeds and lower fuel consumption. The hull was built on the ratio of 10:1 instead of the more traditional 8:1. This meant *Oceanic* was ten times as long as she was wide. The traditional ratio of 8:1 created a much bulkier hull. The slimmer hull allowed the water to flow more swiftly with less resistance. Lower water resistance put less pressure on the engines to gather and maintain speed and decreased fuel requirements.

The *Oceanic* arrived at Liverpool on February 26, 1871 and was opened to the press and public for inspection. Although nearly empty on her maiden voyage with 64 passengers, she was still described as a success in the media. In New York, she was again opened to the

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26 Ibid.

27 Anderson, *White Star*, 44.
public and 50,000 curious people saw the first of the new breed. The competing Cunard Line, though serving more passengers (300 passengers on R.M.S. *Calabria*, which sailed in direct competition to *Oceanic* on her maiden voyage) and a more established company, could no longer rely on simple speed and reliability with no other innovations. Nor could any other line continue to offer only the basic requirements of speed, regularity and safety. White Star's arrival on the Atlantic signaled a new kind of ship, something of higher caliber that made the trans-Atlantic crossing more comfortable and enjoyable as opposed to a necessary drudgery.²⁸

*Oceanic* was quickly followed by three sisters: *Atlantic*, *Baltic*, and *Republic*. These four ships helped set the terms by which the contest for dominance on the Atlantic would be fought until the eve of World War I. From then on, not just speed and reliability, but comfort and even luxury were important. White Star introduced greater comfort and a high level of passenger service to set itself apart from other, more established lines. The basic layout of the Oceanic class was so successful that it dictated the placement of public rooms and cabins on other ships well beyond WWI. In order to compete, technological improvements had to be part of each new ship; from here on something had to stand out to attract passengers.

At the same time White Star and Harland & Wolff were making waves in the Atlantic, investment and expansion opportunities opened up in other places. The Occidental and Oriental Steam Ship Company (familiarly known as O&O) was formed by ambitious railroad barons of the American West in a bid to control shipping from Asia, across the Pacific and into their own railroad networks. Incorporated in 1874, O&O enjoyed a relationship with White Star that lasted until 1908, in which the O&O chartered ships from White Star to sail on Pacific routes. The ships that White Star provided for the San Francisco - Yokohama route included the finest and most advanced on the Pacific. In addition to these ships, which retained White Star names and livery, White Star provided the officers to run them - although the O&O furnished the crews.²⁹ O&O chartered White Star's *Oceanic* in

1876 with the *Gaelic* and *Belgie* to help fulfill mail contracts. The O&O experiment expanded with ports of call including Kobe, Nagasaki, Shanghai and Honolulu. White Star-owned ships, designed and built by Harland & Wolff, served O&O successfully on the Pacific, providing added experience for White Star's officers and Harland & Wolff's engineers.

In 1880, White Star entered into an arrangement with Shaw, Savill and Albion Line (SSA) on much the same terms as with O&O. White Star provided ships and entire crews, this time on runs to New Zealand, while SSA managed schedules and local logistics. Ships built for this trade included the *Ionic*, *Doric*, and the appropriately named *Zealandic*, during a business relationship that lasted into the 1930s.

These charters provided several advantages to White Star. First, older Atlantic liners could be repurposed and given new and profitable lives on secondary trade routes. Without these life-extending charters older ships would have been sold off because of rapidly changing technology. Often these ships sold at a loss while still relatively new. There was also a competitive advantage for the chartering company. The former Atlantic liners retained the luxurious fittings usually reserved for the more prestigious New York route. Other lines simply did not meet the same standards and couldn't garner as much of the customer base. As a side benefit, White Star could boast a world-wide fleet, with the publicity boost of having ships all over the world. Finally, the charters provided an additional stable revenue stream that allowed White Star more freedom for expenditures on its primary Atlantic trade routes. Thus it could pay higher stock dividends and set up a financial reserve. By the mid-1880s White Star and Harland & Wolff enjoyed world-wide recognition and a stable financial base, despite the often harsh trading conditions on the North Atlantic.

Another factor that allowed White Star some immediate success was gaining a subsidy to carry mail from Britain to the ports they served. The Atlantic mails had been

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32 Ibid., 22, 63-64, 78.
subsidized as far back as the 1830s continuing through the introduction of Oceanic. While previously the contract had been held by only one or two companies, the proliferation of steamship lines caused contracts to become split with each renewal. White Star Line, not to be left out, gained part of the mail subsidy in 1887.

As White Star expanded, so did Harland & Wolff. With the certain income stream provided by the profit agreement with Ismay's line, Harland & Wolff enjoyed more freedom to expand their Belfast holdings. Harland & Wolff routinely bought major new pieces of equipment such as lattice work cranes, expanded their yards for building larger slips, and bought out smaller companies to increase their own abilities. An example is the 1878 purchase of Alexander McLaine & Sons for £7,000 ($996,916 in 2012) which allowed Harland & Wolff to build their own engines instead of sub-contracting. The 1880s brought a downturn in ship building due to the proliferation of firms and the way failing shipping lines were leaving the market. The income from White Star made the downturn less severe for Harland & Wolff and assured their survival while other shipyards closed. Additionally, the reputation they had built with White Star's now world famous ships helped bring in new contracts that less well known firms would not have been able to secure.

At an 1885 meeting of shareholders aboard the Adriatic, built in 1872, Edward Harland remarked on how well White Star’s older ships competed with newer, larger and faster ships, “with their splendid load of nothing in them and producing less than that as a dividend to their shareholders.” Congratulating Ismay, Harland no doubt took satisfaction in knowing his shipyards constructed the high quality steamers on which White Star built its reputation. Indeed, having revolutionized the Atlantic passenger trade and expanded interests the world over, Thomas Ismay was content to pursue a “rest-and-be-thankful policy” during most of the later 1880s. At that same shareholder's meeting, Ismay's business acumen was also praised.

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33 Mails Conveyance Contract, 1839, Cd. 566
34 Post Office Mail Contract (America), 1882, Cd. 165
36 Anderson, White Star, 77.
T. H. Jackson, who chaired the meeting, pointed to Ismay’s "cool judgment" of not being led into costly new steamers. He predicted, "when he (Ismay) thinks the time has come to build larger and faster boats we, as shareholders, shall be in safe hands." Jackson’s speech proved prophetic. Newer vessels, especially from archrival Cunard, finally attained the standards of comfort and luxury White Star had inaugurated. To maintain the position as the leading trans-Atlantic firm, White Star needed newer ships and increased the financial means to build them.

As the 1880s gave way to the 1890s, increased international rivalry for imperial colonies added another dimension to the Atlantic shipping scene. The 1885 war scare over the seizure by Russia of Afghan territory near the Oxus River and the British Admiralty’s use of liners as auxiliaries presented Ismay with an idea. In the past, the Royal Navy, like others around the world, used merchant ships as auxiliaries to increase patrols of the sea lanes. This often led to disaster. Most of the merchant ships were not built to withstand combat duties or even the sailing requirements of a navy vessel. Ismay planned to build ships to admiralty specifications under their supervision - in exchange for an annual subsidy. The ships would be built in such a way as to minimize the time needed to convert them into a new breed of ship called the armed merchant cruiser.

Ismay already found favor with the Admiralty by offering the entirety of the White Star fleet to the government in case of war with Russia in 1885. In 1886, Ismay entered into correspondence with Arthur Forwood, Parliamentary Secretary to the Admiralty. In these letters, Ismay negotiated the terms under which his ships would be available for government use and the terms under which "one or two vessels of high speed" might be built specifically for use as armed merchant cruisers. For each ship chartered, the parent company was to receive 15s per gross ton annually for five years. Teutonic eventually weighted in at 9,984 tons. Her yearly subsidy totaled £7,488 ($14,438,709 dollars in 2012). After two years

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37 Copies of Correspondence Respecting Subvention of Merchant Steamers for State Purposes, 1887, Cd. 5006

38 Ibid.


40 Copies of Correspondence Respecting Subvention of Merchant Steamers for State Purposes, 1887, Cd. 5006
service to White Star, the ships would be available for purchase by the Admiralty at cost. The contract covered other provisions, such as how many members of the crew had to be Royal Navy Reserve and how much the subsidy would increase if White Star lost the mail contract. Should White Star be required to sell any ship to the Navy, they were allowed to "remove from the Ships or Ship, the plated ware, cutlery, crystal, earthenware, blankets, counterpanes, and linens, which articles shall not be considered part of the equipment of the ship."

Furthermore, preparation of the ship for naval service and restoration for peace time service would be paid for by the Admiralty.\textsuperscript{41}

Ismay's new idea gained quick acceptance and Edward Harland immediately began drawing up acceptable plans for a pair of ships.\textsuperscript{42} \textit{Teutonic} and \textit{Majestic} of 1889 and 1890 resulted. The ships were built for speed and quick conversion to auxiliary cruisers, with hidden gun mounts and structural support built into the design so as not to interfere with their primary role as passenger liners. The twins could be armed with twelve Armstrong 26 pounders, with a range of 200 yards, and eight machine guns.\textsuperscript{43} Proclaimed as the best designs the Admiralty had yet seen, \textit{Teutonic} was finished in time for conversion to an armed merchant cruiser and presented at the Spithead Navel Review of 1889.\textsuperscript{44}

White Star's \textit{Teutonic} and \textit{Majestic} of 1899 also marked other major innovations in the construction of the ocean liner. Naval vessels faced greater sailing stresses than their commercial counterparts. They tended to sail at maximum speeds for longer periods of time and received less frequent stays in dry dock for maintenance and repair. The new ships were built accordingly. And because they were expected to be fast, Harland & Wolff designers installed the most power engines possible. This allowed White Star to compete for the Blue Ribband using government resources instead of company resources. By doing so, they avoided some of the costs other lines incurred in maintaining speed records.

\textsuperscript{41} Ibid
\textsuperscript{42} Oldham, \textit{The Ismay Line}, 105-106.
\textsuperscript{44} Ibid.
At the 1889 naval review *Teutonic* played guest to members of the British royal family.\(^{45}\) Kaiser Wilhelm II also paid the liner a visit, marveling, "We must have some of these," marking Germany's entry in the race for the greatest ocean liner.\(^{46}\) The elegance of the *Teutonic* and *Majestic* marked a new standard in luxury and comfort. White Star found that their new twins attracted passengers because of comfort alone.

As usual, the White Star-Harland & Wolff cost-plus relationship resulted in superior ships. Meanwhile, the government subsidy was based on size, speed and usefulness of the liner to the admiralty.\(^{47}\) Building the largest, fastest liner possible became particularly important to the interests of both White Star and Harland & Wolff. By building larger and faster ships, the cost increased significantly, especially with military standards included. Although it increased the original purchase price to White Star, the larger the ship, the larger the subsidy. White Star, meanwhile, could count on a new income stream that promoted the best upkeep possible. As a final display of shrewd business sense, White Star could benefit from the publicity of being a patriotic company. When *Teutonic* arrived at the naval review of 1889, it was fitted out as an armed merchant cruiser for that reason.\(^{48}\)

Soon White Star took advantage of increased import-export business by building liners expressly for cargo and livestock service. The 1890s saw expansion into the development of the cargo liner by White Star as it asserted dominance over the British share of the Atlantic market. Harland & Wolff provided such ships as the *Nomadic* and *Tauric* of 1891 and *Naronic* of 1892. These ships were specially designed for the exclusive transport of livestock, with minimal accommodation, designed for ranchers to oversee their stock, not general passengers. They were shortly followed by the "Jubilee" class of 1899. These five ships took advantage of lessons learned on the Australian run and Shaw, Savill and Albion charter routes. They carried as many as 100,000 beef carcasses in refrigerated cargo holds.\(^{49}\)  

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\(^{45}\) Ibid.  
\(^{47}\) Copies of Correspondence Respecting Subvention of Merchant Steamers for State Purposes, 1887, Cd. 5006  
\(^{49}\) "A New Torpedo-Boat Destroyer," *Manchester Guardian*, June 28, 1897,
Here again, Harland & Wolff provided White Star with the best possible ship with new technologies, specifically in the refrigeration plants.

Queen Victoria celebrated her 60th anniversary on the throne with a naval review at Spithead, near Hampshire, in June 1897. Even though the assembled might of Her Majesty's navy and mercantile marine lined the harbor, the hit of the show was the uninvited, privately built and owned, *Turbinia*. The first turbine powered ship in the world raced through the lines of anchored ships at 32 knots. Royal Navy launches attempted to catch the intruder but *Turbinia* effortlessly left them wallowing in her wake. Inventor Charles Parsons privately designed the ship.50 His invention, the turbine, was able to use steam that was usually wasted through exhaust. This made steam engines more efficient and powerful and lowered the consumption of coal. Merchant as well as naval leaders immediately looked into using turbines on their ships.

This innovation in steam engines not only made the power plants more efficient, but far more economical and allowed higher speeds than ever. Most ships of the era had one or two screws. Now, a third screw could be added using the left-over steam in a low pressure turbine. By the turn of the century, White Star built major ships to test the new style of engines. White Star's *Magantic* and *Laurentic* of 1909 were identical ships except for the difference in their engine.51 One ship was powered with triple expansion engines and a turbine geared to three screws, while the other ship had older style quadruple expansion engines geared to two screws. Testing found that that the ship with turbines, *Laurentic*, was faster and more economical than her twin sister.52 The information was tucked neatly away for bigger and better things to come.

In the mean time, White Star decided to continue the advancement of the Atlantic liner in the direction that had already brought them laurels. Having found a partial recipe for success in the *Teutonic* and *Majestic*, the company decided to go all in on the idea that

http://pqasb.pqarchiver.com/guardian/.

50 Ibid.


comfortable crossings were the preferred mode of the sea faring public. When White Star ordered its next ship from Harland & Wolff, it emphasized their new strategy, leaving speed records, extra maintenance, and higher fuel costs to Cunard and other lines.

The R.M.S. Oceanic of 1899 was notable for several reasons. First, was her size. At 705 feet long and 17,274 tons, she earned the title "largest ship in the world."\(^{53}\) She was the first ship to exceed the length of the Great Eastern built forty years before, although she was still lighter in tonnage. Her interiors were lavish in the extreme. The Ismays spent a great deal of time with consultants to make sure the designs were perfect for the new company flagship.\(^{54}\) Passenger accommodation stood at 410 1st class, 200 2nd and 1,000 3rd.\(^{55}\) While immigrant passengers remained the dominant share of profit (206,917 people divided among the four major Atlantic lines in 1891) an additional piece in the profitability question was cargo.\(^{56}\) In 1870, the National Line alone carried almost 400,000 tons of cargo.\(^{57}\) The potential for profit was not lost on the management of the other lines trading on the Atlantic. Immigration to the U.S. was generally a one way trip and ships usually sailed home with a nearly empty 3rd class. Large cargo holds could guarantee profit in both directions and profit led to more research, development and refinement, which in turn led to yet more profit. This solidified the divergent paths in the evolution of the Atlantic liner: Ships built with comfortable passenger accommodations, large cargo capacities and moderate speed versus ships built with speed over comfort in mind.

This change did not come without a cost. Both the contracts with White Star for Teutonic and Majestic,\(^{58}\) and a later one with Cunard for Lusitania and Mauritania\(^{59}\)


\(^{54}\) Ibid.

\(^{55}\) Haws, Merchant Fleets: White Star Line, 53.


\(^{58}\) Copies of Correspondence Respecting Subvention of Merchant Steamers for State Purposes, 1887, Cd. 5006

\(^{59}\) HC Deb 02 August 1904 vol 139 cc673-704.
specifically discussed speed. These speed requirements were higher than those for the mail service. By giving up speed, none of White Star's future ships would be eligible for the armed merchant cruiser subvention, although service as troop ships, and for military cargo would still be possible.

The year 1902 saw the introduction of White Star's Cedric (See Figure 1). The new ship had a cargo capacity of 17,000 tons and a service speed of 19 knots using 280 tons of coal per day, it held the company record for carrying passengers at 2,957 during one trip in 1904. Considered the optimum of the cargo-passenger-fuel ratio, Cedric prompted three sisters, Celtic, Baltic and Adriatic to be built over the next four years. Each of the Cedric quartet was slightly longer and heavier in turn and each held the record of world's largest liner in succession.

![Figure 1. Cedric, under construction, behind Britannic, 1901. Source: HOFM.HW.H771A © National Museums Northern Ireland Collection Ulster Folk & Transport Museum.](image)

In Figure 1, the incomplete Cedric sits behind the old Britannic of 1874 just prior to the elder ship sailing to the scrappers. Both are Harland & Wolff products, owned by White Star. Britannic and her identical sister Germanic debuted as Blue Ribband racers, each gaining the speed award. Both originally had auxiliary sails coupled with a single screw. Cedric clearly shows some influence from her older fleet mate. Like Britannic, her passenger accommodation is in the center of the ship, with ends reserved for cargo. The newer ship, however, illustrates the increased hull volume that allowed for significantly more cargo capacity. Additionally, by 1901, multiple propellers had been added to many designs
allowing steamers to dispense with sail altogether. This was another factor that allowed dramatic growth. No longer hindered by having to keep a ship small enough to be propelled by wind, ships could grow to gigantic proportions. The picture shows the immense growth and changes to nautical architecture in the short 28 years that passed between these ships. However, age did not totally eliminate utility. Under other names for different owners, Britannic's twin Germanic, built in 1874, soldiered on to 1950, before sailing to the scrap yard, a testament to the quality of Harland & Wolff's construction. In that time she served the Dominion Line, sailing to Canada and found her way to the Mediterranean, spending her last years as a store ship and floating hotel in Constantinople.

The four new ships, built between 1901 and 1907, allowed White Star to gain more experience with cargo-passenger combination ships and build their reputation as a carrier that provided comfortable passage on the Atlantic. Harland & Wolff, meanwhile, honed designs that coupled reliable engine plants, moderate speed and hull forms that emphasized comfort at sea with increased internal volume. The Olympic class took the next step in the evolutionary process.

The process had been a long one. White Star and Harland & Wolff's business partnership had been beneficial for both parties and provided both with a great deal of practical experience in a short amount of time. By establishing solid business foundations, both companies were in position for larger things. However, the means to finance the ships had major hurdles. At this point, the technical expertise already existed with Harland & Wolff to build the Olympic class, but the financial means did not. White Star could no longer count on the admiralty subsidy for armed merchant cruisers, since they no longer built the fastest ships. However, the mail subsidy remained intact. The company was profitable, but that did not give them enough cash on hand and the company never took loans for new construction. The company's profitability, sales of stock and revenue from government subsidies had always been enough.

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60 Anderson, *White Star*, 60.
In 1901, J. P. Morgan began forming the International Mercantile Marine. Influenced by naval theorist A. T. Mahan, and supported by the otherwise trust-busting president, Teddy Roosevelt, Morgan's new conglomerate brought America into worldwide shipping. Intended as a monopoly on travel and cargo transport, the International Mercantile Marine helped provided the financial means to build the Olympic class.
CHAPTER 2

I'LL BOSS THE SEA FROM HERE ON:

J.P. MORGAN AND IMM

Lounging comfortably in the smoking room of an Atlantic steamer in 1893, J. Pierpont Morgan idly conversed with one of his fellow passengers. The other traveler, well aware of Morgan’s success in gaining control of the railroads along the Atlantic seaboard, asked him what he thought was a trivial question: would it be possible to buy up all the shipping on the Atlantic? Morgan thought a little, then shifted in his seat. “Ought to be,” he said. Morgan had reason to be optimistic. As one of the great robber-barons, and the richest man in America, he had the means to make nearly anything possible.

Morgan wanted to create a combine in which a major steamer left the port of New York each day with the mail, cargo and passengers for Europe. Morgan's intervention in the Atlantic trade forged a vital link in the origins of the Olympic class liners. Without the financial power of the monopoly he attempted to build, Titanic and her sisters could not have been created. Prior to Morgan's International Mercantile Marine, the financial means simply did not exist for one company to build ships on as grand a scale as the Olympic class. While subsidies and government loans had provided tremendous funding in the past, Morgan's business acumen put into place the financial foundation that merged with Harland & Wolff's technical expertise to produce the Olympic class ships.

Morgan had a great deal of motivation for founding the International Mercantile Marine. First was Morgan's hatred of wasted effort and redundant business efforts. In the late

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1890’s, several ships left the same port for the same destination once or twice a week in direct rivalry to each other. Morgan’s plan for daily ship departures decreased direct competition, offered more schedule regularity, and reduced rates because shippers would not have to pay storage fees while cargos awaited shipment. Additionally, with the market stabilized, more profit could be reaped. Daily sailings decreasing the likelihood of spoilage on perishable cargoes that required refunds. Specific ships could be detailed for specific cargoes as opposed to placing cargo on whatever ship happened to leave that day, despite its freight capabilities or capacity. Clement A. Griscom, the owner of the International Navigation Company, shared Morgan’s ambition. Further, he wanted American cargo to be shipped on American-owned vessels.

At that time, only 10% of American foreign trade left port on American-owned ships. American exports for 1900 totaled $885 million ($24 billion in 2012) and British exports for the same time period totaled $1.477 billion ($40 billion in 2012), mostly traded on British built and owned steamers. Griscom realized that a great deal of revenue awaited American investors who found a way to take advantage of that scarcely tapped market.

In addition to all of this, the works of American naval officer Alfred Mahan gained prominence at this time. Mahan believed that if a nation wanted to be strong economically, it had to have a large merchant fleet. He asserted a merchant navy was necessary for a nation to gain both strength and prestige. The nature of American trade in the 1800s highlighted the problems that Mahan focused on. He wrote, "For the past quarter of a century [1865-1890], the predominant idea, which has asserted itself successfully at the polls and shaped the course of government, has been to preserve the home market for home industries." Mahan saw in this policy a historically proven weakness that always led to disaster. In The Influence of Sea Power Upon History, Mahan described French history in much the same way as the

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\text{64} Strouse, Morgan, 487-488.


\text{66} Alfred T. Mahan, The Interest of America in Sea Power, Present and Future (Cambridge: John Wilson and Son, 1897), 5.
American policy of the late 1800s. France rose to continental power and enjoyed excellent internal trade but failed to take advantage of international trade:

France is rich in natural resources as well as in the industry and thrift of her people. But neither individual nations nor men can thrive when severed from natural intercourse with their kind... With all her natural gifts, France wasted away because of want of that lively intercourse between the different parts of her own body and constant exchange with other people, which is known as commerce, internal and external."  

From Mahan's point of view, the merchant fleet not only provided the income with which to fund a navy and a potential pool of auxiliary warships, but also created a "tradition" of seafaring within a nation that further encouraged prosperity. Morgan and Mahan knew each other personally, serving together on a panel for a disputed America's Cup yacht race. Although unsuccessfully approached by shipping owners in the past, by the latter half of 1900 Morgan changed his mind, perhaps due to Mahan's influence.

Another factor was Mahan's friendship with trust-buster Teddy Roosevelt, former Assistant Secretary of the Navy. Roosevelt's acquaintance was hardly surprising. Not only had Roosevelt read Mahan's work but he had a direct relationship with him. After devouring The Influence of Sea Power in one weekend, Roosevelt dined frequently with Mahan and invited him on multiple occasions to his home, Sagamore Hill. The two men maintained a friendship for the rest of their lives. It centered on their shared ideas of naval policy. Each supported the other, taking their ideas from the written page to more solid steel incarnations. Roosevelt, who was governor of New York at the time, even urged Mahan to take a more active role in directly influencing the government by writing the Secretary of the Navy on issues of construction and policy.

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68 Ibid., 27.
69 Strouse, Morgan, 458.
71 Ibid., 599.
Later, during Roosevelt's presidency, Mahan would join with a group of senators, including Henry Cabot Lodge, who supported and encouraged Morgan's Atlantic combine on the grounds of national interests. These relationships may explain why Morgan's Atlantic combine did not face the legal challenges Roosevelt placed on other projects like Morgan's Northern Securities. Roosevelt promoted the expansion and growth of the US Navy, ultimately culminating in the cruise of the Great White Fleet in 1907. The creation and expansion of a US merchant marine nicely complimented Roosevelt's naval efforts. Morgan's money provided the fastest route forward. Additionally, by building ships like the combination cargo passenger liners evolving on the Atlantic for its American lines, Morgan's combine could offer sea lift capacity for troops with supplies in one ship. This could greatly enhance the abilities of the U. S. Navy, potentially attracting Roosevelt's support.

With both political and intellectual backing, Morgan financed the merger of International Navigation Company with the Atlantic Transport Company of Baltimore in 1899 and provided the money for the construction of new ships. For the moment he stayed mostly passive in company operations. Then, in 1901, Morgan bought out the prosperous Leyland Line, a cargo firm, adding it to the combine. With that purchase, Morgan went from financier to co-owner of the combine. Atlantic Transport, International Navigation and J. P. Morgan & Company equally divided the stock of Leyland Line between themselves.

With the means for cargo transport firmly in hand, the time had come to find a flagship passenger line for the great Atlantic combine to be called the International Mercantile Marine. Morgan chose his personal favorite: The White Star Line. The line's newest steamers combined large cargo holds and passenger capacity. Ships like the new Celtic proved not only comfortable and popular with passengers, but highly profitable due to

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72 Ibid., 171.
74 Strouse, Morgan, 458.
freight transport. This kind of innovation was exactly the type consolidation of effort and resources that Morgan liked.

One of Morgan’s allies in the negotiations was Lord Pirrie of Harland & Wolff, who had counted Atlantic Transport as a client of his shipyard. Pirrie became Morgan's primary negotiator with White Star stock holders. Later, as an incentive to Pirrie, Morgan offered an agreement to Harland & Wolff in February, 1902. It stated, “all orders for new vessels and for heavy repairs, or alterations that require to be done at a shipyard in the United Kingdom of Great Britain and Ireland, including reboilering, re-engining and suchlike” to be given to Harland & Wolff. This move would give the firm not only the lucrative repair and maintenance work for hundreds of ships, but also the majority of the new construction contracts. This influx of business assured Harland & Wolff's financial status for as long as Morgan's trust existed. It also further reinforced their ability to upgrade and expand the shipyards as new technologies became available.

Morgan offered the shareholders of White Star, which included the Ismay family, Lord Pirrie and a few others, payment of $32 million ($869 million in 2012). Of that sum, 25% would be in cash and 75% in preferred stock of the International Mercantile Marine worth 37 1/2% of the total stock of the combine. At first the Ismays resisted the offer. Margaret Ismay, the widow of company founder Thomas Ismay, stood strongly against the buyout for sentimental reasons. However, in the end she accepted Morgan’s terms. Mrs. Ismay’s diary for May 17, 1902 recorded, “The Annual Meeting of the Oceanic Steam Navigation Company, and the last one I fear, as it has passed into the hands of others. It is a great wrench being 'His' life’s work…” Earlier in the month she expressed similar feelings,

75 Anderson, White Star, 89.
78 Strouse, Morgan, 465.
79 "Text of the Agreement."
adding that she believed “Bruce,” meaning J. Bruce Ismay, had done the best he could in the negotiations.  

The purchase of White Star sent shockwaves through the British shipping industry and the government. White Star, along with Cunard, stood as the great symbols of British international commerce. Not only had the largest British cargo carriers fallen into American hands, but many passenger lines as well. This was especially distressing in the case of White Star since its most recent ships combined large cargo and passenger capabilities, making them perfect for use as military transports. Without the cargo and troop capacity which these ships represented, Britain would have been placed in a very difficult position in the event of war. In Parliament, the president of the Board of Trade, Gerald Balfour, and the Secretary to the Admiralty, Hugh Arnold-Forster faced questions on the combine and what it meant to British interests. If Cunard were bought out, Britannia, the "ruler of the waves," would have lost all of its most prestigious merchant ships and many navy auxiliary vessels. Concern now grew for the future of Cunard, leading to Balfour specifically being asked if the Combine could take over Cunard as well. The sideshow playing out with Cunard eventually came back to haunt IMM, and proved the final tipping point in building the Olympic class. 

Morgan made repeated buyout offers to Cunard Line which the chairman, George Burns, 2nd Baron Inverclyde, rebuffed. Inverclyde hoped that, as concern grew in government that the Empire was losing its merchant fleet, the importance of Cunard would grow and allow him to use it as leverage to gain government intervention. Hindering Lord Inverclyde’s efforts was the fact that Cunard possessed an aging, deteriorating fleet. 

The company's newest vessels in 1902 were Campania and Lucania of 1893. The rival White Star fleet, included Oceanic (1899), Celtic (1901), and more to come on line within the next couple years. Each of the White Star ships in turn took the title of largest ship in the world, gaining headlines for White Star and IMM. Cunard’s most recent run at the headlines proved less positive. During a recent voyage, the Etruria, of 1884 vintage, broke her

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80 Oldham, The Ismay Line, 141.
81 HC Deb 12 May 1902 vol 107 cc1350-3.
82 HC Deb 25 April 1902 vol 106 cc1322-4.
83 HC Deb 15 May 1902 vol 108 c375.
sole propeller shaft. She lay dead in the water until a cargo steamer came along and towed
her to the Azores. Even more humiliating, *Etruia* once held the Blue Ribband and the
freighter that towed her to safety belonged to IMM.\(^84\)

Inverclyde’s strategy relied on playing the British government against the
International Mercantile Marine. As offers from IMM went higher, the British government
became concerned that eventually the money would become irresistible. Finally, in August,
1904, the government offered the deal Inverclyde hoped for. In exchange for “staying
British,” Cunard gained a new yearly subsidy of £150,000 ($25 million in 2012) not
connected to the mail contract. In addition the government offered a loan of no more than
£2.6 million ($437 million in 2012) at two and three fourths per cent interest. The loan
funded a new pair of major trans-Atlantic liners, built to admiralty specifications. The ships
had to maintain speeds of 24 to 25 knots and be built as auxiliary cruisers. The government
also retained the right to call up the ships in the event of war. The agreement further
stipulated that any future proposed ship with a speed of 17 knots or more would have plans
submitted for Admiralty approval before construction.\(^85\) This move guaranteed preservation
of Cunard’s fleet for both prestige and policy related needs.

However, the deal did not go without criticism. In Parliament, no less than Winston
Churchill questioned the wisdom of the deal, and asked why warships could not be built that
would be equal to the proposed Cunard liners.\(^86\) The member from Lanarkshire, James
Caldwell, asked why only two ships? Why only Cunard? Why not twenty ships instead of
only two and what of the German merchant companies? They didn’t receive subsidies to
"stay German". After these questions were asked, the House of Commons passed the bill
overwhelmingly, 138 ayes to 34 nos.\(^87\)

The deal with Cunard represented a change in government policy. Prior to this,
subsidies or contracts might be offered, but such massive loans changed the business

\(^{84}\) Terry Coleman, *The Liners: A History of the North Atlantic Crossing* (New York: G. P. Putnam's Sons,
1977), 51.

\(^{85}\) *HC Deb 02 August 1904 vol 139 cc673-704*.

\(^{86}\) Ibid.

\(^{87}\) *HC Deb 08 August 1904 vol 139 cc1470-9*. 
relationship to something more akin to a partnership. Unlike the deal that created the *Teutonic* and *Majestic*, this new arrangement created two ships and extended to most of the current and future Cunard fleet. Additionally, the new annual subsidy fortified Cunard against competition from IMM, helping to assure their continued existence. In this way British government took a direct interest in the future of a shipping company specifically to safeguard sea lane lifelines. Britain relied on its imports and exports for its economic survival. In losing the fleets, Britain faced financial hardship in peace and starvation in case of war. Securing Cunard went a long way to easing those dangers but more could still be done.

Earlier, in April, 1902, the British government took on Morgan himself. Colonial Secretary Joseph Chamberlain met with Morgan to discuss IMM. Chamberlain, angry because of the endangerment of British national interests, suggested that the government might purchase White Star’s best ships to secure them for British use. Morgan agreed that they could do that, but they would pay 40% more than the value of the ships. Stalemate ensued until a new prime minister, Arthur Balfour decided to restart talks in the fall of 1902.

In negotiations, Balfour got Morgan to promise to protect of British interests for the next fifty years by maintaining British registry for any British built ships and to honor prior commitments to the Admiralty. This was in compliance with the Companies Act of 1901 which reaffirmed in a new statute a long standing practice. It stated that “no corporation shall be registered as owners of British ships, unless ‘established under and subject to the laws of some parts of His Majesty’s dominions, and having their principle place of business in those dominions.’” In other words, J. P. Morgan could own shares of a British company, but not the firm itself, and company management had to stay in Britain. This maintained British national interests but also fulfilled Morgan’s goals by giving him control of the market.

While Morgan controlled rates and consolidated routes, the British government maintained its access to the massive troop and cargo capacity that the newly American owned fleet

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provided. Mahan's ambitions were also met in that profits from this merchant marine now flowed into American coffers expanding the US economy.

Morgan complied with the law. Directors of IMM included Pirrie, Ismay, and three other British citizens to maintain Imperial interests, plus eight Americans. While this board oversaw IMM, each company within the combine maintained its own board of directors in compliance with the Act. They served largely as rubber stamps, with ships used interchangeably between routes and even between one company and the other. For instance, in 1903, five ships were transferred from the Dominion and Atlantic Transport Lines to White Star for route consolidation.

Clement Griscom served as president of International Mercantile Marine until 1904, when replaced by J. Bruce Ismay. Ismay simultaneously held the positions of chairman and managing director of White Star, which remained his principle interest. Naturally, Cunard's giant new steamers, produced from the deal between the British government and Cunard, ruffled IMM's feathers. White Star recently completed the ships of the "Big Four" class, each of which enjoyed the title "largest ship in the world," but they were smaller and slower than Cunard's new giants. Now the final ship in the group, Adriatic, lay incomplete in the builder’s yard, robbed of the title and the attending prestige by the rebel Cunard Line’s new twins. This provided the final incentive for building the Olympic class.

The proposed Olympic class could have gone to any of the lines under the IMM umbrella. Why not place the ships in the American Line fleet and make the largest, most luxurious and technologically advanced ships in the world purely American? Although head of IMM, Ismay still considered White Star his primary concern. The ships had to go to White Star for several reasons, the first being purely personal. Ismay's control of IMM allowed him to make sure White Star remained the most prestigious line of the combine and even allowed him to make sure what he saw as his family's ships received the best care. It was widely known that Oceanic of 1899, the last ship completed during Ismay's father's

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lifetime, got the younger Ismay's personal attention for maintenance, improvements and repairs.\footnote{Ibid.} Additionally, White Star's longstanding history and reputation as well as its intimate relationship with Harland & Wolff were far better established than any other line under IMM control. Only the Dominion Line was as old as White Star, but they never contracted with Harland & Wolff until under the stewardship of IMM. Their only Harland & Wolff ships were second-hand purchases, as was much of their early fleet. In any event, Dominion primarily served Canadian and secondary American ports, as opposed to White Star which had always served New York.\footnote{Duncan Haws, \textit{Merchant Fleets in Profile 2} (Cambridge: Patrick Stephens, 1979), 82 - 84.} Red Star was a Belgium based company before IMM and had never been a leading Atlantic carrier.\footnote{Ibid., 140-141.} Placing the Olympic class in any other line in the combine risked losing the prestige, and passengers attracted by the more established White Star.

At this point, the disparate threads of technological advances and the foundations set up by White Star and Harland & Wolff partnership began to come together. As part of the new combine, White Star's profits surpassed £1 million in 1910 ($163 million in 2012) for the first time. To help raise money for construction, four and a half per cent debentures were offered raising £2.5 million ($407 million in 2012).\footnote{Anderson, \textit{White Star}, 106.} The strength of the combine promoted consumer confidence when the new stock options were offered; a strength increased by the Morgan name being attached to the project.

At the same time, Harland & Wolff expanded and upgraded their facilities. In 1907 work began at the shipyards, demolishing three building slips and replacing them with two that could accommodate ships in excess of 900 feet. New permanent freestanding gantries, the scaffolding like structures under which ships were built, were ordered from Sir William Arrol and Company of Glasgow. These gantries were 840 feet long, 270 feet wide and 230 feet high. On top sat a massive crane with a load capacity of three tons at a reach of 135 feet and a capacity of five tons when extended 65 feet. Additionally there were three "travelers"
which moved across the gantry like a train on rails and five more cranes on each side.\textsuperscript{97}

Besides the physical changes to the shipyard itself, the work force expanded, eventually, to 15,000 men, of whom between three and four thousand were assigned to \textit{Olympic} alone.\textsuperscript{98}

To service the ships in Southampton, the Olympic class' future home port, Harland & Wolff, at White Star's suggestion, leased two acres and built a new shipyard. By 1907, the Southampton yard was able to handle repairs, including the reconstruction of the \textit{Suevic}, which had required the replacement of 130 feet of bow section.\textsuperscript{99} It was the most technologically advanced repair of any ship at the time.

As details of upcoming construction of the ships became known, the Olympic class fired the public's imagination. Newspapers across the United States covered their construction as early as 1908. Salt Lake City, Utah's \textit{Deseret Evening News} carried articles detailing the "Monster Liners."\textsuperscript{100} The paper described the liner's innovations in great detail, comparing them to Cunard's \textit{Mauritania} and \textit{Lusitania}. The article's very appearance in a local paper so far from the Atlantic demonstrated the hold the great liners had on the public's imagination.

In 1909, the \textit{New York Times} published a full-page, illustrated article discussing the ships and what they represented. Included were comparison illustrations of the Olympic class and the older \textit{Mauritania}. The article promised things not even White Star imagined, such as photography stores, children's rooms and a full hospital. The article also discussed the practicalities such huge new ships demanded, such as improving the pier facilities in New York and the cargo handling machinery.\textsuperscript{101} By 1910 Harland & Wolff engineer Alexander Carlisle found himself chased by press in the fashion of modern day paparazzi during a brief visit to New York. At first vowing not to talk about the ships, he eventually answered questions for the \textit{New Daily Tribune} detailing size, speed and decoration. When asked to

\begin{footnotesize}
\begin{enumerate}
\item Moss and Hume, \textit{Shipbuilders to the World}, 129.
\item Michael McCaughan, \textit{Icon of an Age: Titanic} (Belfast: Blackstaff Press, 1998), 56.
\item Anderson, \textit{White Star}, 95-96.
\end{enumerate}
\end{footnotesize}
compare the closest competing ships accommodations, he remarked, "Be patient and watch for the decorations on the Olympic." 102

The Olympic class had greater ramifications as well. The Panama Canal underwent last minute changes when Theodore Roosevelt concluded that the locks should be made large enough to accommodate the largest ships under construction at the time. The original size was 900 by 96 but this was increased to a length of 1,000 feet by 110 feet wide specifically for the Olympic class. 103 This change influenced world events yet to come. During World War II, the largest battleships and aircraft carriers designed and built by the United States would be limited in size by the Panama Canal. Transit of the canal limited the size of carriers, which determined how many planes a carrier could accommodate. Because of this restriction, in a very real sense, the Olympic class determined Allied strategic planning relating to carrier and battleship operations. A comparison of the size of the largest American warships of WWII confirms this. The battleship USS *Iowa*, currently a museum ship in Long Beach, California, is 887 feet long, 108 feet wide with a 32 foot draft. The *Essex* class carriers, the most prolific of WWII carriers, measured in at 888 feet long, 93 feet wide with a draft of 23 feet. *Olympic*’s dimensions were 882 feet long, 92 feet wide and with a draft of 34 feet. 104

By 1911 professional and public interest became so great in the Olympic class that *The Shipbuilder*, a professional journal for maritime architects, dedicated a "special souvenir number" to the class. Besides detailing the history of White Star, Harland & Wolff and IMM, the book detailed construction techniques, builder's plans and interior arrangements. Hailing the advancements of *Olympic*, the author pointed out its watertight integrity. Noting that watertight doors were controlled on the bridge, "the captain can, by simply moving an electric switch, instantly close the doors throughout and make the vessel practically


unsinkable." This claim, though never made by White Star itself, later came back to haunt them.

Even crew members were both impressed and intimidated by the Olympic class' size. Looking back on his time aboard Titanic, Second Officer Charles Lightoller said that it took him 14 days to feel confident finding his way about the ship. Even a large main passage, with a huge door, "through which you could drive a horse and cart on the starboard side, aft," took three late-joining officers an entire day to find. He further stated, "Each day... everybody's admiration of the ship increased." Considering what these ships represented, it is hardly any wonder that Ismay wired Lord Pirrie after Olympic's first arrival in New York, "Olympic is a marvel!"

However, with many triumphs come tragedies. The Olympic class certainly faced its fair share of both. The massive size of these ships had consequences that only surfaced after Titanic's maiden voyage. These problems included numbers of lifeboats and bulkheads. The lack of engineering experience in such massive ships showed at the worst possible time.

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105 Hood, Olympic and Titanic, 26.
107 Ibid., 221.
CHAPTER 3

APRIL 16, 1912 TO THE BITTER END

The sinking of the Titanic on April 15, 1912 forced a reappraisal of the great liners. While the overall national policies and business practices that created the Olympic class did not change, the ships themselves and the technologies they represented underwent heavy re-evaluation. For the remaining members of the class, Olympic and the hastily renamed Gigantic, now Britannic, that meant a number of structural changes.

The British Board of Trade Inquiry into the disaster featured testimony by the surviving primary architects of the Olympic class, Alexander Carlisle and Edward Wilding. Topics included the overall design of the ships. The testimony of Wilding is particularly interesting because Board council asked under what circumstances Titanic might have survived the collision with the iceberg. Wilding implied in his testimony that no hull could have withstood the impact Titanic absorbed. However, the following exchange between Lord Mersey of the Board of Trade and Wilding provides a suggestion as to how the ship might have been saved.

20271. (The Commissioner.) I am rather interested about that. Do you mean to say that if this ship had driven on to the iceberg stem on she would have been saved?
   - I am quite sure she would, My Lord. I am afraid she would have killed every firemen down in the firemen's quarters, but I feel sure the ship would have come in.

20272. And the passengers would not have been lost?
   - The passengers would have come in.109

A more exacting grilling was served on day twenty of the inquiry when Alexander Carlisle took the stand. Asked over and over about the number of lifeboats he had originally

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suggested, he said that he planned for a total of 64. Asked if he thought the Titanic had enough boats, he said he repeatedly told management there needed to be more. When asked who he told and how he told them, all Carlisle could say was, "I showed them the plans of my proposals; I could not do anymore."  

Eventually the final report of the inquiry listed several recommendations that were adopted for new construction and for retrofits on older steamers. The recommendations centered on the two most important issues addressed during testimony by the Harland & Wolff engineers, watertight integrity and lifeboat accommodation. The Board recommended that total lifeboats not be determined by the tonnage of the ship, as had been done previously, but rather by the number of people the ship was intended to carry. As for bulkheads and watertight doors, the board directed,

1. That the newly appointed Bulkhead Committee should enquire and report, among other matters, on the desirability and practicability of providing ships with (a.) a double skin carried up above the waterline; or, as an alternative, with (b.) a longitudinal, vertical, watertight bulkhead on each side of the ship, extending as far forward and as far aft as convenient; or (c.) with a combination of (a.) and (b.). Any one of the three (a.), (b.) and (c.) to be in addition to watertight transverse bulkheads.  

For Olympic and Britannic, this meant virtual redresses. While Britannic still sat under construction, Harland & Wolff could retrofit many of the desired improvements. Olympic was another case entirely. She returned to Belfast in late 1912 to have an inner skin built and an increase in lifeboats from 20 to 68. An added benefit of the inner lining was a transition to oil fuel which could be carried in the extra bunker space. Figure 2, shows Olympic during sailing trials in 1911. This picture also serves as an indication of how Titanic had appeared the next year in 1912. Aside from the size of the large windows immediately under the forward lifeboats, the two ships were nearly identical. Olympic’s modifications cost a total of £250,000 ($41,637,666 in 2012). The most obvious change was the top deck that

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110 Ibid., vol 6.
111 Shipping Casualties (Loss of the Steamship "Titanic.") 1912, Cd. 6352
only has eight boats in the picture but was now lined with a continuous string of double nested life boats the length of the deck. When she returned to service in March of 1913, she was probably the safest ship afloat on the North Atlantic and differed greatly from her original configuration.

Because of the relationship between Harland & Wolff and White Star, these alterations were carried out with minimum disruption to Olympic's sailing schedules. Construction on Britannic simply halted until the findings from the hearings were released and the information taken in for modifications to the design. Britannic eventually underwent many of the same modifications as Olympic. Without mentioning the reasons for the changes, Britannic's launch booklet detailed the virtues of her inner hull and her bulkheads that "carried right up to the Bridge Deck." The booklet paid special attention to the lifeboat arrangements. New, massive, crane-like davits stood along the sides of the ship that could lower the boats electrically while holding them out several feet from the side of the ship (See Figure 3). Even if Britannic listed heavily to one side during an emergency, all boats would remain useful, unlike boats mounted in traditional davits. These crane davits also had the capability of reaching across the ship and launching boats stored from the opposite side.

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114 Royal and United States Mail Steamer Britannic, 12.
Eight of these davits were planned, but urgent need to get the ship completed in WWI saw only five of the davits installed.\footnote{McCluskie, Sharpe, and Marriot, *Titanic and her Sisters*, 385-386.}

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Figure 3. *Britannic* builder's model, 1914. Source: HOFM.HW.H2000 © National Museums Northern Ireland Collection Ulster Folk & Transport Museum.

Further safety features were discussed in the newspapers when *Britannic* was launched. One article discreetly pointed out *Britannic*’s similarity to *Olympic* "with the addition of some improvements which experience has suggested." Among these were the double bottom of the ship extending its whole length and the fact that lifeboats could be lowered fully loaded.\footnote{“Britannic Launched,” *The Manchester Guardian*, February 27, 1914, http://pqasb.pqarchiver.com/guardian/advancedsearch.html.} The ability to lower fully loaded boats was a direct response to criticism in the papers and inquiries about boats on *Titanic* leaving the ship half filled.

That particular issue had come up during questions with Second Officer Lightoller. The following exchange took place:

13886. In your judgment is it possible to fill these lifeboats when they are hanging as full as you might fill them when they are water borne?
- Most certainly not.

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13887. (The Commissioner.) Is that due to the weak construction of the lifeboats or to the insufficiency of the falls?
- A brand new fall, I daresay, would have lowered the boats down and carried the weight, but it would hardly be considered a seamanlike proceeding as far as the sailor side of it goes, but I certainly should not think that the lifeboats would carry it without some structural damage being done - buckling, or something like that.\textsuperscript{117}

Neither Lightoller, nor apparently the rest of the crew, knew on the night of April 15, 1912, that Harland & Wolff had conducted tests during Olympic's trials back in 1911 in which one of her boats was lowered with the weight of sixty five people. Although crewmen raised and lowered the boat six times, it showed no signs of strain at all.\textsuperscript{118}

As seen in Figure 3, Britannic looked radically different than the previous Olympic class vessels. While Olympic and Titanic were visually identical, except for some windows on the promenade deck, Britannic clearly shows the influence of the Titanic disaster in her proposed appearance. Figure 3 shows a builder's model of Britannic's intended appearance as a passenger liner.

World War I saw both ships outfitted for military service. By 1915, Olympic entered service as a troop ship. On May 18, 1918, during a trooping voyage from New York, her lookouts spotted a surfaced U-boat. Captain Bertram Hays, commanding Olympic, recounted what happened: "There was only one thing to do, and that was to try to ram it, so I altered course to bring it ahead... ...and at 3:55 am hit him a swinging blow with our stem which put an end to his career."\textsuperscript{119} From the bridge, Capt. Hays saw the wreck of the U-boat pass along the side of Olympic already upended and sinking fast. Hays later received the Distinguished Service Order medal from King George V.\textsuperscript{120}

The sinking of U-103 by Olympic remains the only recorded ramming and destruction of a u-boat by a commercial liner during either world war.

\textsuperscript{117} Great Britain Commissioner of Wrecks, Formal Investigation, vol. 4.

\textsuperscript{118} United States District Court Southern District of New York, In the Matter of the Petition of the Oceanic Steam Navigation Company for Limitation of its Liability as Owner of the Steam Ship TITANIC, Deposition of Edward Wilding (May 13-14, 1915).


\textsuperscript{120} Ibid., 229-234.
After the war, *Olympic* was refurbished, converted to oil fuel from coal, and continued as a primary member of the White Star fleet until 1935 when she was retired and scrapped.

*Olympic*’s later career potentially lays low some modern theories on the structural weakness of the Olympic class in general. The U-boat sinking in 1918 was followed by a collision in the Hudson in 1927 and the ramming and sinking of the Nantucket Lightship in 1935. In the Hudson River incident, *Olympic* backed into the Furness Bermuda liner *Ft. St. George*, causing minimal damage to both ships. The incident with the Nantucket Lightship was much more severe.

On May 15, 1934, *Olympic* sliced through the Nantucket Lightship in dense fog while approaching New York. Only three of the lightship’s crewmen survived. Both Capt. Binks of *Olympic* and Capt. Braitwaite of the lightship later appeared on a newsreel discussing how fast it all seemed to occur. A crewman from the lightship said that before he knew what happened, he found himself in the water. Footage from the newsreel shows only minor damage to *Olympic*’s paint above the waterline.

What makes these incidents interesting relative to the Olympic class’ structural integrity are recent articles, such as a 2008 piece that appeared in the *New York Times* suggesting that a possible reason the *Titanic* sank was substandard or weak metal used throughout the hull. In 1934, *Olympic* was 23 years old. If weak materials or poor construction were to blame in the loss of the substantially younger *Titanic*, shouldn’t collisions in roughly the same area (with both the U-boat and the lightship) caused similar damage, especially in a ship that had sustained many years of wear and tear? While *Titanic* suffered damages beyond what she was designed to withstand, *Olympic*’s career points to a well constructed ship that served admirably in the roles she was meant for, even under circumstances that caused stress to her design. This is only to be expected given the special relationship between White Star and Harland & Wolff.

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121 Hood, *Olympic and Titanic*, 175.


*Britannic* did not do as well as her elder sister *Olympic*. She served as a hospital ship in the Dardanelles until sunk on November 21, 1916. Outfitted to carry as many as 6,000 wounded, only 1,150 were aboard at the time. At first believed to have been attacked by a U-boat and torpedoed, evidence pointed to a German mine.\(^1\) The damage was relatively similar to that suffered by *Titanic* four years earlier. The same number of watertight compartments opened to the sea in about the same area. However, *Britannic* sank in less than half the time of her elder sister. When the mine detonated she was undergoing a shift change, with watertight doors open to facilitate crew movement. To make matters worse, all her portholes were open in preparation of taking on new wounded from the Mediterranean theater, even though this was strictly against regulations for obvious reasons. Despite all the design changes *Britannic* quickly took on water. The above outlined design changes could only have worked had *Britannic*’s portholes and watertight doors been closed. With them all open to the sea, *Britannic* could not survive and it will never be known how well, if at all, Harland & Wolff’s structural design changes would have performed after striking the mine. In all likelihood, she would have survived at least long enough to be beached in the shallow water of nearby Kea Island. What would have happened from there is anyone’s guess. Fortunately, there were plenty of life boats, and the only casualties came when one boat launched prematurely and got pulled into the ship’s propellers.\(^2\)

As for the International Mercantile Marine, it suffered a slow death, beginning with the passing of J. P. Morgan in 1913. Morgan never fully controlled the Atlantic, due not only to the successful escape of Cunard, but also the European continental lines, including the Holland-America and the French Line, coupled with the increasing power of the German lines. In Europe at the time, Morgan's body came home on the French Line flagship *France*, a ship not owned or controlled by IMM.\(^3\) Coupled with J. Bruce Ismay's retirement as president of IMM in September, 1912, a power vacuum erupted that the combine never recovered from. In 1914, defaults on interest payments to bonds began and the slow spiral


away from an international monopoly began. Although reorganized during WWI and briefly profitable, by 1926 IMM was forced to sell off its flagship line, the White Star. By 1943, all foreign holdings had been sold off, and IMM changed its name to the United States Lines.\(^{127}\)

Harland & Wolff suffered its own setbacks. Lord Pirrie died during a visit to South America in 1924, aged seventy-eight. His body was brought home on *Olympic.*\(^{128}\) On his tomb is a picture of *Olympic* with the legend "RMS *Olympic* 45,439 tons for the White Star Line, built by Harland & Wolff, 1911."\(^{129}\) Pirrie's place as chairman passed to Owen Phillips, 1st Baron Kylsant.\(^{130}\) As the storm gathered for White Star during the late '20s and early '30s Harland & Wolff soldiered on. On February 4, 1930, White Star's board of directors sent notice to Harland & Wolff that the "cost plus relationship" would end in six months.\(^{131}\)

For White Star, things became dire. Ownership of the company passed to the Royal Mail Steam Packet Company, controlled by Lord Kylsant. While White Star was still profitable, Kylsant was funneling off money to keep deficits from destroying other portions of the Royal Mail Line, while at the same time making grandiose plans for both White Star and Harland & Wolff. In 1928 the keel was laid for a huge new liner to be named *Oceanic.* She was to be over 60,000 tons and 1,000 feet long. To save costs, she was to be diesel driven based on the successful design of the new *Britannic* of 1929.\(^{132}\) However, it was not to be.

By 1928, when major repayments of loans were coming due, the company couldn't come up with the money.\(^{133}\) For the first time, White Star showed a loss on the books and


\(^{130}\) Moss and Hume, *Shipbuilders to the World*, 243-245.

\(^{131}\) Ibid., 277-278.


from 1930 never made a profit again. Oceanic's keel was broken up and the steel recycled to build a sister ship for the new Britannic, the Georgic of 1931. Against the background of world-wide depression government intervention rose to a new level. The British government stepped in and eventually White Star was forced to merge with arch rival Cunard in 1933, in part because Cunard started their own superliner about the same time as Oceanic. Hull 534, as it was known, had not been abandoned as Oceanic had been. Details of the merger required that Hull 534 be completed, and a companion ship built. White Star became the junior partner in the new firm, known as Cunard-White Star. Parliament played an active role in the merger because of the national interests, much the same as with the cases of Teutonic, Mauritania and Olympic in years gone by. First seen as a way to relieve unemployment in the Clydebank area, Hull 534, the future Queen Mary, and her sister ship Queen Elizabeth ultimately proved vital to Britain's war effort in WWII. The new company lasted until 1949 when Cunard bought out the remaining shares of White Star. This later White Star history is, in part, something of a smaller version of IMM led by a less scrupulous man.

Kylsant had attempted to form his own version of IMM by having his own Atlantic shipping lines coupled to a shipbuilding firm. Morgan's venture, which had Morgan's money, reputation and some of the most talented minds in shipping, including Clement Griscom, Lord Pirrie and J. Bruce Ismay, was a vastly different enterprise than Kylsant's. Yet even with all this in its favor, IMM ultimately came apart because of the failure to gain control of arch rival Cunard, war losses, and unsuccessful attempts at restructuring. Kylsant's combine was doomed due to overwhelming debts, mismanagement, shipping slumps and criminal fraud on the part of Kylsant himself.

137 HC Deb 08 February 1934 vol 285 cc1309-11
138 HC Deb 24 March 1947 vol 435 cc1000-5
139 Anderson, White Star, 165-182.
140 "The Late Lord Pirrie."
In closing, it is worth noting that neither White Star, Harland & Wolff nor the International Mercantile Marine ever built an ocean liner the size of the Olympic class again.
CHAPTER 4

CONCLUSION

The Olympic class liners were not just spur-of-the-moment accidents of transient ambitions. They resulted from a long series of events beginning as far back as the earliest steamships. As the British Empire expanded and communication networks evolved, ships were redesigned to fulfill the needs of the market. With the rise of the dedicated mail service ships a chain of events began that led directly to the great liners of the 19th and 20th centuries. The Olympic class was the culmination.

In the 1800's the cargo and passenger liners of the world had transformed from means of transportation and communication to international symbols of political and economic power. Authors like Captain Alfred Mahan pointed out the value of large merchant marines for the purposes of maintaining peace as well as sustaining a nation in the event of war. The design of ships and the way companies financed them changed to reflect these new policies. White Star's *Teutonic* and *Majestic* of 1889 started a new partnership between government and ship owners that solidified the relationship between the merchant marine and national security in a new way.

At the same time, new means of private finance allowed greater achievements in shipbuilding. J. P. Morgan, influenced by Clement Griscom's ambition for a new American merchant marine, launched an attempted international monopoly that brought on the greatest rivalry yet. IMM ushered in a new type of multinational, multi-layered corporation. Its structure, mirroring the railroad monopolies before it, allowed a type consolidation of effort not seen on the north Atlantic before. At the same time, however, it created a threat to the previous nautical power structure.

As companies in Britain and Germany tried to fend off merger and maintain their independence, national interests compelled governments to reaffirm direct interest in steamer companies for business and national defense purposes. What would happen should European
nations enter into war with the United States? With the vast majority of European shipping falling to American control, European powers were forced to defend their merchant fleets. In Germany, the Kaiser himself intervened in negotiations to maintain independence for German shipping. In Great Britain, Parliament offered subsidies and loans to build massive liners in exchange for their remaining major shipping firm, Cunard's, pledge to "stay British." Out of this environment came the Olympic class.

Olympic, Titanic, and Gigantic/Britannic were an expression of American financial might and British engineering. American owned and operated, they served British as well as American needs, fulfilling Mahan's ideals of international cooperation. They crowned America's entry into nautical commerce after an absence of nearly of half a century. Flying the Blue Ensign from the stern post, they also demonstrated British maritime might and technical expertise. While other ships of similar and even greater size and speed came and went, the Olympic class remains as the most well-known set of ships of their time, with each ship gaining fame, infamy, and even determining world events as already noted with the Panama Canal.

While Titanic sank on her maiden voyage and Britannic was lost before entering merchant service, Olympic perfectly encapsulated the social, political and economic mission for which she was designed. As a liner, she transported people, commerce and mail. When war came in 1914, she became a troop transport, taking thousands of Allied soldiers across the Atlantic to the defense of Great Britain. She remains the only commercial liner ever to sink an enemy submarine in combat. As such, "Old Reliable," as she was called, symbolized national power and international cooperation. With the restoration of peace in 1918, she returned to civilian service and again fulfilled her peacetime mission as one of the most glamorous ships on the Atlantic until retirement in 1935. Even now, her sister ships remain objects of fascination, prompting visits to their resting places in the Atlantic Ocean and Aegean Sea. The great liners of the late 19th and early 20th century brought great prestige to the nations they served. The Olympic class demonstrates this like no other ships built before or after.
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