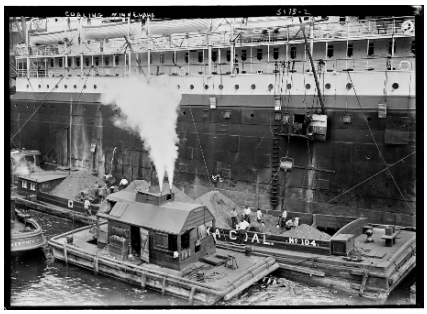
A QUIET SEA

RMS TITANIC

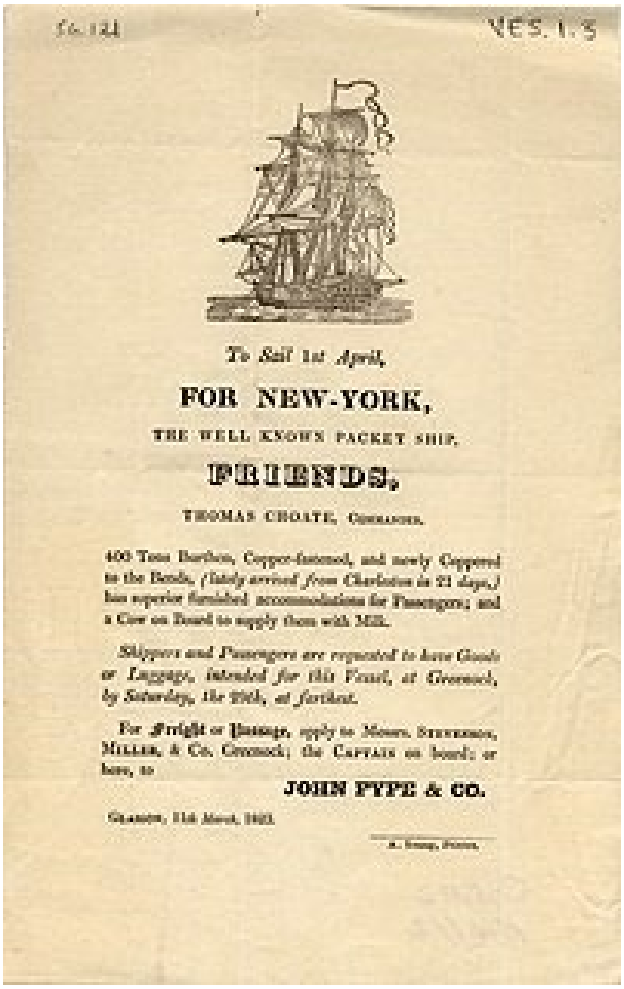


MAIL, CARGO & COAL

TITANIC: MAIL, CARGO & COAL

THE MAIL SERVICE

Demand for the reliable and fast delivery of mail, newspapers, treaties and important documents between Europe and America resulted in the development of robust sailing vessels dubbed packet boats, so-called because mail was collected in packets or small parcels. Packet captains were well versed in using the winds of the North Atlantic to advantage, but maintaining regular delivery was elusive and depended in part upon luck. Prevailing westerly winds helped going to Europe but impeded progress when heading west toward America. Fierce winter gales wrecked many a packet on European shores. The Black Ball Line, which began service in 1817, set ambitious monthly departure dates, but predicting arrival times remained a dubious proposition. While eastbound and westbound passage times averaged 30 and 45 days, respectively, westbound passages of 90 days were not uncommon. Regular and punctual service was a challenge.



To Sail 1st April,

FOR NEW-YORK,

THE WELL KNOWN PACKET SHIP,

FRIENDS,

THOMAS CROATE, COMMANDER.

400 Tons Burthen, Copper-fastened, and newly Coppered to the Bends, *(lately arrived from Charleston in 21 days,)* has superior furnished accommodations for Passengers; and a Cow on Board to supply them with Milk.

Shippers and Passengers are requested to have Goods or Luggage, intended for this Vessel, at Greenock, by Saturday, the 29th, at furthest.

For *Freight or Passage*, apply to Messrs. STEVENSON, MILLER, & Co. Greenock; the CAPTAIN on board; or here, to

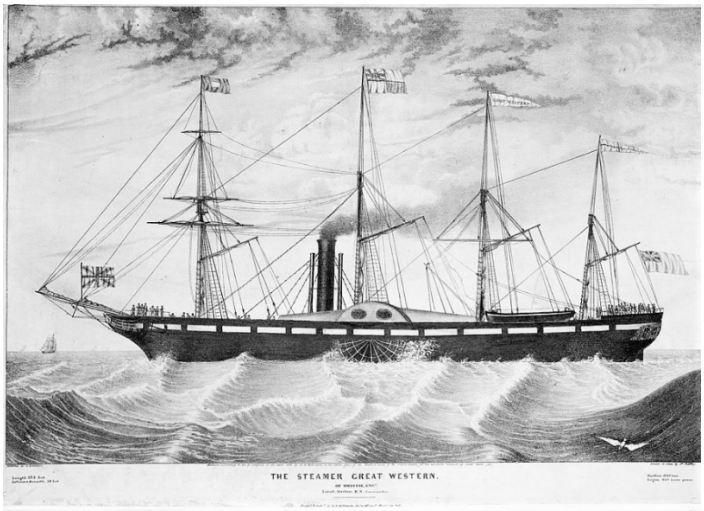
JOHN PYPE & CO.

GLASGOW, 11th March, 1823.

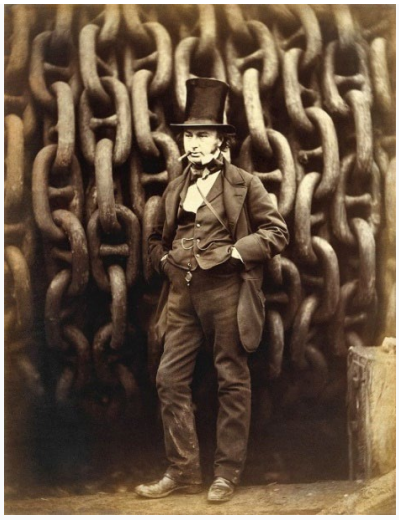
Packet service poster for ship Friends, 1823

Credit: Wikipedia

The answer was steam-powered vessels, first with paddle wheels, then screw propulsion. The 1838 wooden-hulled, paddle-driven steamship Great Western is widely considered to be the first Atlantic liner providing regular service between the Americas and Britain. Built for the Great Western Steamship Co., she was designed by the celebrated 19th century engineer Isambard Kingdom Brunel, who was seriously injured in a fall during construction. When the company closed its doors, the Great Western was sold to the Royal Mail Steam Packet Company. She was converted to a troopship for the Crimean War in 1854, then scrapped 2 years later, after running successfully for nearly 20 years.



SS Great Western, 1838
Credit: Wikimedia/UK collections



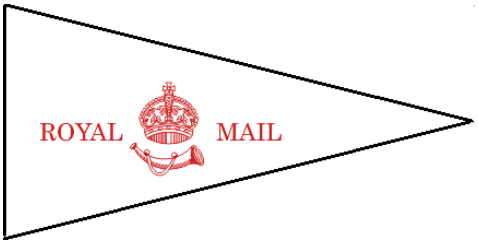
Isambard Kingdom Brunel
Credit: Wikipedia

Although transatlantic liners were primarily passenger vessels, with modest cargo capacity, companies sought the valuable and profitable designation of Royal Mail Steamer (RMS). From the 1850s, various lines were contracted by the British Government to carry mail throughout the world.

Mail Steamship Routes
Credit: Wikipedia

There was little tolerance for late delivery; the mail service required speed, punctuality and reliability. Only the most dependable steamship lines could place RMS before their ships' names. Among the shipping lines engaged in the mail service were White Star, Cunard, Union Castle Line, and Orient Line. Their slower, intermediary ships carried mail to destinations in the Mediterranean, Indian Ocean and Pacific. Ships that served various worldwide routes and were not engaged in the mail service had the humbler SS (Steam Ship) as a prefix to their names.

Flying the Royal Mail pennant gave added prestige to the premier liners. British steamship lines also signed contracts with the US government to carry American mail eastbound to Europe. When so engaged, they flew the US Mail flag. The Royal Mail contract required mail steamers to make the crossing in under a week, every week.

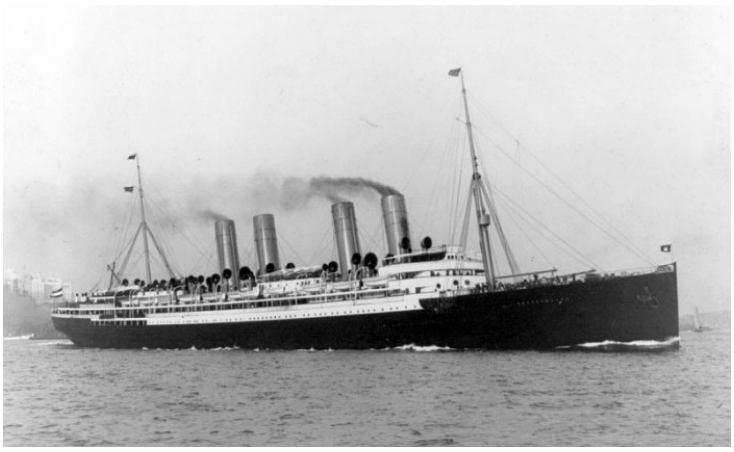


Royal Mail pennant
Credit: Flags of the World

US Mail flag
Credit: Titanic modeling

German and French steamship lines built their own vessels to compete with the British and carried mail as early as the 1850s. Compagnie Generale Transatantique and Hamburg–Amerika Line built ships of state to garner mail contracts and make the fastest crossings. World class continental liners of the early 20th century, such as the French La Provence and the German Deutschland, ran regular mail and passenger schedules. On her maiden voyage in 1900, Deutschland also had the distinction of capturing the Blue Riband, the unofficial prize honoring the fastest crossing of the Atlantic.

La Provence
Credit: Wikimedia

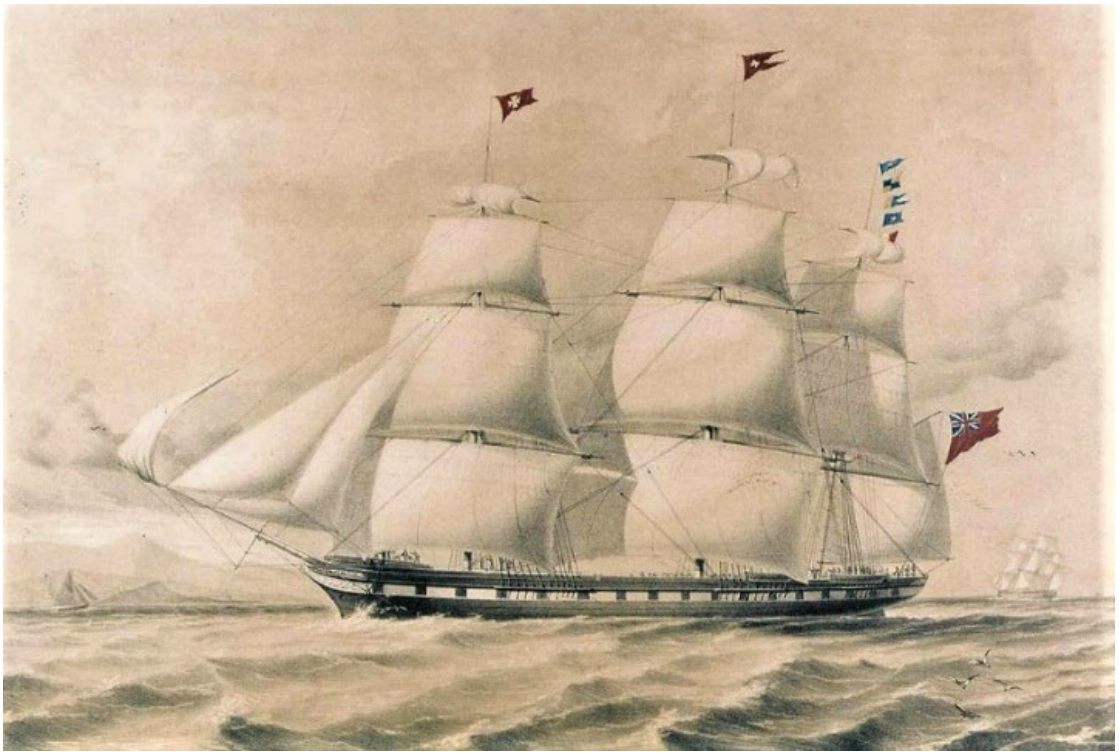


Deutschland
Credit: Wikimedia

WHITE STAR LINE MAIL CONTRACT

White Star Line was founded in 1845 to establish trade between Great Britain and Australia. With the discovery of gold in Australia in 1851, and the exodus of emigrants seeking their fortunes, the timing of founders John Pilkington and Henry Wilson could not have been better. Not yet building their own ships, they chartered vessels to provide their new service. From the beginning, White Star focused on passenger safety and comfort. They also provided entertainment for their passengers by hiring musicians to play during mealtimes and dances. But even with the good intention to provide safe passage, one of their chartered ships, the iron-hulled RMS Tayleur, the largest ship afloat, was lost on her maiden passage in 1854 after leaving Liverpool bound for Australia. She ran aground off Dublin on Lambay Island in heavy seas. Nearly half of the 650 passengers on board perished. Subsequent inquires blamed the

disaster on compass error caused by the ship's iron hull, compounded by a small iron vessel carried as deck cargo. Early 19th century studies of the magnetic characteristics of iron vessels offered contradictory conclusions regarding to what degree a compass could be affected by induced magnetism, and how to best compensate for these errors. It's likely that Tayleur's compass did not accurately point to magnetic north before she left for her maiden passage; she was steering due west rather than south in the Irish Sea when she ran aground. Strong currents, Tayleur's clumsy handling characteristics, a poorly trained crew, and insufficient lifebelts (and lifeboats) contributed to the loss of life.



Royal Mail Ship Tayleur
Credit: Wikipedia

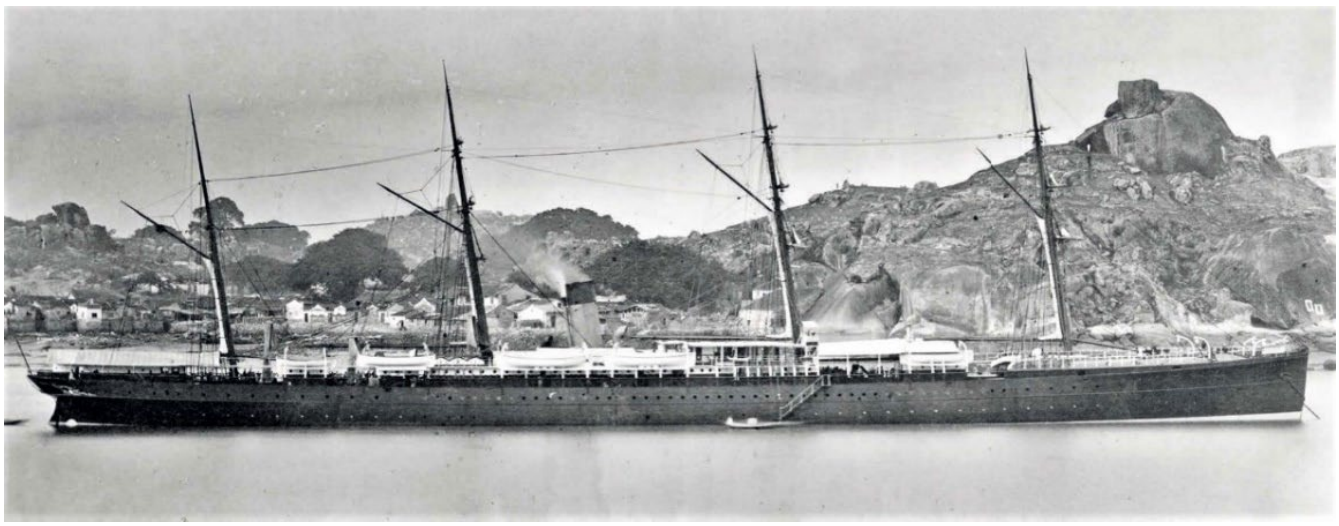
By 1856, the company was in financial trouble. The Tayleur disaster, loss of mail contracts, ill-conceived plans to charter larger vessels that could not be filled to capacity, and the ensuing company disagreements split up the partners. Wedded to sailing vessels, the company finally built a screw steamer in 1863, the 2,000-ton Royal Standard. Departing on her maiden voyage to Australia in 1864, Royal Standard encountered an iceberg on the return leg to Liverpool. Barely able to escape the huge mass of ice after grinding on the berg for nearly an hour, Royal Standard put in at Rio de Janeiro for repairs and eventually returned to Liverpool. White Star sold her in 1867, and she was converted to a sailing vessel by her new owners.

White Star continued to struggle and merged with other small companies to form the Oriental Steam Navigation Company Limited. Getting deeper into debt by borrowing money to expand their fleet, the new company was crushed by the financial burden and declared bankruptcy.

The unlucky company was acquired at a bargain price by Thomas Henry Ismay, who had developed an early interest in merchant ships and at age 16 had apprenticed in his grandfather's shipyard. His intention, upon buying the now defunct Oriental Steam Navigation Company, was to establish a transatlantic service. Ismay believed the future of ocean travel was in iron ships powered by steam.

Thomas Henry Ismay (1837-1899)
Credit: Wikipedia

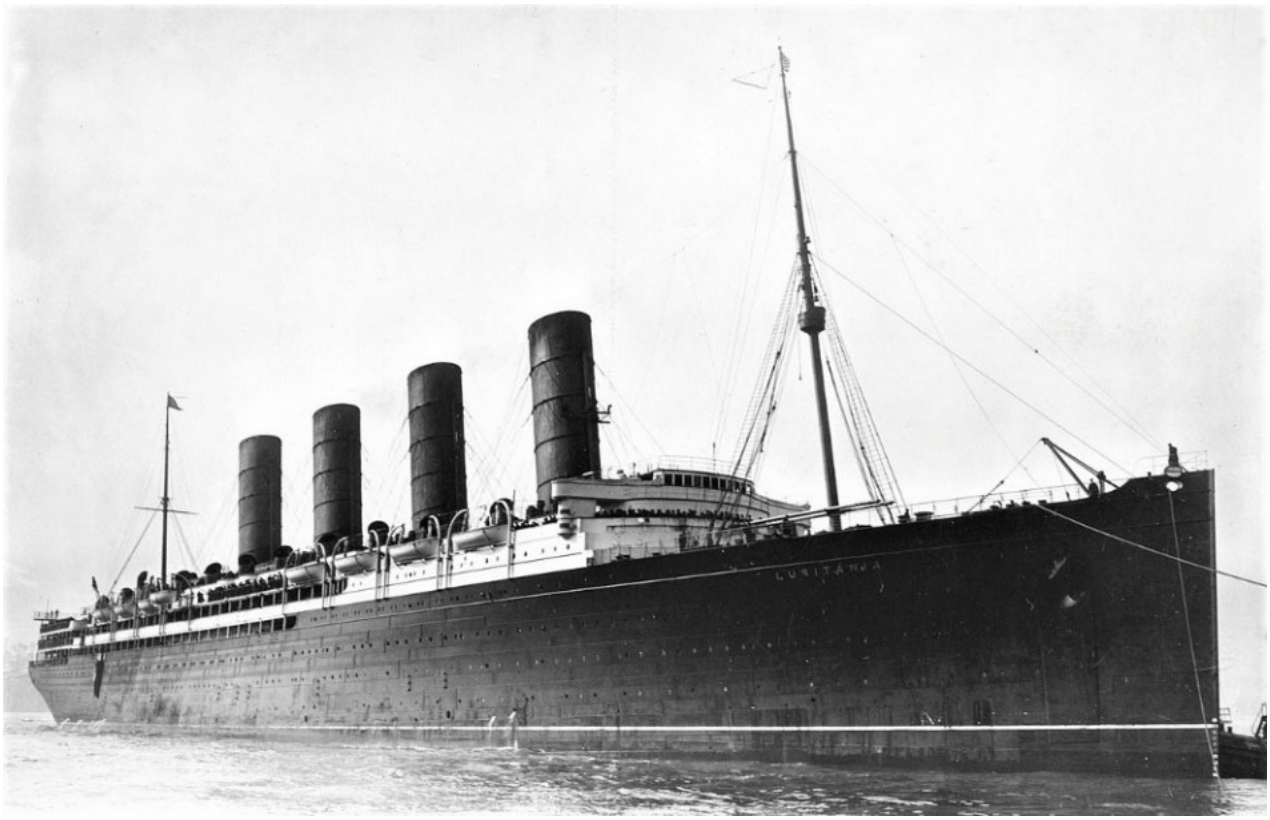
With his new partner William Imrie, Ismay established the Oceanic Steam Navigation Company in 1869. Striking a deal with financier Gustav Schwabe and shipbuilder Gustav Wolff, the line's new ships would be built exclusively at the Harland & Wolff Shipyard in Belfast on a cost-plus basis (the building cost plus a guaranteed 3-5% profit). The agreement also stipulated that Harland & Wolff would not build ships for any White Star rival company. It was decided that the new line would inaugurate service between Britain and America. Competition from the well-established Cunard line was stiff, so White Star vessels had to be world-class in all respects. Oceanic, the first of an ambitious class of six sister ships ordered with Harland & Wolff, was considered more of a luxury yacht than a commercial liner. The name of the company was changed to White Star Line (aka Ismay, Imrie and Company) when Oceanic was put into service in 1871.



Oceanic in 1879
Credit: Wikipedia

Like other transatlantic steamship companies of the day, White Star Line vessels became larger and faster. But speed was expensive, and by 1899, White Star decided that slightly slower but larger and more luxurious ships would fulfill the North Atlantic service and draw the public as the largest ships afloat. So, while the traveler may not cross the Atlantic in the fastest liner, the new White Star ships would be so well appointed that the amenities would compensate for the

additional time at sea. This was the thinking that culminated in the construction of the Olympic, Titanic and Britannic class of liner. The additional day or so required for a crossing didn't exceed the week mail delivery schedule agreement, so there was little to be gained by investing in faster ships that devoured more coal. Indeed, the two fastest mail liners of the day, Cunard's Lusitania and Mauretania, were built with government subsidies to act as armed merchant cruisers in time of war. Otherwise, there would have been little incentive for Cunard to invest in such expensive vessels. Cunard's privately funded third ship, Aquitania, built to provide weekly service with Lusitania and Mauretania, returned to a slower and more economical speed.



Lusitania arriving in New York
Credit: Wikipedia

TITANIC

Being a Royal Mail Steamer, Titanic carried mail that was under the supervision of four mail clerks, two American and two British. The American postal clerks sorted mail headed to Britain, and the British clerks handled mail posted to America. At that time, mail clerks were recruited from the US Postal Service and the British Railway Service and were highly regarded as responsible and efficient. The oldest mail clerks were American US Postal clerks John March, 48, and Oscar Woody, 41. Their fellow postal clerks, Britons James Williamson and Jago Smith, were both 35. Their accommodations were near their postal station, and they took their meals with the wireless operators. The postal clerks worked 7 days a week, from 6am to 7pm. A fifth postal clerk, American William Gwinn, was to be assigned to another vessel but requested an earlier passage to be with his ill wife in Brooklyn, NY. The postal clerks were part of the Victualling Department, under the direction of Purser Hugh McElroy.

Titanic loaded nearly 3,400 100lb mail sacks, each with about 2,000 letters. The postal clerks immediately began sorting the thousands of pieces of mail and packages that would be removed for distribution in America as soon as Titanic reached quarantine for medical clearance in New York Harbor.

Off duty late on the night of April 14, the postal workers were toasting Oscar Woody's April 15 birthday when the shock of the collision triggered them into action. Curious passengers, looking to find out what happened, joined the mail clerks and briefly joked about what was contained in the letters, scattered and floating about. Meanwhile, clerk Jago Smith rushed to the bridge to inform Capt. Edward Smith that the mail room was rapidly filling with water. Adding this to the list of already bad news, it was apparent that Titanic was heavily damaged. The five postal clerks waded through the water, struggling to save the precious mail from the water inching ever higher. Faced with a rapidly flooding mailroom, they dragged a number of mail bags up from G to F Deck, even recruiting some stewards to assist. But their efforts were in vain, and the advancing waters caught up with them. Urged by the stewards to abandon their mail room, the postal clerks kept at their work. They were last seen carrying what sacks they could to C Deck.

All five postal clerks perished. The bodies of Oscar Woody and John March were recovered by the mortuary ship Mackay Bennett. Woody's badly injured body was buried at sea, and March's body was sent home to be buried in Newark, NJ. Small cloth bags, each stamped with the body number, held their personal effects. Bill Gwinn's body was never found. His wife Florence eventually recovered but remained in frail condition. She was informed of her husband's death only months after the disaster.

CARGO

For hundreds of years, square-rigged windjammers used their yards, the spars that carried their square sails, to load and discharge cargo. With the ship secured alongside a wharf, the broad reach of the ship's yards provided numerous combinations to hoist cargo to and from the ship's holds.

Bark Primrose Hill showing yards on fore, main and mizzen masts with the jigger mast fore and aft rigged
Credit: Wikimedia Commons

With the advent of steam power, and the associated reduction of spars and rigging, freighters and transatlantic liners were fitted with booms able to reach the wharf to handle cargo. Provided with steam power, steamers were fitted with steam winches dedicated to loading and discharging cargo. Some ships had large, specialized heavy-lift booms to load heavy cargo.

Cargo ship with booms loading in Brisbane, Australia
Credit: Picryl

Steam winches, for all their labor-saving advantages, were noisy and wet from steam and messy with grease. Titanic, like her sisters Olympic and Britannic, were equipped with silent running and clean electric cranes and hoisting winches that served the ships' six cargo holds (one forward hold was for reserve coal). The Engineering Department's deck and assistant engineers, along with selected electricians, were responsible for the efficient running of the deck machinery. The Deck Department seamen and bosun maintained the masting, rigging, funnel stays, lifeboat falls and other deck equipment. When in port, however, cargo was loaded and stowed in the ship by stevedores, who operated the winches, booms and cranes.

Olympic, four of six after electric cranes
Credit: Titanic and her sisters 1911

When necessary, the ships could “marry” their rigging gear to matching equipment on pier sheds, providing greater flexibility for moving cargo. In addition, the three sisters were fitted with a large boom stepped on the after side of the foremast to lift automobiles on board (something that became commonplace a decade later).

Olympic & Titanic (R) with foremast boom partially lowered
Credit: Wikipedia

Titanic’s cargo manifest lists items from nearly 150 manufacturers and distributors. Cargo carried on the ship’s maiden voyage was as varied as toothpaste, walnuts, gramophones, printed matter, feathers, preserves and books. The most prized cargo included a 1912 Renault Type CB Coupe de Ville, purchased by First Class passenger William Carter (survived) of Bryn Mawr, Pennsylvania; a 1911 jeweled copy of the Rubaiyat of Omar Khayyam; and a copy of the painting La Circassienee au bain, the most valuable item on board.

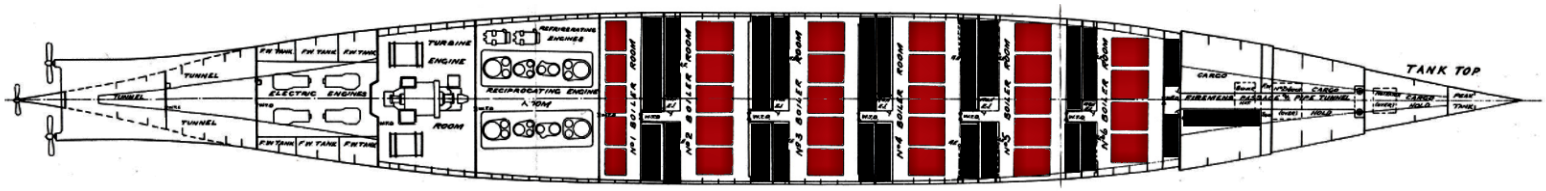

La Circassienee au bain by Merry-Joseph Blondel
Credit: Wikipedia

COAL

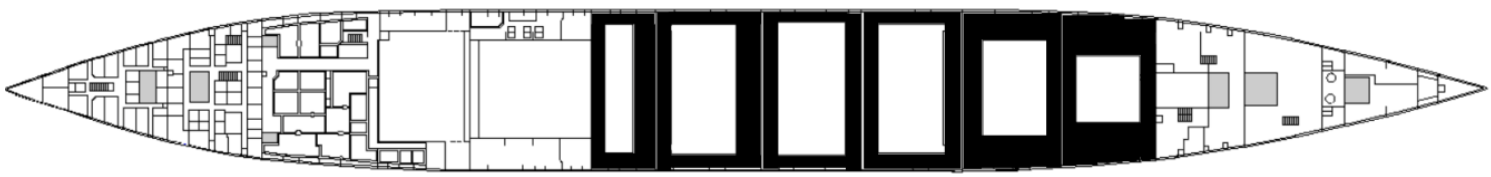
Because of its high energy content, hard anthracite coal is the most desirable fuel to burn in steamships. When combustion is ideal, this class of fuel produces few cinders and emits little visible smoke. The high-quality coal was supplied by the Lewis Merthyr Colliery located in Trehafod, Lower Rhondda Valley, South Wales.

Lewis Merthyr Colliery
Credit: Wikipedia

Titanic had a coal capacity of slightly over 7,700 tons; 6,600 tons were carried in her bunkers, and another 1,100 tons in reserve in forward hold #3. At her contract service speed of 21 knots, she would be expected to burn about 35 tons of coal per hour. In addition to serving the 29 boilers with coal, the firemen had to dispose of the resulting ash. Titanic's 176 firemen served the furnaces round the clock, feeding over 800 tons of coal into her boilers every 24 hours at her contract speed of 21 knots. The coal burned down to about 100 tons of ash that had to be removed from under the furnaces, loaded in wheelbarrows and dumped into ash pits in the stokehold floor. See's Ash Ejector then mixed the ash with seawater; this was then flushed under pressure up an inclined pipe and overboard into the sea by large steam pumps. Two ash ejectors were fitted in each large boiler room.

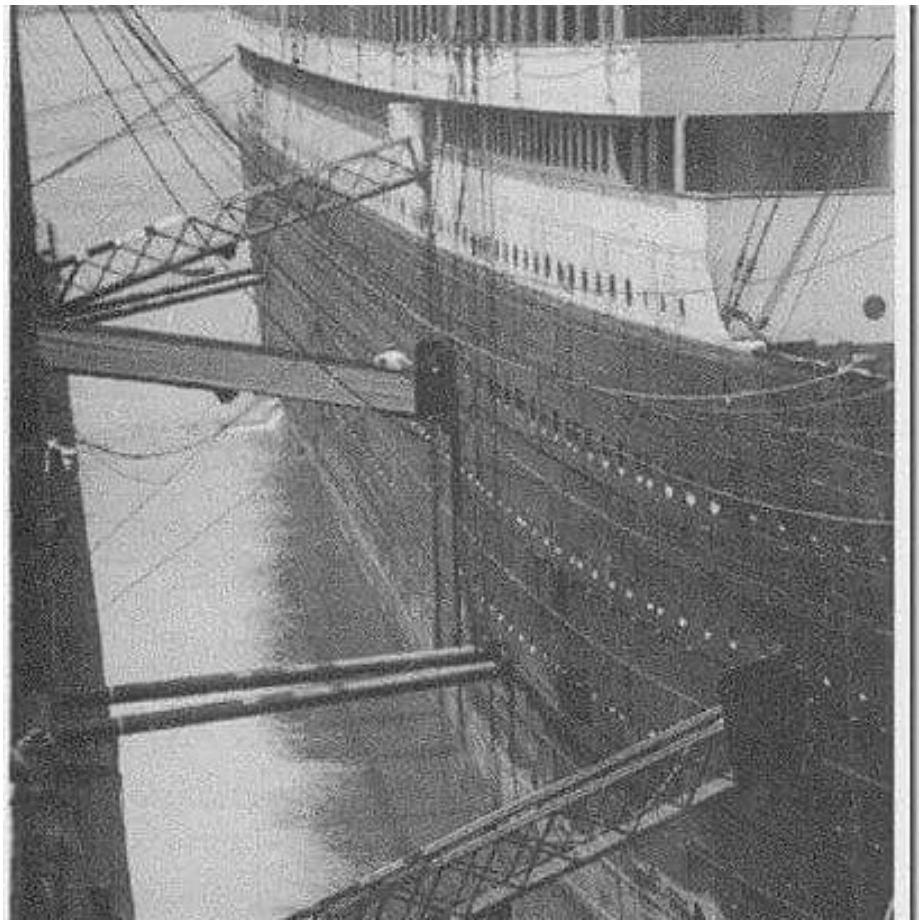


Olympic: Stokehold floor. Boiler (red) and bunker (black) arrangement with reserve coal forward
Credit: Shipbuilder, 1911 (highlights by author)



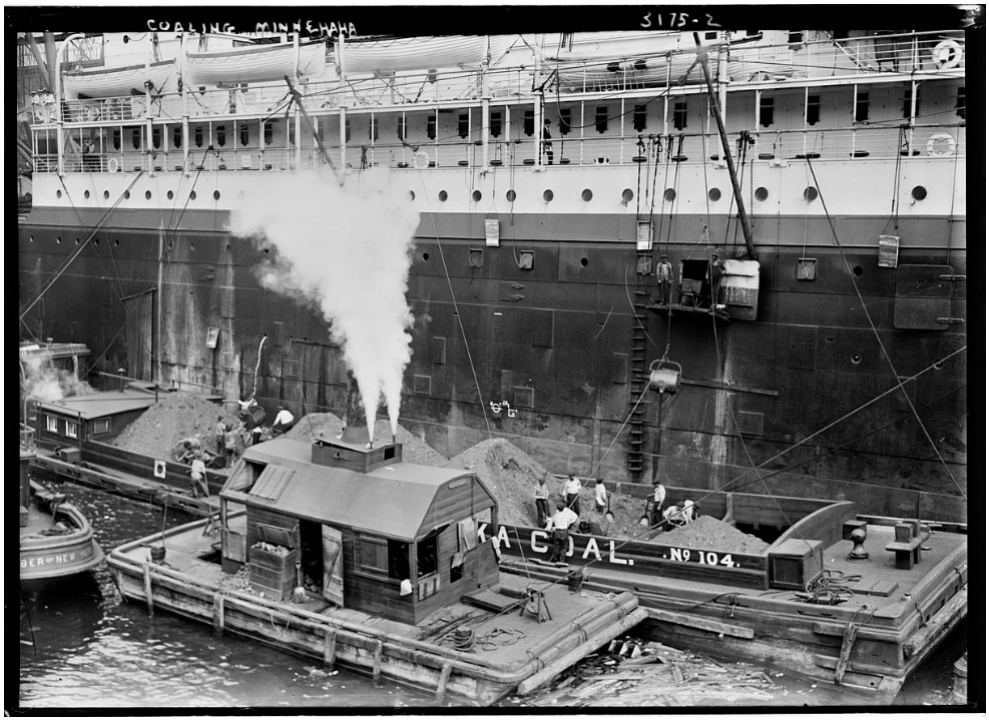
G Deck bunkers (coal stowage in black)
Credit: Shipbuilder 1911(highlights by author)

The work never ceased. Before and after a voyage, a coal-fired ship had to be bunkered with coal and cleaned. Ventilators, doors, windows and any access leading to internal spaces were sealed as much as possible. The fine coal dust would seek and find any overlooked gap, requiring extensive cleaning to avoid harming a company's reputation. Barges known as coal lighters delivered the fuel to the ship. They were secured alongside, where the arduous and repetitive manual labor of bunkering coal would begin. To load the bunkers evenly, the vessel had to be boomed off the wharf so the lighters could be placed on both sides of the ship. In this way, coal trimmers, who loaded, organized and distributed the coal in the bunkers could keep the ship on even trim and heel. To mask the effects of coal grime, steamship hulls in the 19th century were painted black. The tradition continued throughout the era of big transatlantic liners, up to and including the 21st century's Queen Mary 2.



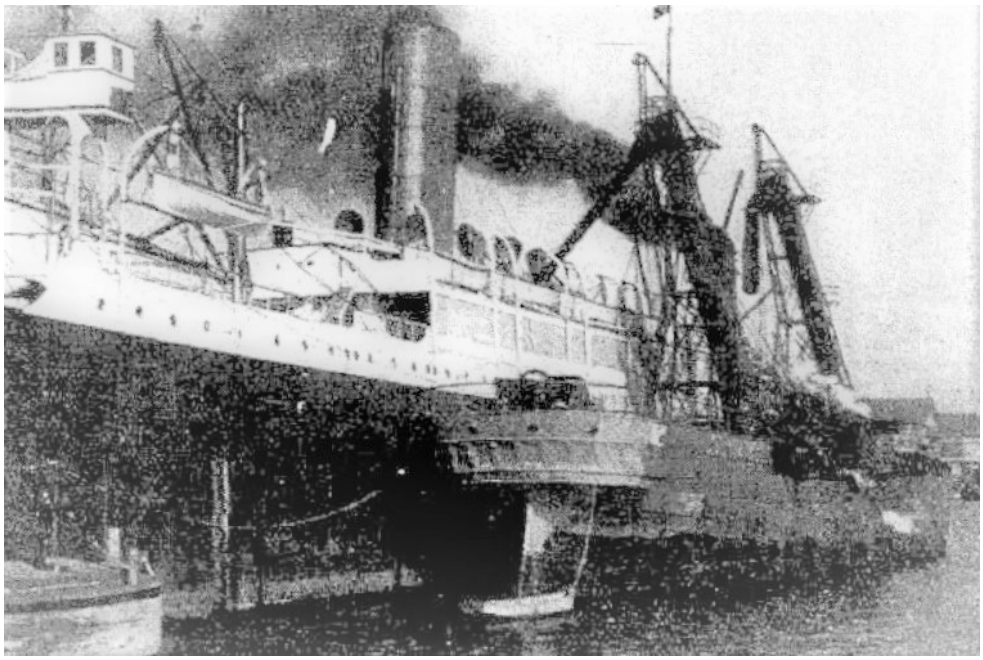
Olympic, boomed off her pier in New York
Credit: unknown

Side coaling ports opened to chutes that led to the bunkers below. On Titanic, there were 35 coaling ports: 18 on the portside and 17 on the starboard side, all located on F Deck, close to the waterline. The ports were closed by heavy, bolted hinged doors that were caulked with canvas soaked in red lead to make them watertight. Platforms were rigged at each open coaling port for men to stand on and tip coal baskets down the chutes. On Titanic, small, hinged, triangular outriggers, high above on the promenade deck, would be fitted with a block, rove with a wire and swung out perpendicular to the side of the ship. One end of the wire was fastened to a coal basket, the other end to a winch on the lighter. After the basket was loaded by "coalies," it was hauled to the men on the platforms by the open ports, who dumped the baskets into the chute and bunkers for the trimmers below.



Coaling the steamship Minnehaha in New York
Credit: Wikipedia

Loading by hand was slow and cumbersome, taking 25-30 hours to load a large vessel. Improvements were made in coaling machinery and dock facilities, speeding up the process, cutting coaling times in half. Ships were fitted with various devices, and obsolete ships converted into bunkering vessels.


Coal hulk Fortuna (R), coaling a steamship in Sydney, Australia
Credit: Wikimedia Commons

The advantages of loading coal with machinery were quickly appreciated, and use spread rapidly around the world. During the First World War, when coal was still widely used, bunkering ships rapidly became essential, especially for the Allied war effort. All types of vessels, from warships and freighters departing for convoys to hospital ships (including Titanic's younger sister, Britannic) made good use of rapid coaling facilities.

Titanic’s sister, HM Hospital Ship Britannic, loading coal in Naples from a mechanized barge
Credit: Wikimedia Commons

Sources: Titanic Fandom, Wikipedia/Wikimedia, A Night to Remember, United States Geological Survey: Smokeless Combustion of Coal in Boiler Plants, Shipping World and Shipbuilder