

THE FINAL BOARD *of* INQUIRY

A COLD CASE INVESTIGATION INTO THE LOSS OF THE STEAMSHIP *TITANIC*

■ This oil painting by Karl Beutel depicts the *Titanic* heading to sea for her sea trials in Belfast Lough. The date is 2 April 1912, just before her transit to Southampton on her maiden voyage. She will move under her own power for the first time as the largest ship in the world.

By
Commander
Richard R.
Paton
USCGR (Ret)



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A new review of the testimony, photographs, plans, eyewitness accounts, facts and circumstances surrounding the loss of the steamship *Titanic*. The likely result, if the new findings of fact were presented to a Marine Board of Inquiry convened today, could be quite different.

Introduction and Charge to the Board

One hundred years ago, in the cold, dark, early morning hours of 15 April 1912, the new and magnificent White Star liner RMS *Titanic* sank after colliding with an iceberg, approximately 365 nautical miles east-northeast of the Newfoundland coast. The ship, en route to New York on her maiden voyage, was at the time the largest passenger liner in the world, but certainly not the fastest. Although touted as nearly unsinkable by many, the great ship foundered some two hours and forty minutes after striking an iceberg, sending her approximately two and a half miles down to the bottom of the North Atlantic. The loss of life was horrific and, for many, totally unnecessary and was the greatest maritime disaster of the time. No one was ever held accountable for the negligence, gross negligence, or criminal acts that resulted in the needless deaths of this tragedy. Despite two separate inquiries conducted in America and Great Britain shortly after the

disaster, no conclusive charges or specifications were brought or criminal investigations recommended.

The American inquiry was well-intentioned but ill-equipped to ask the right questions. Nonetheless, several important facts were uncovered although not acted upon. U.S. jurisdiction, which might have been applied, was not. The British inquiry was strictly and conveniently limited in scope to answering only 26 carefully selected questions handed down by the British Board of Trade. The composition of the British inquiry might today be considered a rather obvious conflict of interest, but in 1912, the Edwardian England class system still prevailed. Even at the time, however, the British inquiry was considered a whitewash. In essence the British Board of Trade was to a great extent investigating the White Star Line and the British Board of Trade itself, along with its inspectors and regulations, with the unsurprising result being that the British Board of Trade found neither party at fault.

In the United States in 1912, the modern-day U.S. Coast Guard had not yet been created. Its predecessor service, the United States Revenue Cutter Service, and the earlier Revenue Marine, while primarily empowered to enforce customs laws, lacked the authority to investigate marine casualties. Neither the U.S. Board of Steamboat Inspectors, created by Congress in 1838 for the enforcement of vessel safety standards, nor the later Bureau of Marine Inspection and Navigation played any prominent role in the American inquiry headed by U.S. Senator William Alden Smith of Michigan. The American inquiry examined 82 witnesses, of which 53 were British subjects or residing in Great Britain and 29 were citizens or residents of the United States.

No recommendations or actions were taken by either boards of inquiry to commence suspension or revocation proceedings against the licenses, certificates or seaman's documents of any of the officers or crew of the *Titanic* or to initiate action that would result in civil penalties against the owners or to recommend criminal investigations and indictments against certain of the officers, crew and at least two passengers for criminal action and inaction resulting in hundreds of counts of involuntary manslaughter. U.S. admiralty jurisdiction, which might have been exercised and applied as the result of U.S. corporate ownership and control of White Star, was never brought to bear despite the number of U.S. citizens killed as a result of the actions and inactions, errors and omissions of the crew and the ship's operators, White Star and, ultimately, the U.S. owners. Justice was never attained for the hundreds who died horrific and painful deaths

while within sight and sound of nearby lifeboats, only partially filled, which could have rescued so many.

This article cannot replicate the 3,200-plus pages of testimony from the British inquiry, officially the "Wreck Commissioners' Court," held at Scottish Hall, London, 2 May to 30 July 1912, or the 1,500-plus pages of testimony obtained from the American inquiry, officially the "Hearings Before a Subcommittee of the Committee on Commerce, United States Senate," held at the Waldorf Astoria in New York and the Russell Senate Office Building in Washington, DC, 19 April to 28 May 1912. The intent of this research was to take an unbiased and fresh look at the evidence in various documents, official testimony, reports, original photographic evidence, recalculations of reported dead reckoning and celestial navigation position reports, radio telegraphy messages, documented statements made by survivors and crew members, newspaper articles of the day, manifests, immigration documents, corporate governance, and new evidence obtained from actual audio recordings made several years later by *Titanic* surviving officers and passengers.

My interest in the inquiries was prompted by my background in marine engineering as a former Merchant Marine Officer, active-duty Coast Guard Marine Inspector and Investigating Officer and long-standing Coast Guard Reserve Officer, now retired. Later, as a corporate risk manager and insurance executive, I was intrigued by the *Titanic*'s strange chain of corporate ownership, governance and control through now non-existent and illegal business Special Trust vehicles. These were common at the turn of the 20th century as a

■ *Titanic* nears completion in the Harland and Wolff shipyard in Belfast, Ireland – SSHSA Archives.



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favorite business form of organization and were used to constrain free trade and monopolize industrial sectors including transatlantic shipping, steel production and railroads during the period of the “robber barons.”

These various areas of interest converged when I looked at the rather dark case of the *Titanic*. This new investigation considers the causes of the sinking and the great number of deaths, more than necessary even given the inadequacy of the ship’s lifeboat capacity. New light is shed on the unsung heroes of the disaster, including the engineering officers and crew, many of whom gave their lives to delay the sinking. At the same time, it is not my intention to diminish the memories of the dead, passengers or crew, who made dreadfully bad decisions in horrific situations.

Someone must speak for the dead. I cast no indictments or allegations but merely hope to shine light upon the horrifying events of that fateful evening. I will present the evidence to the reader, who will serve as the Final Board of Inquiry into the circumstances surrounding the loss of the *Titanic* and the deaths of approximately 1,500 people. In this context I will be serving as the notional Investigating Officer of the Board on which you the reader are now to serve. You must weigh the facts and be the judge, knowing that those individuals cast in unfavorable light are not here to defend themselves. It is my hope that the Final Board, after its due diligence, dispatch and judicious deliberation, will reach its own thoughtful conclusions and that the decision shall be both just and compassionate.

Scope of the Investigation

The investigating officer will present to the Final Board information and evidence relevant to the seaworthiness of the vessel and its crew, the ship’s ownership, management and control, occurrences both prior to and after the collision, the exercise of command, actions and inactions of the officers and crew, ship’s communications, navigation and seamanship, technical details of the vessel and its safety appurtenances, evacuation of passengers and crew, the failure in most cases of those in lifeboats with surplus capacity to rescue or attempt to rescue those persons in the water, drowning within sight and sound, the manning and equipment of lifeboats, inspections by the Board of Trade, response of nearby vessels, and other pertinent facts of the case.

This investigation will not address the issues surrounding the failure of other vessels to provide timely assistance to a vessel in distress with urgency and dispatch. We would need to know the facts, circumstances and situations arising out of the conduct of the *SS Mount Temple* and the *SS Californian* and their Masters to understand their response to *Titanic*’s distress messages, which is beyond the scope of this investigation.

The Investigating Officer will present the following items of interest and evidence to the Final Board:

1. A timeline of 1911–1912 historic events leading up to the *Titanic* disaster to further appreciate the technological advances and societal values of the time
2. Technical background on the design and construction of the *Olympic*-class ships

3. The operation of business trusts, anti-trust laws and the robber barons
4. What was the International Mercantile Marine Company and who really controlled the White Star Line
5. Ownership, management and control of the *Titanic*
6. Issues of jurisdiction as the result of ownership and control vs. registration
7. Propulsion systems, auxiliary systems, horsepower, displacement, registered gross tonnage, watertight subdivision and other technical data relevant to the investigation
8. Initial designs for lifeboat capacity and the myth of speed records
9. Sea trials, Board of Trade inspections, certificates of inspection and seaworthiness
10. Last minute crew changes and the mysterious case of the lookout's binoculars
11. Communication systems, failures, operations and their crucial role aboard *Titanic*
12. The voyage – weather, sea conditions and ice warnings
13. The collision
14. Navigation errors, true positions and location of the wreck itself
15. The evacuation of passengers and crew
16. The sequence of events (and non-events) aboard *Titanic* prior to her collision and subsequent sinking
17. The survivors and those drowning nearby
18. The truth behind the famous missing *Masaba* message
19. The application of *causa causae est causa causorum* in the case of the *Titanic* disaster¹
20. Events after the collision and those during and after evacuation of the ship that led to greater loss of life
21. Aftermath and rescue
22. Findings of fact, charges and specifications and recommendations of the Final Board for adjudicatory proceedings and criminal proceedings regarding certain officers, crew and passengers
23. Epilogue

The *Titanic*, the Gilded Age and the Advent of Technology

In order to better understand and appreciate the tenor of the times, the state of the art in technology, the newly introduced use of radiotelegraphy in world and marine communication, and the age when mechanical technology was near its zenith, we should take a serious look back in time to a period in history often referred to as the Gilded Age, when the excesses of wealth, style, design, comfort and luxury were at a peak. By looking back I hope the reader will retreat to a slower time period, when *Titanic* represented the very latest in technological advancement, the heavily gilded design of the Beaux Arts period, and the conspicuous consumption that was a reality of the age. A look back to the dawn of air travel and a time when a class-ranked society prevailed in England and to a lesser degree in the United States. The following is a brief review of world events in the early 1900s and the first shadows

of the global preparations for the First World War. This is the world into which the *Titanic* was launched and in which its passengers and victims lived and died.

1911

The first experiments with bombing from an aircraft were conducted in San Francisco and the first photograph was taken from an airplane in San Diego. The USS *Pennsylvania* conducted the first landing of an aircraft on a ship, and the first nonstop flight from Paris to London was completed in three hours and 56 minutes.

The United States Supreme Court acted to dissolve the Standard Oil Company under the newly enacted Sherman Anti-Trust Act. The New York City Public Library Building opened and the RMS *Titanic* was launched at the Harland & Wolff shipyards on 31 May 1911. Crisco was introduced in the United States by Procter and Gamble. New technology made the headlines as the first Marconi radio message from Italy was received in New York City. The first group insurance policy was issued.

In England, King George V was crowned and Lloyd George warned Germany in a speech at Mansion House. Prime Minister Asquith held secret meetings about a potential war with Germany while the British Army prepared. In France the Mona Lisa was stolen from the Louvre and Madame Curie received her second Nobel Prize.

1912

In England, Winston Churchill announced that the Royal Navy would be enlarged and the British War Staff is established. Scott's Antarctic expedition reached the South Pole only to discover that Amundsen had arrived there first. Coal miners throughout England went on strike and the *Titanic* commenced her sea trials in Belfast Lough on 2 April 1912. The Royal Air Force was formed and England informed Germany that it would aid France in the event of attack by Germany. The clouds of war were already forming.

In other maritime news three unrelated sea disasters took place. The SS *Kichemuru* sank in a violent storm off the coast of Japan with a loss of 1,000 lives, the Spanish SS *Principe de Asturias* sank with 500 dead, and two steamships collided on the Nile resulting in 200 deaths. The *Titanic* left Southampton for Cherbourg on 10 April and later commenced her maiden transatlantic voyage from Queenstown (now Cobh), Ireland, to New York. The *Titanic* subsequently sank on 15 April at 0227, approximately 365 nautical miles off the Newfoundland coast, with great loss of life.

In the United States the first lady, Mrs. Taft, planted the first cherry tree in Washington, D.C. The Dixie Cup was invented and U.S. Marines invaded Nicaragua and re-invaded Cuba. The Beverly Hills Hotel opened, and Senator Smith held a Senate Commerce Committee Inquiry into the loss of the *Titanic*.

This is the backdrop against which the world, while still at peace, witnessed the worst maritime disaster it had ever experienced. It was a loss that was suffered by not only

immigrants and middle-class professionals but by the elite of high society and wealth on both sides of the Atlantic as well.

The Actual Ownership of *Titanic* and Case for U.S. Jurisdiction

In an attempt to monopolize trade in the transatlantic shipping business, J.P. Morgan established The International Mercantile Marine Company in 1902, six months after he had bought the White Star Line. As a steamship trust it would work to control transatlantic competition in the shipping business, endeavor to reduce shipping rates at selected ports, give kick-backs, discounts or rebates to companies shipping their goods only with the trust, refuse to carry the goods of companies dealing with other shipping lines, and create special contracts with U.S. railroads. It would strive to drive honest competitors out of business or swallow them into the trust. IMM operated as a corporate entity, holding company and trust.

The trust would operate in the following manner. The corporate executives and the board would threaten and compel shareholders of competing firms to surrender their shares of stock to a board of trustees, who would then issue certificates that would pay a dividend. The board of trustees would exercise the voting rights representing these shares, placing their own people on the board, appointing their own selectees as officers of the corporation and wresting control of these companies. They restrained trade and eliminated competition in the process, thus creating a monopoly.

IMM controlled the Fidelity Trust Company of Philadelphia, Leyland Line, Dominion Line, Atlantic Transportation Co, International Navigation Company, and Oceanic Steam Navigation Company, who in turn owned the White Star Line. IMM also had profit-sharing agreements with Hamburg-America and North German Lloyd.

Other large trusts and industrial combines at this time included U.S. Steel, American Tobacco and Standard Oil Company. In 1890 Congress had enacted the Sherman Act (26 Stat. 209 (1890) as amended). The act applied to significant restraints on commerce either foreign or domestic. It took time, however, to investigate and prosecute trusts and to break them up. In 1898 President McKinley appointed the U.S. Industrial Commission to break up the trusts; this was later followed up by President Theodore Roosevelt. The Clayton Anti-trust Act wasn't passed until 1914.

Notwithstanding that *Titanic* was owned by White Star Line, registered in Great Britain with British officers and crew, she was nonetheless an asset of a wholly-owned subsidiary of the Oceanic Steam Navigation Company, which was owned by International Navigation Company, Ltd., of England, which was owned by J.P. Morgan's IMM, an American corporation organized under the laws of the State of New Jersey with J.P. Morgan a principal and citizen of the United States. Thus, the ship was in fact an American-owned vessel although operated by a subsidiary domiciled in the United Kingdom.

A more modern statute, 18 USC 9:1 62 Stat 685, defined the issue as follows: "The term vessel of the United States, as used in this title, means a vessel belonging in whole

■ *Titanic heads out for her sea trials in this photo showing a different perspective on the scene on the previous pages – SSHSA Archives.*



or in part to the United States, or any citizen thereof, or any corporation created by or under the laws of the United States, or of any state, territory, district or possession thereof.”

Regarding ownership and the rights of any sovereign nation to investigate and take action when some of its citizens are killed, the United States would have had jurisdiction to not only hold an inquiry, but to also initiate legal action against those responsible for the disaster and loss of life.

RMS *Titanic* – Technical Data and Specifications

Subject: RMS *Titanic*, British Registry, ON. 131428, Port of Registry Liverpool, foundered on or about 0220 local time on 15 April 1912 at or near position 41.46N lat, 50.14W long, with loss of life.

- Vessel Name: RMS *Titanic*
- Vessel Official Number: 131428
- Country of Registry: United Kingdom
- Official Port of Registry: Liverpool, England
- Owners: Oceanic Steam Navigation Company, Ltd., 30 James St., Liverpool, England
- Class: Olympic
- Line: White Star/IMM
- Builders: Harland and Wolff, Belfast, Ireland
- Shipyard Managing Director: Rt. Honorable Alexander M. Carlisle
- Design Department Managing Director: Thomas Andrews, Jr.²
- Chief Designer for Stability, Damage Control, Drawings and Safety: Edward Wilding
- Builder’s Number: 401
- Keel Laid: 31 March 1909
- Shell Plate (side) Thickness: 1.0 inch
- Launched: 31 May 1911
- Delivered: 3 Feb 1912
- Compartment Flooding: Designed to remain afloat with any two flooded
- Mean Draft of Water: 34 feet
- Design Load Draft: 34 feet, 6 inches
- Service Draft: 34 feet, 6 inches
- Tons per Inch Immersion: Unknown
- Freeboard: 30 feet, 4 inches
- Length: 882 feet, 6 inches³
- Beam: 92 feet
- Length to Beam Ratio: 9.59
- Block Coefficient: Unknown
- Keel to Masthead: 240 feet
- Height to Navigation Bridge: 104 feet
- Gross Tonnage: 46,328.57⁴
- Displacement Tonnage: 66,000⁵
- Cubic Meters: 131,109.48
- Service Speed: 21 knots
- Max Speed: 23 knots
- Flank Speed: 23.5 knots
- Stopping Distance at Trials: 850 yards, three times ship length, under 0.5 nautical miles

- Watertight Compartments: 16
- Watertight Doors: 15
- Double Bottoms
- Screws (3):
 - 3-bladed (Port and Starboard), 23 feet, 6 inches in diameter
 - 4-bladed (Center), 16 feet, 6 inches in diameter
- Propulsion:
 - 2 triple expansion steam reciprocating engines (Port and Starboard)
 - 1 Parsons low-pressure steam turbine, no astern element (Center)⁶
- Horsepower:
 - Reciprocating Engines, 15,000 horsepower each
 - Turbine, 16,000 horsepower
 - Total: 46,000 horsepower
- Boilers (29):
 - Type: Scotch Marine – Fire Tube
 - Steam Pressure: 215 psi
 - 25 double-ended, 4 single-ended, 159 furnaces
- Fuel: Coal
- Stacks: Height 75 feet, 3 inches functional, 1-inch dummy⁷ – Ventilation machinery
- Registration: British Board of Trade
- Certificate of Inspection: Passenger Certificate, Expiration Date: 2-04-13
- Certificated Capacity, Passengers and Crew: 3,326 Maximum
- Certificated Crew: 892
- Certificated Passengers: 2,434
- Actual Persons on Board: 2,208 Inclusive of Crew⁸
 - The number of persons onboard at last port of departure is uncertain, but believed to be 2,208.
- Estimated Crew Onboard: 892
- Estimated Passengers Onboard: 1,316
- Communications: Wireless Radio Telegraphy, Marconi Wireless Telegraph Co. Ltd.; Marconi Marine Wireless 5.0Kw, Synchronous Rotary Spark Discharger; 2 Operators; Ship's call sign MGY
 - Morse Lamp
 - Masthead Lamp
 - Ship's Steam Whistle
 - Visual Day Signals
 - Distress Rockets
- Lifeboats:
 - 14 Standard (cap 65 persons each)
 - 2 Emergency Cutters (cap 40 persons each)
 - 4 Englehardt Collapsibles (cap 47 persons each)
 - 20 Boats Total (cap 1,178 persons)
- Percent Lifeboat Capacity to Maximum Certificated Ship's Capacity: 35%
- Percent Lifeboat Capacity to Persons on Board at time of sinking: 53%
- Lifeboat Under Davits: 16
- Lifeboat Construction: Wood
- Life Jackets: 3,560
- Life Buoys: 48

- Is the ship supplied with all life-saving appliances required by the rules?
 - Yes (Board of Trade Survey M23780, Number 403, dated 11 April 1912)
- Master: Edward John Smith
 - Certificate: 160802 Grade: Extra Master
- First Mate: Henry Tingle Wilde
 - Certificate: 027271 Grade: Extra Master
- Second Mate: William McMaster Murdock
 - Certificate: 025480 Grade: Extra Master
- First Engineer: Joseph Bell
 - Certificate: 19224 Grade: First Class
- Second Engineer: William E. Farquarharson
 - Certificate: 32893 Grade: First Class

Deck Officer Qualifications

- Edward John Smith, Master
 - Extra Master's Certificate
- H. F. Wilde, Chief Officer
 - Ordinary Master's Certificate
- W. M. Murdoch, First Officer
 - Ordinary Master's Certificate
- C. H. Lightoller, Second Officer
 - Extra Master's Certificate
- H. J. Pitman, Third Officer
 - Ordinary Master's Certificate
- J. G. Boxhall, Fourth Officer
 - Extra Master's Certificate

- H. G. Lowe, Fifth Officer
 - Ordinary Master's Certificate
- J. P. Moody, Sixth Officer
 - Ordinary Master's Certificate

Edward John Smith, Master – History of Prior Incidents

Captain Smith began his seagoing career at age 13. He obtained a Master's Certificate at age 25 and joined White Star Line in 1880. He obtained his first command in 1887 as Master of the *Celtic*.

He was Master of the *Republic* in 1889 when the ship ran aground off the Port of New York and remained aground for several hours before being refloated. Three crewmen were killed the same day in a boiler explosion. Just one year later he ran aground again in another ship approaching Rio de Janeiro.

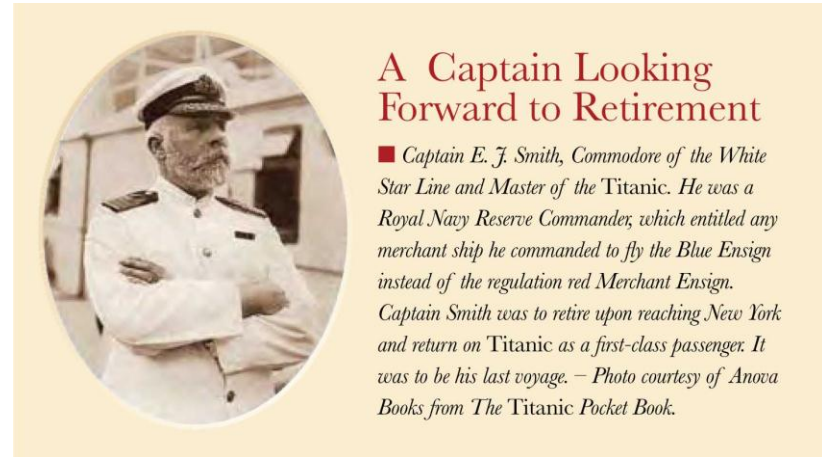
Captain Smith commanded several troop ships during the Boer War and rose to the rank of Commander in the Royal Naval Reserve, which allowed any merchant ship under his command to fly the RNR Blue Ensign instead of the Red Merchant Ensign, often called the Red Duster.

In 1899 the SS *Germanic*, another White Star liner with Smith in command, capsized in New York Harbor as the result of severe icing and the failure to remove the ice from the ship's structure. In 1901 the *Majestic* and in 1906 the *Baltic* experienced serious fires while Smith was in command. In 1909, while in command of White Star's flagship, *Adriatic*, he again ran aground in Ambrose Channel, New York.

In June 1911, while in command of *Titanic*'s sister ship *Olympic*, Smith damaged and nearly crushed a tug while berthing the giant liner in New York Harbor.

While Smith was in command of *Olympic* on 20 September 1911, in the Solent and passing around the east end of the Isle of Wight at about 18 knots, *Olympic* collided with HMS *Hawke*, a 7,250-ton Royal Navy Cruiser. The collision resulted in substantial damage (a 40-foot gash in the starboard side) to the *Olympic*. Both ships were afloat and made it back to port, with *Olympic* having two flooded watertight compartments and running on just one engine; the ship made it back safely to Southampton for emergency repairs that took six weeks. The *Titanic* had to be moved to accommodate her and *Titanic*'s starboard propeller shaft and other components were removed to facilitate repairs to *Olympic*, which didn't return to service until 29 November 1911.

On 24 February 1912, while under Smith's command, *Olympic* struck an uncharted underwater obstruction while transiting eastbound near Georges Banks. This grounding resulted in the loss of a propeller blade, requiring a return to Harland & Wolff for repairs, returning to service in March 1912.



On 10 April 1912, while departing its berth in Southampton under Smith's command, *Titanic* had a near collision with the liner *New York*. The *Titanic* passed two ships near the end of the docks, turned to port and increased speed. This maneuver created a suction force (the canal effect), which caused the *New York* to part its lines with her stern being carried out into the path of the *Titanic*. Quick action by nearby tugs avoided yet another collision.

Captain Smith, known as the Millionaires' Captain, was 62 years of age and was planning to retire upon reaching New York, returning as a First Class passenger aboard *Titanic*. He is missing and presumed dead as a result of the sinking of the *Titanic*. He was 62 years of age.

Joseph Bell – Chief Engineer

Joseph Bell received his apprenticeship at Robert Stephenson and Company and entered the merchant navy in 1883, serving aboard the ships of Lamport & Holt, Ltd. Bell joined the White Star Line in 1885, serving aboard the *Majestic*, *Britannic*, *Teutonic*, *Ionic*, *Bovic* and several other ships including the *Olympic*. He was transferred from *Olympic* to *Titanic*. He attained the rank of Chief Engineer at the age of 30. Bell's 16-year-old son, an apprentice at Harland & Wolff, joined his father aboard the *Titanic* on its voyage from Belfast to Southampton. Bell was admitted to the Institute of Marine Engineers in 1891 and was also a member of the Royal Navy Reserve. He was considered by the Institute of Marine Engineers to be one of their most capable officers and was held in high regard by his colleagues. Bell is missing and presumed dead as a result of the sinking of the *Titanic* and was 51 years of age. He left a widow and four children, the oldest age 16. There are no known incidents reflecting upon his professional career.

Design Issues

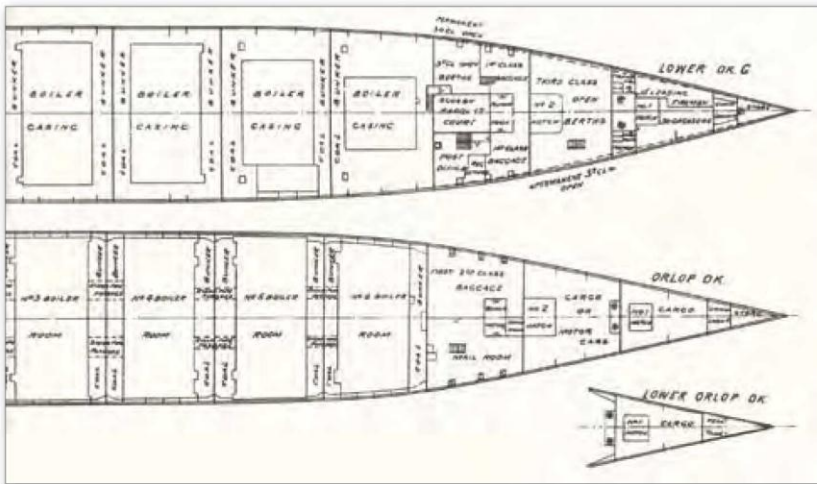
There were at least two major design issues that affected the foundering of the *Titanic* and the number of persons who could have been saved. The first was a design flaw in the transverse watertight compartments, and the other was the flagrant shortage of lifeboats or rafts capable of carrying the Certificated Capacity of both passengers and crew, a number

which was far greater than that actually onboard the *Titanic* the night she went to the bottom.

In the first instance, the watertight bulkheads were not carried to the strength deck nor were they fitted with watertight hatches from deck to deck. This allowed water from one flooded compartment to cascade over to the adjoining compartment depending on the trim of the ship and to a lesser degree the list.

The ship's double bottoms did not extend up beyond the turn of the bilge. The 15 transverse watertight bulkheads created 16 watertight compartments that were carried up to F Deck at both the bow and stern sections and to E Deck in the middle two-thirds section of the hull. *Titanic* had eight major decks, ranging from A Deck just below the open boat deck down to G Deck. Below G Deck the engine spaces were situated on the Orlop Deck closest to the keel and floor plates, just above the double bottoms. The bulkheads were constructed of one-inch steel and reinforced with steel frames. *Titanic* was designed as a two-compartment ship, meaning she could remain afloat with any two watertight compartments flooded. Eyewitnesses reported six watertight compartments breached as the result of the collision with the iceberg.

The number of lifeboats for *Titanic* and her sister *Olympic* were grossly inadequate. British Board of Trade regulations had been last updated in 1898 and were based on cubic-foot capacity and GRT of the ship, with the maximum being 10,000 tons. By 1912 shipbuilding and technology were creating much larger ships such as the Cunard liners *Lusitania* and *Mauretania*⁹ with GRTs of 31,938 and *Olympic* and



■ (Above) These deck plans show the first five watertight compartments of the *Titanic* that were flooded, forepeak to Boiler Room Number 6. (Below) This view of the boat deck, portside aft, shows the arrangement of Welin double-acting lifeboat davits in two sets of four. – Images courtesy of Anova Books from *The Titanic Pocket Book*.



Titanic with GRTs of 46,328. *Titanic* carried 20 boats and actually exceeded the minimum number required with a capacity of 11,327.9 cubic feet while the regulations at the time required only 9,625 cubic feet. However, the Right Honorable Alexander Carlisle, Managing Director of Harland & Wolff, had presented two sets of plans to White Star, one showing 32 lifeboats and the other 64 lifeboats. These plans were rejected by the owners of *Titanic* due to concerns that the additional boats and davits would clutter the boat deck and ruin the views of passengers strolling the upper deck. The 20 boats supplied to *Titanic* (only 16 of which hung from Welin double-acting davits) had a total capacity of 1,178 persons, equal to 35 percent of the 3,326 persons allowed by the Board of Trade's Certificate. Under the rules of this regulatory body, 2,148 people would be left standing at the rails of a sinking ship, an error beyond comprehension and any modicum of common sense. The important design issue here is that while the builders did indeed recommend much greater lifeboat capacity, the ship's owners rejected those plans in favor of an unobstructed view for passengers, and the British Board of Trade stubbornly held onto its outdated regulations and certified the *Titanic* notwithstanding this fatal design flaw.

There was no provision on *Titanic* to promptly notify passengers of emergencies. While technology for sophisticated public address systems did not exist in 1912, the use of electric alarm bells did, and in fact bells were provided at the watertight doors on the lower decks to warn of their closing. No alarm was provided to alert passengers to go to their lifeboat stations.

Sea Trials and Owners Acceptance

Titanic's sea trials were originally scheduled to take place on 1 April 1912 but were delayed one day as the result of bad weather. At 0600 on Tuesday 2 April, the *Titanic* moved under her own power for the first time. After departing Belfast Lough with a crew of only 120, sufficient to handle the ship on a short voyage, *Titanic* conducted a series of sea trials in the Irish Sea. She slowly built up her speed to 20 knots and then came to an emergency stop, with the engines reversing full power, in 850 yards, or approximately three ship lengths. During timed speed runs she averaged 18 knots. (It should be noted that the ship's centerline engine, the Parson's Turbine, could not operate astern.) All machinery and the steering gear were tested with good result. One of the most important of the sea trials was a full-speed turn, inscribing a circle with a diameter of about 3,850 feet. At a speed of 22 knots it would take the *Titanic* 0.4 nautical miles (800 yards, 2,400 feet) to make a 90-degree turn. At 22 knots, the ship is traveling at 2,199.99 feet per minute.

In addition to the crew, two Marconi operators,¹⁰ John George Phillips, senior operator, and Harold Bride, had been brought aboard at Belfast by the Marconi Wireless Telegraph Company to install the marine radio equipment on *Titanic* and operate its radio room. The two were to man the ship's radio 24 hours a day, standing six-hour watches. The Marconi Company also supplied access to a network of Marconi land stations. The radio equipment was delivered to *Titanic* in time for its sea trials on 2 April, and it took the two operators the remainder of the day to install, adjust and test it. On 3 April test messages were transmitted to and received from Tenerife

in the Canary Islands, 2,000 miles distant, and Port Said, over 3,000 miles away. *Titanic*'s new call sign was MGY with the M designating a Marconi Company station. The powerful 5.0 kilowatt, synchronous rotary spark discharger radio apparatus aboard *Titanic* was far advanced compared to the common 1.5 kilowatt radio installations found on most merchant ships. Radio communications at the time had a very limited range, only about 250 miles during daylight hours. *Titanic*'s night radio range exceeded 2,000 miles. There was heavy reliance on messages being relayed by other ships. The Marconi radio rooms were located on the boat deck just aft of the bridge and the officers' quarters. The radio rooms were in communication with the purser's office below by means of pneumatic tubes, in which private messages written by passengers would be carried to the radio room for transmission after the purser had collected the appropriate fee. The rooms consisted of a small office, adjoining sleeping area and a separate silent room, soundproofed to house the noisy spark transmitters.

Francis Carruthers, the Board of Trade Surveyor, was also aboard during trials, making his final inspection of the ship and its lifeboat equipment and other required details. He signed the ship's Certificate of Seaworthiness, which was required for the ship to carry passengers for hire. This is noteworthy because later accounts by officers and other survivors aboard the boats held that equipment and provisions, including green lights, oars, axes, knives and other items, were inadequate or absent entirely. After the trials the ship returned to the Belfast Lough and moored for a short time to allow shipyard workers, vendors, officials and others to return to

shore. Thomas Andrews represented the shipyard in the signing and exchange of the necessary documents of acceptance with Mr. Harold Sanderson, a director of the White Star Line.

Titanic departed Belfast shortly after 2000, conducting additional tests during the 570-mile transit to the White Star dock at Berth 44 in Southampton. En route to Southampton the ship was slowly brought up to speed, to 23.25 knots, the greatest speed documented for the *Titanic*.

Officer Changes – Arrival and Departure at Southampton

Titanic arrived in Southampton on the evening of 3 April, a little before midnight. The remainder of her crew of 892 boarded the vessel over the next few days.

A coal strike, which had left many ships in Southampton idle at the dock, threatened the maiden voyage of *Titanic*. In addition, a coal fire in Bunker 10, located on the starboard side of Boiler Room 6, ignited when the ship left Belfast and was not extinguished until 9 April.

At this point there was a major shake-up in the roster of Captain Smith's deck officers, which remains unexplained. The Chief Officer of *Olympic*, Henry Tingle Wild, was transferred to *Titanic* as new Chief Officer, displacing the original Chief Officer, William McMaster Murdoch, who was bumped down to First Officer. The former First Officer, Charles Herbert Lightoller, was now the Second Officer. The Second Officer left the ship (in a stroke of fate that saved his life), and the junior officers, Third Officer Pitman, Fourth Officer Boxhall,

Fifth Officer Lowe and Sixth Officer Moody, retained their positions. It is believed that when the former Second Officer left the ship he inadvertently locked the binoculars in his cabin's closet, where they had been kept for safekeeping during the sea trials, and unfortunately left the ship with the key.

These unexpected changes in deck officers and last minute shifts in responsibilities, along with a crew of 892 joining a new ship, were sure to create major problems. This crew had never worked together before. While the Board of Trade Inspector had as a standard procedure required two boats to be lowered and launched prior to the sailing, no complete boat drill was ever held. The passengers had no idea which lifeboat they were assigned to, where it was located, which deck they should embark from or which officer was assigned the boat; the same held true for the crew. There was something approaching a watch, quarter and station bill for the crew, but drills were never conducted. This was evidenced by the confused muddle on the boat deck the night of the sinking, when crewmen to man the boats could not be found and scratch crews, inadequate both in number and training, were in charge of the boats. Specific officers were not even assigned to oversee specific boats. This is a major oversight in command and amounts to neglect of the safety of both passengers and crew.

It was also at this time that the eight musicians hired from a Southampton agency boarded the ship, headed by Wallace Hartley, with J. Hume, C. Taylor, J.W. Woodward, R. Bricoux, F. Clark, G. Krins and W.T. Brailey. The band



■ Titanic at the docks of
Southampton, April 1912.



An Early Close Call

■ *The stern of the liner New York narrowly misses the Titanic. The New York parted its lines after the Titanic passed too closely and too quickly in the shallow channel, causing a strong suction known as “canal effect.”*

time that the *Titanic*, while leaving its berth, almost collided with the *New York*, as mentioned above.

Cherbourg

After dropping off the pilot at the Nab Lightship, *Titanic* proceeded on a southerly course across the channel to Cherbourg, arriving shortly after 1800. She dropped anchor at about 1830. Here she would moor, since there were no docks to accommodate her. At this port, 13 First-Class and seven Second-Class passengers left the ship. Passengers and baggage were ferried out to *Titanic* by two White Star tenders, the *Nomadic* and *Traffic*. First-Class passengers coming aboard

members would later become famous for their legendary performance aboard *Titanic*, playing music on the open boat deck to the very end.

On Wednesday 10 April, *Titanic* departed Southampton on her maiden voyage with 1,316 passengers and a total of 2, 208 persons on board according to the Certificate for Clearance issued by port officials that day. It was at this

numbered 142 and included names such as Cardeza, Sir Cosmo and Lady Duff Gordon (incognito using the name Morgan) and Benjamin Guggenheim; the famous marine artist Samuel Ward Stanton was among the Second-Class passengers. After a brief stay at anchor of about one hour 30 minutes, the *Titanic* weighed anchor and departed at about 2000, steaming for Queenstown (now Cobb), Ireland.

Queenstown and the Final Departure

The ship left the French coast proceeding on a westerly course during the evening hours of 11 April, turning northwest after passing Lands End, transiting the St. George Channel and arriving off Queenstown at about 1130. There were no incidents of consequence reported during this leg of the voyage. The ship anchored approximately two miles offshore and passengers and mail were transported via tender. The *Titanic* took on 1,385 bags of the Royal Mail and 120 passengers. Seven passengers left the ship at Queenstown, and one crewman, stoker John Coffee, deserted the ship.

Titanic weighed anchor off Queenstown at about 1330 after only a two-hour stay, taking a westerly course approximately 45 nautical miles off the Irish coast and slowly working up to her cruising speed. J. Bruce Ismay, White Star chairman, is reported to have had a conversation with Chief Engineer Joseph Bell concerning Ismay’s wish to operate the ship at its top service speed on 15 or 16 April, that Monday or Tuesday, if weather permitted. Ismay later admitted to this as his intention, although there were no surviving witnesses to attest to this conversation. Somewhere around tea time *Titanic*

passed the Fastnet Light and by dinner darkness had set in and the Irish coast disappeared as she started her transatlantic course. It was at this time that the ship's lookouts again requested binoculars, which could not be located.

The Transatlantic Crossing

The evening of 11 April passed without incident as passengers and crew alike settled down to their new surroundings and the ship's routine. Breakfast was served Friday morning, 12 April between the hours of 0830 and 1030, lunch at 1300 to 1430 and dinner at 1800 to 1930 – a leisurely shipboard schedule set around the bountiful meals prepared by the *Titanic*'s expert chefs. As prescribed by the company's regulations, a daily ship's inspection was conducted each morning by the captain, at 1030, of the public rooms in all three classes, galleys, stores, etc. At the machinery spaces he was joined by Chief Engineer Bell, who accompanied the captain throughout the engine, boiler and auxiliary spaces. This was followed by a conference with the deck, engineering and steward department chiefs.

It was popular during this period for transatlantic passengers to form pools to wager on the distance made by the ship from noon to noon, when the ship's position and distance made in the last 24 hours would be posted in the lounges and smoking rooms. One such passenger, Lawrence Beesley, relates in his book, *The Loss of the S.S. Titanic*, that he made a record of these distances that has proved invaluable in determining the ship's actual speed during the course of the voyage. The log book, Night Order Book and navigational charts of the *Titanic* were not placed in any of the lifeboats, as

would be expected, and went down with the ship. From 1200 Thursday, 11 April, to 1200 Friday, 12 April (including time spent at anchor off Queenstown, Ireland) the ship made 386 nautical miles at a speed of 16.08 knots. From 1200 Friday, 12 April, to 1200 Saturday, 13 April, the ship travelled 519 nautical miles at a speed of 21.625 knots. This represents a full 24-hour period on the open seas. From 1200 Saturday, 13 April, to noon that fateful Sunday, 14 April, *Titanic* steamed 546 nautical miles at a speed of 22.75 knots. She was slowly and carefully running up the engines and increasing speed in measured increments, lending credibility to Ismay's declared intentions of running her at full speed on 15 or 16 April. Good weather still prevailed and there were at least to this point no significant incidents of record.

On Sunday, 14 April, the noon position was taken and noted as a fix on the chart and a dead reckoning plot was made indicating course above the line and ship's speed below from the noon position. Dead reckoning navigation uses the last known position of the ship as a "fix," with the ship's speed and course projected to approximate a future position without allowances for wind or current. It was and is still commonly used, but it was subject to inaccuracy in the case of the *Titanic* as shall be noted later in this report.

Sunday, in the late afternoon or early evening, the ship's wireless broke down. Communication ceased. Senior Marconi Operator Phillips and his assistant Harold Bride began a long and complex search for the problem in an effort to bring the radio back on-line. According to Bride, "And that reminds me – if it had not been for a lucky thing, we never could have

sent any call for help. The lucky thing was that the wireless broke down early enough for us to fix it before the accident. We noticed something wrong on Sunday, and Phillips and I worked seven hours to fix it. We found a secretary [read as secondary transformer] burned out, at last, and repaired it just a few hours before the iceberg was struck” (*New York Times*, April 28, 1912). The delay this caused in sending private messages from passengers caused a serious backlog for the already tired Marconi operators.

The weather on the voyage was thus far near perfect; according to statements made by Second Officer Lightoller the sea was “smooth as a proverbial millpond, not a breath of wind and a sea of glass” (Charles Lightoller, BBC interview recorded 1936). According to Fourth Officer Boxhall on the 12:00 to 4:00 watch that evening, when the *Titanic* struck the iceberg, “It was a clear night with no sign of fog, the sea was perfectly smooth, there was no moon, every star in the heavens could be perfectly seen” (CDR Joseph Boxhall, BBC interview recorded 1936).

By mid-morning Sunday the *Titanic* had received radio messages from the *Caronia* and the *Noordam* of ice ahead. By early afternoon the *Baltic* had reported a large ice field thought to be 250 miles in advance of *Titanic*’s dead reckoning position. A third message, from *Amerika*, also warned of ice but it was addressed to the U.S. Navy Office in Washington, DC, and was not delivered to the captain.

The eastbound SS *Rappahannock* passed so close to *Titanic* that at about 2230 (just an hour before the *Titanic* struck the iceberg) she signaled by Morse lamp instead of

radio, warning *Titanic* that she had just passed through a heavy ice field and had sighted several icebergs. The message was acknowledged by *Titanic*. Notwithstanding this later warning with very fresh information, no attempt by the watch officers was made to slow the ship down, alter course or notify the captain. At about 1800 Captain Smith ordered a change in course to South 86 degrees West, True (266) and held the ship at full speed. At about 1930 the *Californian* sent a message that they had spotted ice approximately 50 nautical miles ahead of *Titanic*. At 2120 Captain Smith came on the bridge, spoke with Second Officer Lightoller (Senior Officer of the Watch), discussing the weather, calm seas, and indications of ice, then retired for the evening to his cabin. The conversation with the captain ended with Smith saying, “If it becomes at all doubtful let me know at once; I will be just inside.” Lightoller then ordered lookouts to be cautious of ice until daylight. *Titanic*’s speed was estimated to have been 22 knots (Loss of Steamship *Titanic* – Senate Report of Investigation, 62nd Congress, 2nd Session, Document No.933, Washington, DC, 1912).

At about 2140, two hours before the collision, a crucially important message was received in the *Titanic*’s radio room from SS *Masaba*, henceforth known as the *Masaba* message. The message clearly indicated the nearby presence of significant ice in the immediate area of *Titanic*. The message was not received by the bridge or any of the ship’s officers.

The following is the text of the *Masaba* message:

From: Mesaba To: Titanic and all eastbound ships:
Ice report in latitude 42N to 41.25N longitude 49 to longitude 50.30W. Saw much heavy pack ice and great number large icebergs. Also field ice. Weather good, clear.

Notwithstanding, the U.S. Senate Investigation found that Captain Smith, First Officer Murdoch, Second Officer Lightoller and Sixth Officer Moody all knew Sunday evening that the *Titanic* was entering a region where ice might be expected, the ship did not reduce speed until the collision was unavoidable.

Second Officer Lightoller, who had been on watch at the time the *Mesaba* message was received by *Titanic*, said in his recorded statements that, “A very vital message had never been reported to the bridge. The message came from the *Mesaba* in an area right ahead of the *Titanic* and not far away, warning of the most vital importance. If it came to my hand, I would have slowed her down at once and sent for the captain. We were steaming at 22 knots. At ten I was relieved by W.M. Murdoch” (BBC Recording 1936).

Thirty minutes later the *Californian* began to send a message to *Titanic* saying she had stopped for the night and was surrounded by ice, but the message was cut off as the *Titanic* radio operators were attempting to pass private message traffic to the Marconi station at Cape Race, Newfoundland. Irritated by a terse remark to shut-up, the sole wireless operator aboard the nearby *Californian* turned his set off and retired for the night.

At about 2340, the watch officers on the *Titanic*'s bridge were alerted to trouble by the two lookouts, Fleet and Lee, in the crow's nest, sounding the warning bell three times, quickly followed by a telephone call to the bridge warning, “Iceberg right ahead.” Second Officer Murdoch, upon hearing the telephone message, relayed by Mr. Moody, immediately

rang the engine order telegraphs to STOP and then to FULL ASTERN. Simultaneously he ordered Quartermaster Robert Hitchens to put the wheel hard-a-starboard in an attempt to swing the ship's head around the iceberg passing on the starboard side. (It should be noted that before a 1928 international convention changed ships' steering systems' rudder controls, the linkages and orders given were based upon an earlier day when sailing ships were controlled by tillers. Thus to put the tiller over to starboard would place the rudder to port and the ship would turn to port. Authors not familiar with common maritime steering commands of the day theorized that the wrong order was given, but this was not true.) Murdoch then pushed the switch that sounded the warning bell and closed the watertight doors below deck. There was no question as to the seriousness of the collision in the engineering spaces – only two stokers and an engineer escaped Boiler Room 6 before it flooded and the watertight doors closed.

The estimated time of impact of with the hull with the iceberg was 30 seconds from the first sighting, not allowing sufficient time to turn the vessel any appreciable degree or to quickly respond to the engine orders.

The iceberg scraped an estimated 300 feet along the starboard side well below the waterline, from the forepeak hatch to Boiler Room 6. (Boiler rooms on the *Titanic* were numbered in such a manner that Number 6 was the most forward and Number 1 was aft just before the engine rooms.) This glancing blow immediately caused flooding in the first six watertight compartments as far back as Boiler Room 6.

In 1936, 24 years after the sinking of the *Titanic*, Joseph Boxhall recorded his eyewitness account of the night the ship sank for a popular BBC radio series. According to this recording, Boxhall had gone on watch at 2000 with Murdock and Moody. He had been handed a set of stars by Lightoller that Lightoller had taken by observation during the second dog watch, but Lightoller had not yet computed the sight reductions to indicate that ship's actual position. In the merchant marine the long-established practice is that the relieved watch who took the stars would work out the position and record it on the chart for the relieving watch, so that when the new watch took over he would have the ship's position updated to the end of the relieved watch. Boxhall, beginning his watch, worked out the position based on Lightoller's stars and found *Titanic* to be just over 20 nautical miles ahead of her then-plotted 2000 dead reckoning position. He left the bridge to get a cup of tea and felt the scraping and vibration while walking about 60 feet to the bridge and stated that it did not even break his step. Boxhall arrived on the bridge just as Captain Smith arrived. Boxhall, hearing that the ship had struck an iceberg, immediately went forward without being ordered to look for any apparent damage. A quick inspection revealed nothing, not even a cracked porthole.

Returning to the bridge he informed the captain of what he had found. Captain Smith instructed him to go below and find the ship's carpenter and have him sound the ship round forward. He hadn't descended far down the four sets of ladders when he met the carpenter, out of breath, coming up. The carpenter informed him that the forepeak hatch was blown

away and that the tarpaulins on Number One Hold were ballooning up (a certain sign that the hold was taking on water rapidly, which was compressing the air in the hold and ballooning the tarps over the hatch covers). He told Boxhall that she was evidently taking on water fast. Boxhall instructed him to report immediately to the captain.

Descending further down the ladder towards the mail room, he met the mail clerk coming up, who reported that the mail and sorting rooms were flooding. He went to the mail rooms through the Main Salon entrance because all the watertight doors were closed; in the salon he noticed the band tuning up. Reaching the sorting room he found all the clerks pulling letters from the racks; descending the ladder to the mail room, he saw green sea water swirling along the bottom rungs as a mail bag floated past him, carried by the current of invading water. He knew at that point it was very serious and quickly retraced his steps to the bridge, passing the Main Salon entrance just as the band struck up "Alexander's Ragtime Band."

He reported his observations to the captain and asked if the dead reckoning position shouldn't be computed and advanced based on Lightoller's set of stars and then advanced to their current position, where they had struck the iceberg. This was crucial information, since Captain Smith had already given the old dead reckoning position to the radio room to send out in the distress calls – rescue ships would be looking for *Titanic*'s boats in the wrong position.

The importance of this was never fully brought to light by the inquiries – the largest passenger ship in the world,

through inadequate navigation practices, did not know where it was and how close it was to reported ice warnings, while charging ahead at full speed. They knew where they were *after* striking the berg but not before! *Titanic* was in actuality over 20 nautical miles ahead of the old dead reckoning position and much closer to the ice fields than any of the ship's officers realized. Boxhall worked out the amended position based on Lightoller's stars, which he then carried to the radio room and handed to Phillips, who had already sent out the distress messages using the faulty position handed him by Captain Smith. He explained to Phillips the importance of sending out the amended position at once.

Shortly after the collision a quick conference was held on the bridge with Captain Smith, Ismay, Chief Engineer Bell and Thomas Andrews of Harland & Wolff. Smith, Andrews and Bell conducted a hurried tour of the damaged areas and returned to the bridge. Ismay made a private tour below decks with the chief engineer, who was of the opinion that the damage was significant but that the pumps could keep up with the flooding. Andrews, who knew the ship better than anyone else aboard, made a quick assessment that the ship was fatally damaged since all of the forward watertight compartments were flooded as far aft as Boiler Room 6. It was Andrew's best estimate that *Titanic* would sink within two hours.

Through the dedicated and heroic efforts of Chief Engineer Bell and his 25 engineering officers, the ship stayed afloat for 2 hours, 40 minutes, buying valuable time to load the lifeboats and abandon ship. Their dedication also kept the lights on *Titanic* ablaze almost until she slid beneath the waves.

This gave those still trapped below and trying to find their way topside a chance to escape and provided much-needed light on the upper decks to facilitate the lowering of the boats.

Smith gave the order for the lifeboats to be uncovered and the crew mustered. While not documented, it is believed that there had to be some discussion among Smith and his officers on the bridge concerning the inadequate capacity of the lifeboats and Smith's fear of a panic and stampede. It would have been at this time and for this reason that Smith distributed the loaded Webley revolvers to each of the officers and would have issued his orders for their use, if necessary, and for women and children to be loaded first into the boats. This last order was interpreted by some of the officers as "women and children only" and accounts for many of the earlier boats being sent off with so few occupants and couples being separated.

Almost immediately after striking the iceberg and stopping dead in the water, all of the pressure relief valves on the *Titanic's* 29 Scotch Marine, fire-tube boilers lifted due to the sudden build-up in steam pressure, which exceeded their 215-psi standard operating pressures. This was caused by the curtailment of steam demand from the three main propulsion engines, which until moments before were at or near full power. Shortly after this it became necessary for the engineers to quickly blow down the boilers and kill the fires to relieve the pressure. This minimized the possibility of boiler explosions due to the furnaces and crown sheets melting or collapsing and water and steam under pressure collapsing into the furnaces. The sound this created as the steam roared through the eight vents, located atop the four stacks, was deafening on the boat

deck and the bridge. The roar was so loud the officers had to cup their hands and shout in the ears of crewmen attempting to strip the boat covers and lower boats in their davits. The roaring steam discharge also made it difficult for the Marconi operators to hear radio signals in their earphones. Many of the survivors recall the deafening roar while the boats were being loaded. Steam pressure, however, had to be maintained on some of the boilers nearest to the engine room and furthest aft in the ship. This was necessary to operate the ship's auxiliary systems, keep the pumps running and provide steam for the reciprocating engines powering the ship's electrical generators and communications.

Radio Telegraphy and Distress Messages

The first of *Titanic's* distress calls was received by the Cape Race, Newfoundland, Marconi Station MCE at 0015, 15 April, and by the steamships *Mount Temple* MLQ, *Frankfurt* DFT, and *Provence*. This call had the *Titanic's* original, incorrect dead reckoning position and was sent 35 minutes after the collision. At 0025, a full 45 minutes after the collision, subsequent distress calls were sent using Boxhall's amended position. After several subsequent distress CQD calls, the first SOS call was sent at 0045. By 0127 *Titanic* sent "We are putting women off in boats." At 0145 *Carpathia* MPA picked up the last signal it received from *Titanic*. At 0147 Captain Smith released the radio operators from their duties, saying, "You can do no more, abandon your cabin. Now it's every man for himself." At 0217 *Titanic's* signals ended abruptly as the power failed. *Titanic's* radio operators had sent out a

continuous stream of distress message traffic for two hours and two minutes. When the power failed and water was rushing into the adjacent bridge and wheelhouse, Phillips and Bride abandoned the radio room.

The Evacuation of Passengers, Filling and Launching Boats

At about 0025 Captain Smith ordered the crew to inform passengers that they should assemble on the boat deck. Since there was no general alarm bell and no public address system to alert passengers and crew, this task had to be performed by stewards knocking on doors and making announcements in passageways. Chief Officer Wilde ordered Second Officer Lightoller to oversee the preparation of the boats. Lightoller worked his way down the port side to the last boat aft and then up the starboard side to Boat 3. The two emergency cutters, Boats 1 and 2, were always kept swung out in their davits ready for quick launching should someone fall overboard. Boats with odd numbers were located on the starboard side of the deck, while even numbered boats were on the port side.

First Officer Murdoch supervised the loading and launching of lifeboats on the starboard side while Second Officer Lightoller did the same on the port side. The plan was to work from the forward-most lifeboats (3 and 5 starboard, 2 and 4 port), working their way aft along the boat deck. Problems and delays quickly arose in the loading, launching and manning of the boats due to three factors. First, the crew had little or no training in the launching of the boats and did

not know their lifeboat stations. Second, the officers were not aware of the rated capacity of the lifeboats and the fact that the boats were designed to be launched from their davits and lowered to the water while filled to their rated capacity. Third, the crew had never participated in lifeboat drills where they had to report to a specific boat, launch the boat and then crew it. A designated officer or petty officer should have been assigned to take charge of each of the boats when it was launched; this was not the case.

This haphazard approach was to prove fatal for hundreds of people. Testimony from the officers and survivors at the Board of Inquiry in London claimed that a total of 854 persons were placed in the lifeboats; adding those rescued from the water the total saved was 914. However, *Carpathia* took only 712 persons onboard. The inquiry states, “Allowing for those subsequently picked up, of the 712 persons save only 652 could have left in the *Titanic*’s boats, an average of about 36 per boat” (Loss of Steamship *Titanic* Report, pg. 51).

This series of failures in command and due care led to the needless loss of hundreds of lives when the lifeboats, inadequate in number as they were, had not been loaded to anywhere near their rated capacities. The loss of life was further increased by the fact that, once launched, only a few boats returned to pick up survivors struggling for their lives in frigid water. Even though more than ample space was available in almost all of the boats, and they were certainly within sight and sound of people pleading for help, most of the boats refused to help. The screams were said to have lasted for over an hour.

Loading the Lifeboats

Boat 7 was the first to be lowered at 0045 (one hour and five minutes after the collision) with only an estimated 30 persons on board. This boat had a rated capacity of 65 persons and could probably handle slightly more in a calm sea with no wind, such as existed that evening.

At about this time Fourth Officer Boxhall began to fire a series of distress rockets from the bridge wing in the hope of attracting the attention of a ship within sight slightly over the horizon. There had been repeated earlier attempts to signal her with a powerful Morse Lamp to no avail. Boxhall, according to his and other statements could clearly see this ship with the naked eye. It was so close he could make out all of her lights and see light from her portholes. He continued to fire the distress rockets, which soared to a height of 800 feet before exploding with a sharp report and showering a dozen bright white stars. Eight rockets were set off at five-minute intervals.

Also at about 0045 disaster took place in the engine spaces. The watertight bulkhead between Boiler Rooms 5 and 6 gave way, killing all in Boiler Room 5 except for one crewman who managed to escape drowning. The collapse of a watertight bulkhead on a new ship implies a problem with construction or design or undetected collision damage. The bunker fire in Boiler Room 6 bears investigation as a probable cause for weakening this bulkhead. This bulkhead failure brought sea water up against the watertight bulkhead in adjacent Boiler Room 4.

Boat 5 was loaded and lowered by Third Officer Pitman with an estimated 36 to 40 persons aboard; this and all the

other standard lifeboats were rated to carry 65 persons. This boat and its officer would later come under scrutiny for the officer's alleged refusal to pick up survivors struggling in the frigid water.

Boat 6 was loaded and lowered by Second Officer Lightoller at 0055 with approximately 27 persons. At this time the ship was taking on a definite starboard list.

Boat 3 was next with only 40 persons on board.

First Officer Murdoch and Fifth Officer Lowe loaded and lowered Emergency Cutter 1 at 0110 with only 12 people onboard. The passengers consisted of Sir Cosmo and Lady Duff Gordon, her private secretary, Miss Francatelli, and a full complement of crewmen. This boat was rated to carry 40 persons. This boat was also the subject of deep inquiry and allegations of possible immoral if not criminal behavior on the part of the Duff Gordon's, who allegedly refused to help those in the water; they allegedly bribed the crew with checks for five pounds each to not return to pick up survivors, including many women and children whose cries were clearly heard from only about 600 feet away. Copies of a cancelled check drawn to one of the crewmen remain as evidence of some sort of payment to the lifeboat's crew.

Chief Officer Wilde and Second Officer Lightoller loaded and lowered Boat 8 with 28 passengers and 4 crewmen, half the rated capacity.

Boat 9 was loaded and lowered by First Officer Murdoch and Sixth Officer Moody at about 0120. There were only 46 people in the boat including eight crewmen.

Boat 10 was lowered on the port side with 41 people on board.

On the starboard side there was more of a sense of urgency and danger as Boat 11 was lowered at 0125 with 70 persons. Again, this is a standard boat rated for 65 persons but obviously could handle more. All of the other standard lifeboats could have safely carried 70 as well if properly loaded.

Boat 12 on the port side was lowered at about the same time with an estimated 26 to 28 passengers and two crewmen. More lives were squandered by sending many of boats off, even at this late stage, less than half full.

Boat 14 was lowered. Chief Officer Wilde ordered Fifth Officer Lowe to take charge of this boat. It carried 42 to 45 people including crew.

Boat 13 was lowered with about 65 persons. It was nearly crushed by Boat 15 when one of Boat 13's forward falls failed to release and it drifted under Boat 15 while Boat 15 was being lowered. Quick action by the crew averted disaster.

Within minutes Boat 15 hit the water with approximately 65 persons onboard. This boat was remarkable in that it was one of the few to carry any Third-Class passengers. It should be noted that 13 boats had been lowered and were away before the first of the Third-Class passengers (women and children) were accommodated.¹¹ There is strong evidence that passengers from Third- and even Second-Class were hindered in their attempts to reach the boat deck by locked gates and crewmen, notwithstanding assertions to the contrary from witnesses and members of the London Board of Inquiry. That this was not only negligent but possibly criminal



■ Fifth Officer Lowe being very capable had set sails on Lifeboat Number 14 and towed a collapsible. Lowe was one of the few to return to the scene and attempt to rescue more survivors.



■ Collapsible D approaching the Carpathia. Second Officer Lightoller in charge after being rescued from overturned collapsible. This boat certified to carry 47 has only 25 onboard.

conduct was never pursued by either of the two boards conducting investigations.

By this time the *Titanic* had settled significantly down by the bow with an increasingly noticeable starboard list, so much that it impaired the loading and lowering of starboard boats.

Boat 16 was loaded and lowered with some difficulty, carrying only 40 passengers and crew. It was one of the two remaining standard lifeboats.

First Officer Murdoch at this point went forward to lower Englehardt Collapsible Boat C. This was no easy task because the boat had to be manhandled from the roof of the officers' quarters down to the boat deck. He was forced to fire his pistol when an attempt was made by several men to rush the boat.

Boat C was finally launched with approximately 40 passengers and crew. Ismay is alleged to have pushed his way through a crowd of men to get aboard this lifeboat. His presence on this boat was a cause of considerable criticism in the press, where he was condemned for seeking a seat in one of the lifeboats when so many of his passengers, many of them women and small children, perished. The allegation was made but not proven.

Boat 2, the port side emergency cutter, was lowered away at 0145 (35 minutes before the ship foundered) with 18 persons onboard; it is rated to carry 40. Fourth Officer Boxhall was ordered into the boat by Captain Smith and told to go around to the side port on the starboard side to load additional passengers who would be waiting there. Boxhall, in a recorded

BBC broadcast, told of his precarious trip in this boat from the port side bridge wing, around the stern of the *Titanic* and under the stern and the massive propellers, which by this time were out of the water. He was amazed to see no other lifeboats on the port side. When finally rowing around to the side entrance port, which had been opened to disembark passengers into the lifeboats, Boxhall was worried about the enormous crowd that had gathered there. He was fearful that if he came alongside, a mass of people would jump from the open port into the small cutter. He pulled away from the ship and stood off at a considerable distance.

Boat 4 was finally lowered at about 0155 (25 minutes before the ship sank) after considerable trouble with the falls. Even at this late time it was lowered away with only 36 persons including four of the crew and one Chinese stowaway.

At about 0205 (15 minutes before *Titanic* sank) on the starboard side forward, Collapsible D was successfully lowered. It carried only 22 persons. Less than half full it rowed away from the side of the ship.

At this point less than 15 minutes remained and hundreds of people were gathering on the steeply inclined decks. Many passengers, finally freed from below and from Third Class, found all of the boat davits empty and not a lifeboat in sight. The *Titanic*'s orchestra was on deck playing ragtime melodies for the crowd of passengers. An Irish priest was hearing confessions near the fantail. Anguish permeated the atmosphere along with a sense of hopelessness and the certainty of imminent and horrific death.



■ Titanic survivors about to be rescued by the Carpathia.



■ Boat Number 6. This boat contained Molly Brown. Certified to carry 65, it only contains 14.

So many people would die needlessly that night, including 52 children from Third Class. None of the children from First Class and Second Class perished.

The two boats remaining on *Titanic* at this time (Collapsibles A and B) floated off the roof of the officers' quarters when the rush of sea water reached the boat deck forward by the bridge and wheel house. Twenty people swam to Collapsible A, which floated upright but without the sides installed. Because of this, cold seawater flooded the boat, so that when eventually rescued by *Carpathia*, it carried 12 survivors and 8 corpses.

Collapsible B capsized when it was washed off the ship. Nonetheless, nearly 30 men were able to carefully stand in knee-deep water balancing on the upturned boat throughout that long and cold night. Second Officer Lightoller survived, while another important player in the events of that horrific night, Senior Marconi Operator Phillips, perished from exposure. While on the raft-like structure of the upturned boat, Phillips relayed to Lightoller the contact he had made with various vessels and the fact that *Carpathia* was en route to rescue survivors. It was at this time that he told of receiving the *Masaba* message, and how in the rush of his duties he had set it aside under a paperweight for later delivery to the bridge. This was the message, warning of a large ice field in the *Titanic's* path, that could have turned the course of history.

Death, the Aftermath and Eventual Rescue

Eyewitness accounts speak of the fact that *Titanic's* lights blazed on to the very end, testament to the heroism of the engineering officers, not one of whom survived. Many of the engineering crew died with them. They kept the steam pressure high enough to run the pumps and delay the sinking. They kept

the generators for the radios, stairway and accommodation lights and all the interior lights and deck lights ablaze to the very end. If they had evacuated the engineering spaces much earlier, hundreds would have been trapped below in a maze of blackened passageways and ladders. Launching the boats in the pitch black would have made matters even worse than they were.

At about 0218 the lights on *Titanic* dimmed, went out briefly, came back on brightly, flashed and went out forever. At 0220 the ship foundered, and those attempting to launch the collapsibles atop the officers' quarters' roof were swept away by the onrush of water. The foredecks were below the surface and water advanced up the boat deck. The forward stack guys parted and the stack crashed down into the sea, just missing the overturned collapsible. Hundreds either jumped or were swept into the sea as the great ship plunged to the bottom, some 12,600 feet below the surface.

The screams and pleas of hundreds were heard by the survivors in the boats, some as close as 600 feet. Although there was ample room for many more in the lifeboats, almost none returned to help, afraid of being swamped. Ironically, for many it was their husbands or fathers or other loved ones in the water to whom they turned a deaf ear. By 0235 to 0250 most of the screams of survivors in the water had abated and many were dead from hypothermia from being immersed in 28-degree Fahrenheit water for over 30 minutes. Fifty-two young children died sooner than their adult parents from the freezing cold.

Fifth Officer Lowe's boat (Boat 14) was one of the few that returned to seek survivors, after joining a number of boats together and redistributing the passengers to make more room in the rescue boat. Six people were rescued; another 14 were taken off the partially submerged hull of Collapsible A, which was then cast adrift. Still onboard were three unknown corpses. Lifeboats 4 and 12 rescued another 28 survivors perched atop the overturned Collapsible B.

It was a cold and very dark evening with flat calm seas, a slight breeze and no moon, just thousands of stars in the sky above. For those still in the water, afloat in their rigid, white, cork lifejackets, death would come slowly and painfully in the cold waters of the North Atlantic. Many in the lifeboats were in shock and chilled to the bone. It was found that most of the lifeboats lacked even the most basic required equipment – water, provisions, compasses, lanterns, green lights (flares), even oars were missing. This was ironic on a new ship that had just been inspected by the Board of Trade's representative and declared seaworthy in all respects. The inspector had allegedly allowed White Star to store the lifeboat equipment in a nearby place for use when needed, but not in the boats where it should have been. Fourth Officer Boxhall had the presence of mind to bring along a tin of green lights to assist the rescue ships in locating the *Titanic* survivors.

At about 0330 the first of the *Carpathia*'s rockets were sighted. Boxhall, in Boat 2, ignited a series of green lights to assist her in locating the survivors. At 0410 Boat 2 was the first of *Titanic*'s lifeboats to arrive alongside the *Carpathia*. After safely discharging his passengers into the hands of rescuers, he

reported to Captain Rostron, who inquired where the *Titanic* was; Boxhall reported that she had sunk. By 0830 all of the lifeboats had been recovered and *Carpathia* cruised over the water looking for additional survivors but located no living persons. As she was preparing to depart for New York she encountered the *Californian* just arriving on the scene.

Seventy three years later, on 1 September 1985, Dr. Robert Ballard, aboard the research vessel *Knorr*, discovered a large debris field, the forward hull section and aft section of *Titanic*. Based on the location of the boilers, which had broken free and are believed to have sunk straight to the bottom, it is estimated that the wreck position was 5.5 nautical miles from the location at which the *Titanic* lifeboats were found by *Carpathia*. That would suggest that the boats were subject to significant wind and drift in the six hours they were afloat.

It was also discovered that Fourth Officer Boxhall's amended position (based on Lightoller's stars), which was transmitted in all subsequent distress calls, was a full 20 nautical miles in advance of the original dead reckoning position given the Marconi operators by Captain Smith. The ship wreckage, however, lies at the bottom 13.5 nautical miles east-southeast of Boxhall's amended position, slightly south of the *Titanic*'s course but much further to the east. This suggested to Dr. Ballard that Boxhall and the other ship's officers may have actually over-estimated the speed of advance by 2 knots, suggesting that *Titanic*'s speed was actually 20.5 knots instead of 22.5 knots. The fact remains that in either case the officers of the *Titanic* did not know her position until after the collision, if then. The original dead reckoning position, the

amended position based on Lightoller's stars and Boxhall's site reductions and calculations, the location of the lifeboats when discovered by *Carpathia* and the location of the ship's wreckage tell a convoluted story.

Findings of Fact

1. *Titanic*, although registered in the United Kingdom, is in fact a vessel owned and under the ownership control of a corporate entity established, registered and incorporated under the laws of the State of New Jersey and as such would qualify as a vessel of the United States for regulatory purposes. Said vessel carried a large number of citizens of the United States as well as a large number of persons immigrating to the United States, sufficient for the United States to establish sovereign jurisdiction in this inquiry and in the enforcement of its laws.
2. *Titanic* was a passenger vessel registered in the United Kingdom and certificated by the British Board of Trade for the carriage of passengers and dry cargo. Notwithstanding this, actual ownership and control of the vessel can be traced directly to both citizens of the United States and legal entities incorporated under the laws of individual states of the United States. It is the opinion of the Investigating Officer that the vessel's chain of ownership qualifies jurisdiction of the *Titanic* as a vessel of the United States under the federal statutory definition of Vessels of the United States. In addition, as the direct result of the number of citizens of the United States who were casualties in the sinking of *Titanic*, sovereign jurisdiction should also

be applicable in subsequent investigations and adjudicatory proceedings given the foreign vessel's carriage of United States citizens and the use of ports within the admiralty jurisdiction of the United States for the embarkation and discharge of passengers.

3. *Titanic* was both designed and built by the firm of Harland and Wolff in Belfast, Ireland. Construction commenced on 31 March 1909, and the ship was launched on 31 May 1911. The vessel was delivered to its owners on 3 February 1912.
4. The builders designed, constructed and delivered a ship with at least two major design flaws. One involved the design of watertight compartments that did not include watertight hatches or bulkheads or extend all the way to the strength deck. The second involved the lifeboat capacity of *Titanic*; the designers and builders did in fact produce drawings for and recommend a vastly larger number of life boats (two sets of plans, for 32 and 64 boats to be positioned and nested under davits along the entire length of the boat deck). This design by Harland and Wolff would have allowed sufficient lifeboat capacity for all those on board. These plans were rejected by the owner's representative, Mr. J. Bruce Ismay, in favor of a 20-boat plan that would not disrupt the views of passengers on the top deck. It must be said that the 20 boats on board *Titanic* still met and marginally exceeded the minimum requirements of British regulations established in 1894. Said inadequate regulations are based on tonnage of vessels rather than the more logical number of persons to be carried

on board. In this instance Harland and Wolff should be dismissed from responsibility for this fatal shortfall of lifeboat capacity, the decision having been made by the owners without objection from the Board of Trade.

5. The *Titanic*'s design had no provisions for a general alarm bell or other signal to warn passengers to their lifeboat stations, nor were passengers assigned to specific lifeboats, nor were any passenger or crew lifeboat drills ever conducted at any time subsequent to the embarkation of passengers at Southampton nor at any time during the voyage.
6. *Titanic* was certificated to carry 3,326 persons and had total lifeboat capacity for 1,178 persons. *Titanic* carried lifeboats sufficient for 35 percent of the certificated maximum number of persons allowed.
7. *Titanic* was under the command of Edward John Smith, Master. Captain Smith held Extra Masters Certificate Number 160802 issued by the British Board of Trade. Captain Smith was directly involved in at least ten prior significant maritime incidents while sailing under authority of his certificate and while in command of several different White Star Line ships. Captain Smith was in command during four groundings of various ships including RMS *Olympic*, one serious collision while commanding *Titanic*'s sister ship *Olympic* with HMS *Hawke* in which the Admiralty Court found White Star to be at fault, another two near-miss collisions, one involving the damaging and near crushing of a tug while docking *Olympic* in the Port of New York and the other while commanding the *Titanic*

when it nearly collided with the docked liner *New York*, caused by *Titanic*'s excessive speed in a shallow channel while departing the Port of Southampton on 10 April 1912. In addition Captain Smith was in command of the *Republic* when it ran aground in New York in 1889. That same day it also suffered a boiler explosion, killing three crewmen. Under his command two ships experienced serious fires, the *Majestic* in 1901 and the *Baltic* in 1906. Captain Smith was in command of the SS *Germanic* when she capsized in New York Harbor, the failure to remove ice affecting the ship's stability. Captain Smith's history of four groundings, a capsizing, another near-miss collision and one very serious collision never resulted in suspension or revocation charges being brought against him by British shipping officials or any other known adjudicatory proceedings. No known investigations were conducted as the result of the near-miss collisions. No action is known to have been taken by British authorities with respect to suspension and revocation proceedings.

8. *Titanic* was engaged in an international voyage commencing from ports in England, France and Ireland while engaged in intended passage to the Port of New York in the United States. The subject vessel carrying numerous citizens of the United States sailed from Southampton on 10 April 1912 to Cherbourg thence to Queenstown before departing for New York. The subject vessel was engaged in international commerce and carried both passengers and dry cargo en route to the United States for hire under

authority of the certificates of seaworthiness and registration issued by the British Board of Trade.

9. After a brief stop in Cherbourg to discharge and embark passengers, *Titanic* departed Queenstown with a crew of 892 persons of which 73 were assigned to the Deck Department, 325 to the Engine Department and 494 to the Stewards Department. This is documented by the Certificate for Clearance issued by the Board of Trade in Queenstown, Ireland, on 11 April 1912. The crew included eight deck officers, including the Master, and another 26 engineering officers. All of the ship's officers were certificated by the British Board of Trade and were British subjects. The Certificate of Clearance listed a total of 2,208 persons on board including crew, which equates to 1,316 passengers on board (606 in first- and second-class cabins and 710 in steerage). However, this number may have been offset by at least another 19 persons (who were neither crew nor passengers) representing eight hired musicians, three Harland and Wolff employees, two Marconi Company employees, five postal employees (two U.S. Mail and three Royal Mail) and one stow-away.
10. At no time after the embarkation of passengers in Southampton or throughout the entirety of the voyage to its interrupted conclusion were any lifeboat drills conducted with the passengers or crew. At no time prior to the sinking were passengers pre-assigned a lifeboat or informed as to which boat they should report to in the event of emergency. At no time was the crew ever mustered at their lifeboat stations, except for two boat crews during the Board of

Trade's inspection. While it is known that Engineering crewmen were assigned boats and that notices were posted in their quarters, no drills were ever conducted.

11. The subject vessel received numerous ice warnings from other ships operating in the immediate vicinity and close to or near the intended track of *Titanic*. Notwithstanding these numerous radio telegraphy messages and at least one Morse lamp message from a passing ship in close proximity, Captain Smith willfully and wrongfully failed to slow the subject vessel to a safe speed. *Titanic* was rapidly approaching and progressing through an area of known navigational hazard at or near her top speed, at night, with no moon or search lights on flat calm seas. The Master either knew of or should have known of the extreme danger in which he placed his ship and its passengers and crew.
12. The ship's actual position was not known or computed until after *Titanic* collided with the iceberg. The significance of this is profound. *Titanic*, the largest ship in the world, did not know its position. The *Titanic*'s actual position, based on earlier celestial navigation observations made by Second Mate Charles Lightoller but not computed until the following watch, was found to be over 20 nautical miles ahead of its then current dead reckoning position. Based on the amended position, plotted by Fourth Officer Joseph Boxhall, the ship was much closer to and deeper into the ice fields than believed. The discovery of the wreck of the *Titanic* by Dr. Robert Ballard in 1985 revealed that even this amended position was off. The *Titanic*'s cylindrical boilers dropped straight down after the ship foundered,

providing a good indication of the position at the time of its sinking. The boilers were located 13.5 nautical miles east-southeast of Boxhall's amended position, which in turn was 20 nautical miles ahead of the original dead reckoning position being used for navigation at the time of the collision. The boilers were located slightly south of *Titanic's* course but substantially further east. Based on this new evidence Dr. Ballard believes the ship's officers actually over-estimated the speed of *Titanic*.

13. The initial erroneous dead reckoning position was given to the ship's radio operators by Captain Smith. It was transmitted in the original distress messages. Fourth Officer Boxhall brought this error to the attention of the captain and computed a new amended position based on advancing Lightoller's stars (and advancing by dead reckoning to the point of collision). Boxhall personally carried this amended position to Jack Phillips, Senior Marconi Operator, which he then transmitted to allow potential rescue ships to locate the survivors. The ship, aided by either current or wind, was thought to be traveling at a higher rate of speed and had thus advanced further along its track and course than known by the officers on watch. The officers knew they were approaching a potentially hazardous area but failed to maintain an accurate plot of the ship's position.
14. Ship's deck officers were ignorant of the capacity of the lifeboats and the fact that they could be lowered to the water while loaded to their rated capacities. This lack of knowledge as to capacity and live load capability led to a great under-utilization of the lifeboats and many lives lost unnecessarily.
15. The passengers were not properly evacuated and assembled with due diligence and dispatch, nor were they assigned specific lifeboats. As a result many, particularly third-class passengers, did not appear on deck until the late stages of evacuation when most of the boats had been lowered. In many cases third-class passengers were impeded, obstructed and blocked in their attempts to reach the boat deck and the lifeboats.
16. The officers in charge of loading and lowering the lifeboats knew or should have known of the rated capacity and properly loaded the boats to achieve at least 100 percent of the rated capacity. As a result of their professional negligence, nearly all of the *Titanic's* lifeboats were lowered with only a fraction of their rated capacity, causing over 400 deaths.
17. The ship's Master, Captain Smith, failed to exercise due care and diligence in command, navigation and management of the vessel, its crew and passengers before, during and after the collision. No lifeboat drills were conducted with the crew (new to the ship, its equipment and to each other); no lifeboat drills were conducted with the passengers; the ship operated at the highest possible speed through an area of known navigational hazard despite numerous and repeated warnings from other ships in the vicinity; the position of the ship was uncertain and incorrect at the time of collision; a timely warning and notice to all of the passengers to evacuate and notice of the

true extent of the imminent danger was not communicated; the ship's lifeboats were improperly loaded, often at a fraction of their rated capacities; certain third-class passengers were impeded and hindered in their progress to escape to the boat deck; initial distress calls were sent out with the ship's wrong position; lifeboats for the most part were not properly manned or instructions to return to pick up as many survivors as possible were not given; and the lifeboats themselves were not properly equipped as required by regulation particularly with respect to lanterns, knives, hatchets, water, provisions and green lights.

18. Certain officers and crew in charge of the individual lifeboats after their launching negligently, willfully and wrongfully failed to attempt to rescue, and in at least two known instances outright refused to rescue persons in the water who were in grave danger and were pleading for assistance within their hearing and/or within their sight. Although these lifeboats were seaworthy and fully capable of effecting a rescue and in all but a few had ample surplus capacity (often more than 50 percent) to save lives, officers and crew in charge did absolutely nothing. The Investigating Officer recommends that such evidence as exists be turned over to the United States Attorney for further investigation and criminal prosecution for involuntary manslaughter¹² in the two instances of affirmed refusal cited and for involuntary manslaughter in other such instances where evidence may be sufficient for prosecution.
19. In one reported instance the boat crew was influenced by passengers in Boat Number One to not return to rescue

persons within sight and sound, drowning and in distress in the water. It is estimated the distance was approximately 600 feet. It is further alleged that one passenger influenced actions or inactions of the crew by offering and tendering a bribe to each crewman – to wit, a check, drawn in the amount of five British pounds sterling. Said lifeboat had a rated capacity of 40 persons and carried 12 persons including crew at the time of the alleged criminal acts. The Investigating Officer recommends the Board turn over such evidence as exists to the United States Attorney for further investigation and prosecution.

20. The inadequacy of the British Board of Trade's maritime safety regulations as to ship construction and equipment and the inadequacy of the Board of Trade's inspectors to ensure that lifeboats carried the required and necessary equipment on board (in all instances none had compasses and only three had lamps) should be brought to the attention of the British government through appropriate diplomatic channels.

The Senate Investigation & Hearings

■ *J. Bruce Ismay, Titanic survivor and chairman of the International Mercantile Marine Company and the White Star Line at end of table, is being questioned by the U.S. Senate Investigating Committee at the Waldorf Astoria in New York City.*



■ *U.S. Senator William Alden Smith of Michigan headed the U.S. Senate inquiry into the disaster. The inquiry, which began on April 19, a day after the Carpathia arrived in New York, examined 82 witnesses.*



■ *In Washington, D.C., April 1912, for the Senate Commerce Committee hearings are (from left to right): P.A.S. Franklin, at the time in charge of the New York White Star Line; Charles C. Burlingham, lawyer for the White Star Line; and J. Bruce Ismay, .*

Charges and Specifications

1. Gross negligence of the Master of RMS *Titanic* in the unsafe navigation and command of the vessel at an excessive, unsafe and dangerous rate of speed in an area of known navigational hazard and one which was the subject of repeated and timely ice warnings from other vessels in proximity.
2. Negligence in the failure of the Master to order, effect and supervise lifeboat drills for the crew and the passengers, and to properly train the crew in the capacity, loading, lowering and handling of the lifeboats.
3. Failure of command by the Master to notify and alarm with dispatch all passengers of the imminent danger to the ship and to ensure their unimpeded passage to the boat deck regardless of class of passage and to efficiently organize the timely evacuation of all those aboard who could be accommodated in the lifeboats, as inadequate in number as they were.
4. The failure and negligence of certain watch officers preceding the collision to compute the sight reductions of stars taken earlier in the evening and to properly advance the dead reckoning position based upon this most recent fix, duly notifying the Master of the ship's then known position to be at least 20 nautical miles in advance of the earlier dead reckoning position and thus closer to and deeper into the area of danger.
5. The failure of certain officers to properly load the lifeboats to their full rated capacities and to properly man said boats, and to properly instruct and order those placed in command

The British Board of Trade Inquiry

■ *John Charles Bigham, Lord Mersey, was appointed to head the British Board of Trade Inquiry into the sinking of the Titanic. The inquiry was strictly limited in scope to only 26 carefully selected questions. Their finding was as follows, "The Court, having carefully inquired into the circumstances of the casualty, finds, for the reasons appearing in the annex hereto, that the loss of the said ship was due to collision with an iceberg, brought about by the excessive speed at which the vessel was being navigated."*



"The Margin of Safety Is Too Narrow!"

■ *An original cartoon depicting a man representing the public with a copy of a newspaper with the headline "The Titanic" pounding his fist on a "Public Service" desk belonging to a man representing "The Companies."*

of the lifeboats to return to the ship and effect the rescue of as many people as possible.

6. The wrongful actions and inactions which may have resulted in the possible involuntary manslaughter by certain officers responsible for the loading of the ship's lifeboats. These boats were loaded in such a manner as to negligently and grossly under-utilize the rated capacities of the lifeboats, directly resulting in the known deaths of at least 419 persons, in total, who might otherwise have been accommodated in the boats and saved. Recommend that this Final Board turn over such evidence as may exist to the United States Attorney for review, further investigation and consideration of sufficiency to bring criminal charges if deemed warranted.
7. That allegations have been made by witnesses of an instance in which one officer in charge of a lifeboat refused to return to the scene and rescue those struggling for their lives in the water. That such evidence as may exist in regard to these allegations be turned over to the United States Attorney for further investigation and prosecution if warranted for 25 to 29 counts of voluntary manslaughter.
8. That certain allegations having been suggested by witnesses that two passengers on board a boat carrying only 12 persons in total but capable of holding at least 40 persons unduly influenced the crew to not return to the scene of the disaster to rescue persons in the sea, both seen and heard to be in distress for their lives. Further it was alleged that one of these passengers willfully and wrongfully influenced through the issuance of promised

cash if the crew were to not return to rescue survivors for fear of being swamped. Further that such promises to the crew were actually paid by checks once aboard the rescue ship *Carpathia*. That such evidence as may exist be turned over to the United States Attorney for further investigation and, if warranted, prosecution for 28 counts of voluntary manslaughter.

Epilogue

Five days had passed since the *Titanic* went down with such horrific loss of life. Every newspaper in the world carried the story for days, some for weeks. Transatlantic passengers were worried and nervous, and talk among both passengers and crew on liners great and small centered around the recent *Titanic* disaster.

The German liner *SS Bremen* passed near the position where the *Titanic* foundered on what was reported to be a bright and sunny afternoon on Saturday, 20 April 1912. Passengers observed an enormous iceberg, the sun brilliantly reflecting off its glistening surfaces, and some took pictures. Word had spread on the ship and nearly everyone was out on deck to see this sight: Was this the iceberg that sank the *Titanic*?

The scene, however, quickly turned macabre as the passengers lining the rails soon saw what appeared to be a large number of little white dots floating in the water, some in clusters, others alone. As the *Bremen* steamed closer, the passengers could make out that the dots were in fact hundreds of lifeless, marble-like, pale bodies still floating, rigidly upright

in their white, cork life jackets, bobbing up and down on the surface of the sea. It was not only possible for *Bremen's* passengers to clearly see what the corpses were wearing but also their faces and make out whether the bodies were male or female. It was a heart-rending experience. One such body clearly seen from the *Bremen* was that of a young woman dressed in a night gown, still clutching an infant tightly against her breast. Another woman appeared fully dressed with her arms clinging tightly around what appeared to be the rigid and matted body of a shaggy dog, looking much like a St. Bernard. Dozens more bodies passed by for what were several minutes but must have seemed like hours. The ship passed groups of bodies, one with a cluster of three men still grasping solidly to a deck chair, and scores of other aimlessly drifting in the open sea. Many, many more little white dots bobbed up and down. The silent passengers and crew of the *Titanic* had greeted them.

No charges were ever brought against any of the officers or crew of the *Titanic* as a result of the American or British inquiries. No officers or crew were ever charged with negligence or brought to any adjudicatory proceeding with respect to their certificates or seamen's papers for their actions or inactions preceding, during or after the disaster. No officers, crew or passengers were ever charged with any criminal act. *Titanic's* owners were never issued administrative or civil fines, with the exception of some civil court actions, most of which were unsuccessful. Insurer Lloyd's of London paid the full amount on its policy to the White Star Line for the loss of the *Titanic*.

Nobody was ever held responsible for the deaths of over 1,500 people. No one spoke of justice for the little white dots. Who will speak for them?

About the Author

RICHARD PATON is a member of the



Titanic Historical Society. He is a former U.S. Coast Guard Marine Inspector and Investigator and in civilian life retired as an

insurance and risk management executive. He has extensive experience at Lloyd's of London and in international insurance markets. Mr. Paton is a graduate of the Maine Maritime Academy with a BS in Marine Engineering. He earned his MS in Engineering Science and MBA from the Rensselaer Polytechnic Institute. He is a former Director and National Secretary and currently serves as the East Coast Vice President of the Steamship Historical Society of America. Though retired he is currently an adjunct professor at the University of Connecticut and Ethics Commissioner of the Mohegan Tribe.

Endnotes

1. This Latin legal doctrine is translated as “the cause of a cause is the cause of the thing caused.”
2. Thomas Andrews, Jr. (1873–1912) was born in Comber a village situated on the outskirts of Belfast. Thomas Andrews was the nephew of Lord William Pirrie of Harland & Wolff. He quickly rose through the ranks to become a member of the Board. He headed the design department and was held in great esteem by Lord Pirrie, who was considered to be preparing Andrews as his successor to head Harland & Wolff. He was last observed in *Titanic*’s First Class smoking room staring at a painting on the wall. Lord Pirrie had purchased all the shares of G. W. Wolff when he retired and virtually controlled Harland & Wolff.
3. The Official Certificate of Transcript to the Registrar General shows the admeasurement dimensions of *Titanic* and documents its length as 852 feet, 6 inches. It is presumed the difference is due to admeasurement rules of the time and that the 882-foot, 6-inch length was the actual length between perpendiculars.
4. GRT or Gross Registered Tonnage is a measure of the volumetric capacity of the ship computed under certain rules in the admeasurement process.
5. Displacement Tonnage is the weight of sea water displaced by a floating object. It is equal to the weight of the object.
6. The Parson’s Steam Turbine of the time had no astern element or no way to operate in reverse, it could only turn the propeller shaft in a forward direction or stop with the throttle closed.
7. The fourth stack (or British Funnel) aft, did not contain uptakes from the boilers. It housed ventilation equipment and galley exhaust systems.
8. The actual number of persons onboard is subject to great controversy even today as various clearance documents tend to be contradictory and do not reflect persons onboard who were neither passengers nor crew. This includes 5 mail clerks (2 employees of the U.S. Post Office and 3 of the Royal Mail), 8 band members, 2 Marconi operators, 3 Harland & Wolff personnel, and 1 stow-away). The number of POB’s is believed to be between 2,207 and 2,223.
9. The *Mauretania* and *Lusitania* were much faster ships than *Olympic* and *Titanic*. These Cunard Line ships could operate at speeds up to 27 knots and were powered by four direct drive steam turbines, producing 68,000 horsepower compared to *Titanic*’s 46,000 horsepower. Neither *Titanic* nor *Olympic* could have set any speed records against the two Cunard liners. *Lusitania* held the Blue Ribband in 1907 and 1908 and the *Mauretania* had held the Blue Ribband since 1909. The myth of the *Titanic* being out to break a speed record for a transatlantic crossing is a Hollywood fabrication.
10. The Marconi operators were employed by The Marconi Wireless Telegraph Company, Ltd., and were not part of the ship’s crew. Marconi was a vendor to the White Star Line, providing radio equipment and operators as well as access to a large network of shore stations.

11. There is substantial evidence to indicate that access to the boat deck for Third Class passengers was in fact impeded by crew and locked gates, notwithstanding assertions to the contrary. The latest evidence appears in the *The Titanic Commutator*, the Official Journal of the Titanic Historical Society, Inc. Volume 37 Number 197, 2012, an excellent publication in which Third Class passenger Katie Gilnaugh Manning describes in correspondence her impeded passage from Third Class to Second Class decks due to locked gates and then again locked gates from Second Class to First Class where she obtained help in climbing on the shoulders of a Second Class passenger to reach the deck railing above in the First Class decks and thence to the lifeboats. This was related in correspondence to Mr. Edward S. Kamuda of The Titanic Historical Society as the result of research he conducted with *Titanic* survivors.
12. Manslaughter is the unlawful killing of another human being without malice. Voluntary – upon a sudden quarrel or heat of passion. Involuntary – in the commission of an unlawful act not amounting to a felony, or in the commission in an unlawful manner, or without due caution and circumspection, of a lawful act which might prejudice death. (b) Within the special maritime and territorial jurisdiction of the United States: Whoever is guilty of voluntary manslaughter shall be imprisoned not more than ten years; whoever is guilty of involuntary manslaughter, shall be fined not more than \$1,000 or imprisoned not more than three years, or both. This is from a 25 June 1948 statute that was the oldest I was able to locate. It is

believed, however, that the definition of the crimes as written here would still hold true to their earlier definitions.

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