

# “Iceberg! Right Ahead!”

By the time these words rang out on the RMS *Titanic*, it was too late. The warning came at 11:40 p.m. on the clear, cold night of April 14, 1912, in the icy seas of

the North Atlantic. Within 40 seconds, the ship’s starboard (right) side was raked below the waterline by the submerged spur of an iceberg. Less than three hours later, the *Titanic* sank beneath the water. At least 1,523 of its roughly 2,228



## CHECK IT OUT!

Where does the name RMS *Titanic* come from?



**Capacity** (measured by how much water it moves): more than 45,000 tons

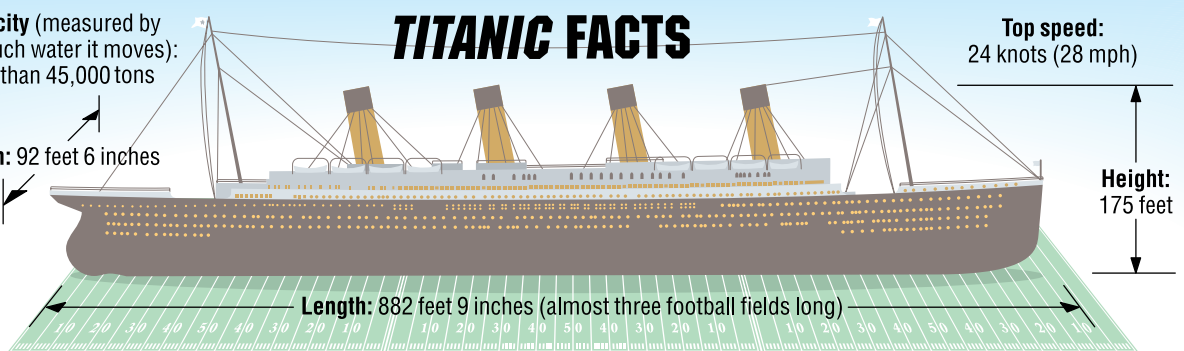
**Width:** 92 feet 6 inches

## TITANIC FACTS

**Top speed:** 24 knots (28 mph)

**Height:** 175 feet

**Length:** 882 feet 9 inches (almost three football fields long)



passengers and crew were dead or dying.

Had the *Titanic* missed the iceberg that Sunday, it may have simply been remembered as one of the largest, most luxurious ocean liners of its time. Yet so much went wrong that the *Titanic* has become a

symbol for disaster. The great ship's story is a drama with a little of everything: heroism and fear, humility and arrogance, wealth and poverty, life and death.

Come aboard the grand ship for a voyage of a lifetime—from the safety of home.



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◀ **ON THE NIGHT** it sank, the *Titanic* was making its maiden (first) voyage across the Atlantic Ocean.

## FATAL FLAWS

• The rivets (metal bolts used to join steel plates) on the *TITANIC* contained metallic impurities. As a result, the rivet heads tended to pop off when the ship scraped the iceberg. Once a rivet head popped, the seams between plates separated, and water entered the ship.

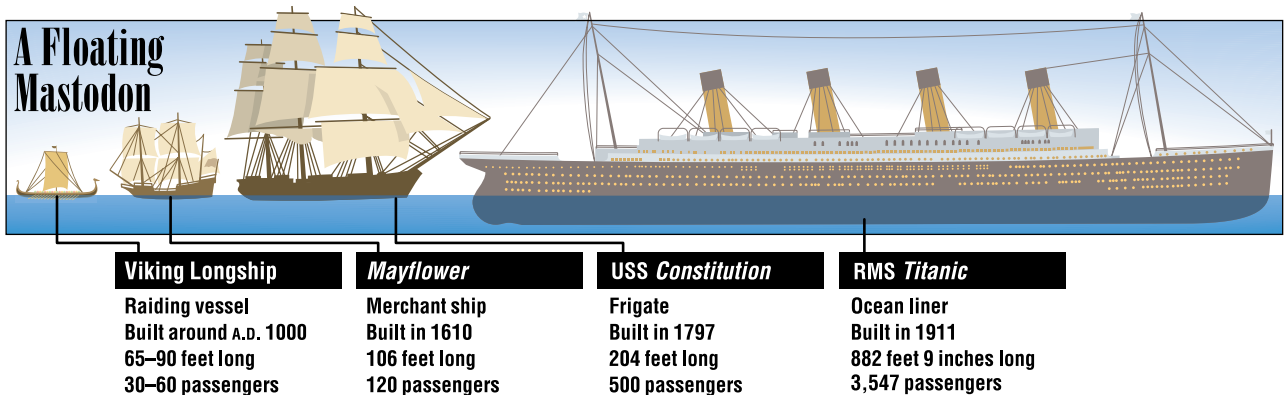
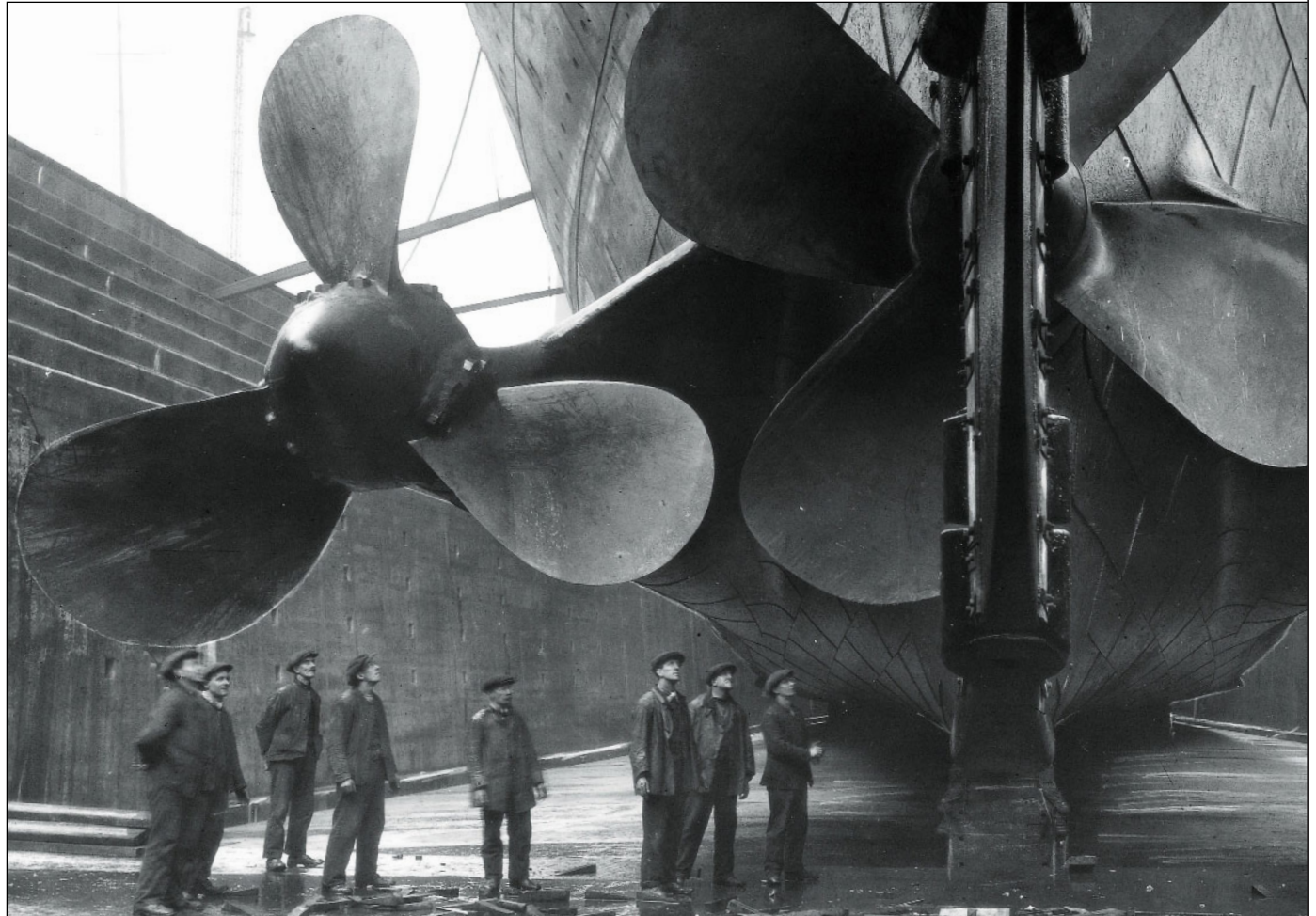


# Building a Colossus

Boats have been around from the time of our earliest ancestors. Boats enabled people to cross wide rivers and fish in deep waters. As people began to explore distant lands, they found better ways to

build larger and stronger boats.

Around A.D. 1000, Viking explorers from Norway, Sweden, and Denmark sailed to North America in wooden boats no bigger than today's mobile homes. But traveling the Atlantic then—and for centuries afterward—was dangerous. Icebergs, storms, poor navigational equip-



## TITANIC TIME LINE



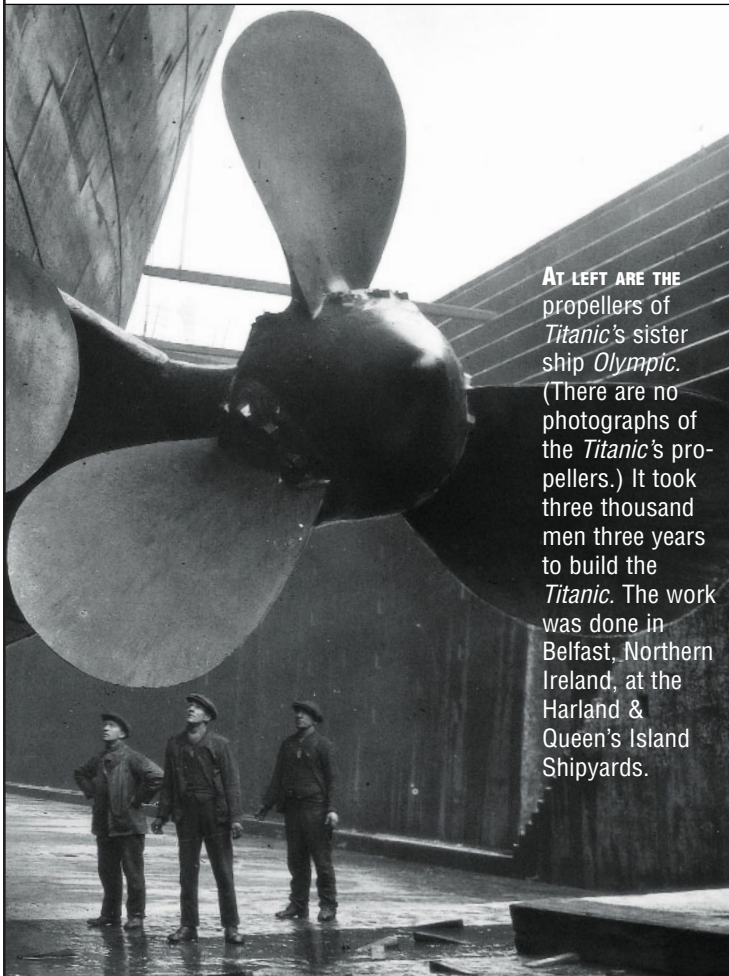
**1908** The White Star Line approves plans for three of the biggest ocean liners in history. They will be called *Olympic*, *Titanic*, and *Gigantic*. Construction begins on *Olympic*.



**1909** Construction begins on the *Titanic* in Belfast, Northern Ireland.

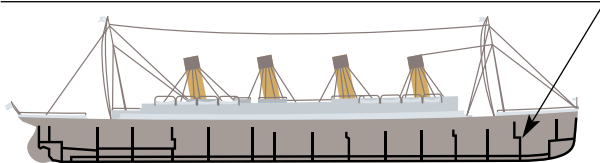
ment, and unreliable sail power cost thousands of people their lives, as did disease and unsanitary conditions.

By the late 1800s, transatlantic crossings had become more routine. Ships were now powered by steam engines and built of iron and steel. (*Ship* is the term used for a large seagoing vessel.)



AT LEFT ARE THE propellers of *Titanic's* sister ship *Olympic*. (There are no photographs of the *Titanic's* propellers.) It took three thousand men three years to build the *Titanic*. The work was done in Belfast, Northern Ireland, at the Harland & Queen's Island Shipyards.

**BULKHEADS** are the watertight walls between compartments.



▲ **THE *TITANIC*** could float if any two of her 16 "watertight" compartments flooded, or even if the first four flooded.

However, if the first five sections flooded, the bow (front) would sink so low that the water in the fifth compartment

would overflow into the sixth, and when that section filled, water would overflow into the seventh, and so on.

Shipping companies began building giant ocean liners. In the early 1900s, the White Star Line was in a heated race with competitors to build even bigger, more impressive ships. In 1912, after three years under construction, the largest moving object in the world—the *Titanic*—was unveiled.



▲ **J. BRUCE ISMAY** was managing director of the White Star Line and a driving force in the creation of the *Titanic*. Ismay was on board the *Titanic* during its maiden voyage and escaped the sinking ship in one of the *Titanic's* collapsible lifeboats, perhaps thinking that his testimony would be valuable later. However, his reputation suffered after the tragedy. He was accused of saving himself while the captain and others died.



▲ **THOMAS ANDREWS** was the *Titanic's* designer. He was famous for knowing every detail of

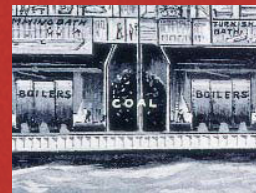
► **THE *TITANIC'S*** captain, Edward J. Smith, was often called the "millionaires' captain" because wealthy families asked to book passage on his ships. The White Star Line made him captain of the *Olympic* and later of the *Titanic*. In two years, he was to command the *Gigantic* on its maiden run. He did not survive.

the ship. He listened carefully to crew members' complaints and made changes when possible. Andrews sailed on the *Titanic* to identify the problems that always come up in a brand-new ship. Like the captain, Andrews perished.



## FATAL FLAWS

The British technical journal *The Shipbuilder* was so impressed with *TITANIC's* bulkheads (left) and other safety features that it pronounced the ship "practically unsinkable." However, the bulkheads rose only 10 feet above the waterline. Had they been built higher, the ship might not have sunk.



"When anyone asks how I can best describe my experience in nearly 40 years at sea, I merely say: uneventful. I never saw a wreck and have never been wrecked nor was I in any predicament that threatened to end in disaster of any sort." **TITANIC CAPTAIN EDWARD J. SMITH IN 1907**



**1910** *Olympic* launched (set afloat).



**1911** *Titanic* launched. White Star Line continues with changes and improvements that make it the largest ship in the world (left). *Olympic* makes its maiden voyage.

# The Classes of 1912

People in 1912 were very aware of their class, or position, in society. Class was determined by family background, wealth, and education, among other things. On the *Titanic*, the price of a passenger's ticket said a lot about that person's position in society.



► **THE WHITE STAR** Line spared no expense to make its first-class rooms as opulent as possible. They came complete with thick carpets and overstuffed sofas and chairs. First-class passengers had at their disposal a gymnasium, swimming pool, squash court, Turkish bath, and library.



**FIRST-CLASS STAIRCASE**

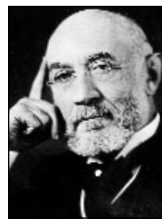
► **THE PRESS CALLED** the *Titanic* the "millionaires' special" because there were so many wealthy people traveling first-class. Their combined fortunes were around \$500 million (\$9 billion today). Among the rich and famous people were the following:



**JOHN JACOB ASTOR**, New York millionaire, and wife **MADELEINE** (He died; she survived.)



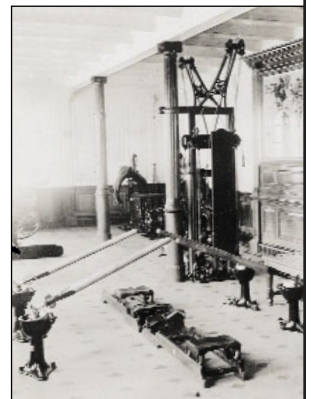
**ARCHIBALD BUTT** Military adviser to President William Howard Taft (He died.)



**ISIDOR AND IDA STRAUS** He was a founder of Macy's department store. (Both died.)



Scotland's **LUCY NOELLE MARTHA DYER-EDWARDS, THE COUNTESS OF ROTHES** (She survived.)



# 1912

6

**MARCH** Builders put the finishing touches on the *Titanic*.

**APRIL 2** The *Titanic* completes its sea trials, then sails from Belfast, Northern Ireland, to Southampton, England.

**APRIL 10** The *Titanic*'s maiden voyage begins in Southampton and ends in Cherbourg, France.

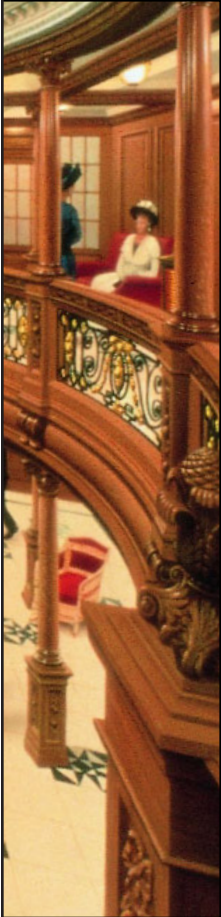
◀ **RUNNING A GIANT** machine like the *Titanic* required more than nine hundred workers. Among them were nine officers to supervise the crew, 390 stewards and stewardesses to serve

the passengers' needs, and 289 firemen, trimmers, and greasers to carry and shovel coal into the boilers and lubricate moving parts of the ship. Seated at far left is Captain Smith.

# FATAL FLAWS



The *TITANIC* could carry up to 3,547 people, yet it carried only 16 lifeboats and 4 collapsible boats with canvas sides—enough for just 1,178 people. At the time, British laws stated that the *TITANIC* had to carry only 16 lifeboats. By carrying the 4 collapsible boats, the *TITANIC* was actually carrying more than the law required.



"My pretty little cabin with its electric heater and pink curtains delighted me. Its beautiful lace quilt, and pink cushions, and photographs all round, it all looked so homey."

**SURVIVOR LADY LUCILLE DUFF GORDON, FIRST-CLASS PASSENGER**



▼ **THE *TITANIC*'S** second-class rooms were as good as first-class rooms on other ships. Most second-class passengers were professionals—teachers, doctors, and businessmen. Their

rooms were simple but attractive, with mahogany beds and linoleum floors. Second-class passengers also had their own library and several other beautifully decorated public rooms (below).



▼ **MOST THIRD-**class, or steerage, passengers were poor people leaving Europe for a new life in the U.S. Their accommodations on the lower decks were

spare. However, the *Titanic* featured private cabins for two, four, or eight people, not 40, as was the case with many other transatlantic liners.



## ► STEERAGE

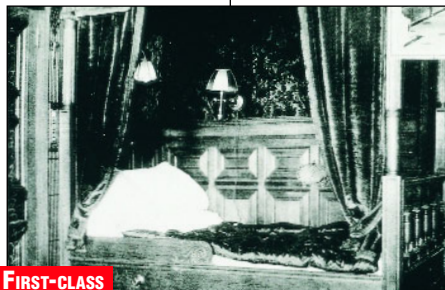
passengers came from many different countries. (In fact, the ship carried people of 24 different nationalities.) During the early 1900s, immigration to the U.S. exploded, and shipping companies, like the White Star Line,



cached in on it. On the average, a ticket on the *Titanic* cost steerage passengers two months' pay.



**GYMNASIUM**



**FIRST-CLASS BEDROOM**

"Everything was new. New! Our cabin was just like a big hotel room, it was so big. The dining room was beautiful—the linens, all the bright polished silver you can imagine."

**SURVIVOR RUTH BECKER, 12-YEAR-OLD SECOND-CLASS PASSENGER**



**APRIL 11** The *Titanic* leaves Cherbourg on April 10 and arrives at Queens-town (now called Cobh), Ireland, around noon on the 11th to pick up the last of its passengers. Around 1:30 p.m., the *Titanic* departs for New York.

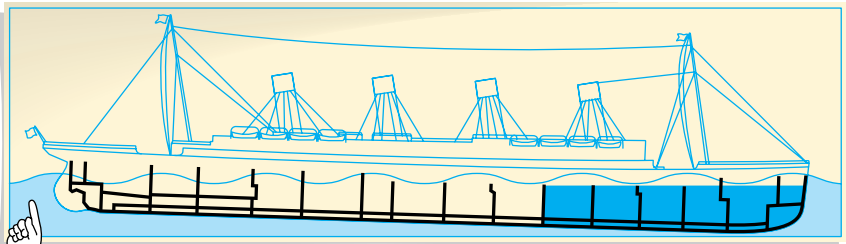
**APRIL 13** The *Titanic* gets the first of seven ice warnings from other ships.

# Disaster Strikes

The night that the *Titanic* sailed into history was cold and moonless. The normally storm-tossed Atlantic Ocean was a flat calm. That Sunday was cold, but it had been a pleasant one for the passengers. They had spent their time attending church services and relaxing. By 11 p.m., most of them were in bed.

First Officer William Murdoch was in charge on the bridge (the control center at the front of a ship) at 11:40 when the *Titanic*'s lookouts spotted the iceberg about 1,500 feet ahead. Murdoch reacted quickly, reversing the engines and ringing the warning bell, but less than 40 seconds later, the ship's starboard side scraped along the iceberg. From that moment on, the *Titanic* was doomed.

▼ **WHEN PEOPLE SAY,** "That's just the tip of the iceberg," they mean that it's part of something much bigger. That's because only about 10 percent of an iceberg is above water. The 90 percent below water may have sharp edges that could damage a ship's hull. Atlantic icebergs form when huge pieces of freshwater ice break off from glaciers and float into the sea.



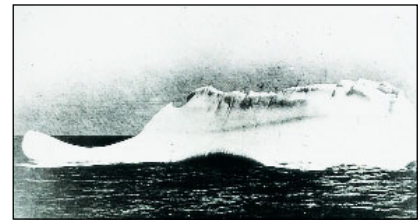
### TRY THIS!

**THE ICEBERG** punched a series of thin gashes along the first 250 feet of the *Titanic*, damaging six of the "watertight" compartments, which begin to flood. To get an idea of how this affected the rest of the ship, take an empty ice cube tray and slowly pour water into just one section. As it fills, notice how the water pours over the top into other sections.

► **THE *TITANIC* WAS** so big that most passengers and crew felt only a slight vibration when the ship hit the iceberg. Some also heard a noise, which one passenger described as the sound heavy cloth makes as it rips. Very few first- and second-class passengers were alarmed, even after they learned that the ship had hit an iceberg. After all, the *Titanic* was "unsinkable."

However, many steerage passengers, lower in the ship, realized the danger. The

iceberg shown below was in the North Atlantic the night the *Titanic* sank.



## FATAL FLAWS

During its journey, the *TITANIC* received seven messages from other ships warning that icebergs were in the area. The telegraph operators delivered all messages to Captain Smith or the officers, except one, from the *MESABA*. Smith steered the ship farther south to avoid the icebergs, but he did not slow down. Like many captains at the time, he trusted his lookouts to spot trouble in time.



"I jumped out of my bed, put on a pair of trousers, and ran up on the deck to find out what was the matter. I saw some small pieces of ice on the starboard side..."  
**SURVIVOR ERNEST ARCHER, SEAMAN**

"I felt the engines slow and stop. The dancing motion and the vibrations ceased suddenly after being a part of our very existence for four days, and that was the first hint that anything out of the ordinary had happened. I jumped out of bed, I went out of my cabin into the hall. There was a steward leaning against the staircase. I said, 'Why have we stopped?' 'I don't know sir,' he replied, 'but I don't suppose it's anything much.'" **SURVIVOR LAWRENCE BEESLEY, SECOND-CLASS PASSENGER**



**APRIL 14**

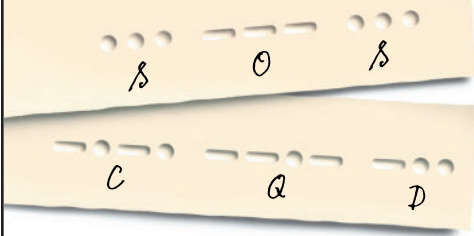
**11:40 p.m.** The *Titanic*, traveling at 21½ knots, collides with an iceberg.

**11:50 p.m.** Captain Smith and Thomas Andrews, the ship's designer, check for damage. Andrews informs the captain that the *Titanic* will sink because more than four bulkheads are damaged.

**APRIL 15**

**Midnight** Captain Smith tells the ship's wireless operators to send a distress call.

# SOS



As the *Titanic's* forward compartments flooded, wireless operators Jack Phillips and Harold Bride frantically signaled other ships. At first, they sent the traditional Morse code distress call, CQD (Attention all stations: Distress). Several ships responded, but the nearest one, the *Carpathia*, was 58 miles, or more than four hours, away.

The radio operators then sent the newer SOS distress call, a signal that was easy to transmit and receive. In 1906, SOS (dot, dot, dot; dash, dash, dash; dot, dot, dot) had been created to replace the longer and more complicated CQD (dash, dot, dash, dot; dash, dash, dot, dot, dash; dash, dot, dot).

Now, it was only a matter of time.

➤ **AT FIRST, THERE** was great confusion but no panic on board the sinking *Titanic*. On the port (left) side of the ship, the *Titanic's* officers allowed only women and children into the lifeboats, as well as one or two crewmen to help row and steer. On the starboard (right) side, men could get into the lifeboats if no women or children were around to fill the spots. As the number of lifeboats dwindled, people became increasingly frightened.



*"The escaping steam making a deafening noise, women and children were put into the boats first. When most of the boats had left the ship, she began to list forward. By this time, I had decided that the only thing to do was jump for my life. Having shaken hands with my two best friends, I climbed up on the boat deck railing and dropped about thirty feet into the sea."*

**SURVIVOR ALGERNON BARKWORTH, FIRST-CLASS PASSENGER**

▼ **SOME OF THE LIFE-**boat crews were so inept that the women took over. On Lifeboat No. 6, Denver millionaire



Molly Brown organized the women into rowing teams and helped keep spirits up. Known as a colorful, outspoken woman even before boarding the ship, the press later dubbed her "the unsinkable Molly Brown." A romanticized musical based on her life later became a hit play and movie.



▲ **AMID THE DESPER-**ate search for lifeboat space, the ship's eight-man orchestra played lively tunes to help keep people calm. Meanwhile,

below decks, engineers worked to keep the lights on. The boiler room crews had been dismissed to go topside. The generators were operating on leftover steam in the boilers, and as this subsided, the lights took on a reddish glow in the ship's final minutes. No musician or engineer survived.

## FATAL FLAWS



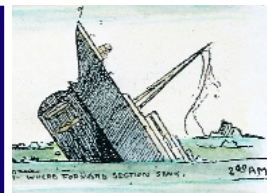
The *TITANIC* had 20 lifeboats (including 4 collapsible ones) and davits (movable cranes for lowering the lifeboats into the water). The davits could hold a boat full of people, but the *TITANIC's* officers hadn't been told of this. As a result of one officer's fears of overloading, and because of people's unwillingness to leave loved ones, lifeboats that could have saved 1,178 people saved only 705.

### CHECK IT OUT!

Did anyone predict the *Titanic's* sinking?

**2:05 a.m.** Collapsible D is the last lifeboat launched. More than 1,500 people remain on the ship.

**2:17 a.m.** The *Titanic's* last wireless message is sent. Captain Smith tells several people, "It's every man for himself."



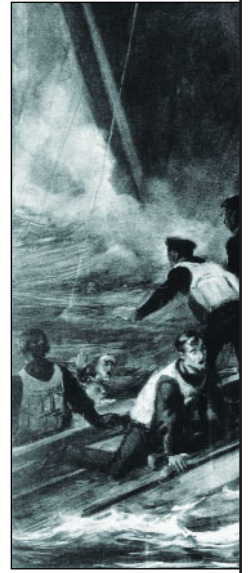
**2:18 a.m.** The *Titanic* breaks in two pieces. The bow (front) section sinks. The stern (rear) section seems to stay afloat.



# Endless Night

The only remains afloat of the *Titanic* after 2:20 a.m. were 20 lifeboats carrying just over seven hundred survivors. People in the boats were seasick and freezing. Nobody knew if or when a rescue ship would arrive.

For most of those swimming in the frigid water, there was little hope. One survivor said that their cries for help at first sounded like the crowd's roar at a baseball stadium when the batter hits a home run. But soon, the shouting faded away as the cold silenced the voices.



"Striking the water was like a thousand knives being driven into one's body." **SURVIVOR CHARLES LIGHTOLLER, THE TITANIC'S SECOND OFFICER**

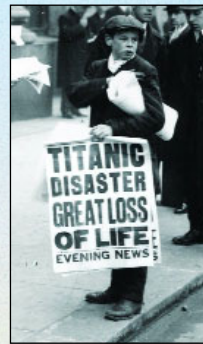
► **THE BIGGEST** threat to people in the water was hypothermia, a dangerous lowering of the body's temperature. The

salty seawater was around 28°F, four degrees below freezing, and no person could survive in it for more than

a few minutes. Hypothermia causes the activity of the organs to slow down, and eventually they stop working.

▼ **WHEN THE *CARPATHIA*** got the message that the *Titanic* was in grave danger, it raced to help. In doing so, it had to ignore caution and run an obstacle course of icebergs in the dark. It took the

*Carpathia* four hours to get everyone from the *Titanic*'s lifeboats on board. The ship's captain, Arthur Rostron (right), was awarded a specially commissioned Medal of Honor by the U.S. Congress.



◀ **SHIPS' RADIOS** were all on the same frequency, causing messages from the *Titanic* and other ships to become garbled or merged. This left people on shore desperate for news. Some newspapers mistakenly

reported that all the passengers had been saved. Others, lacking facts, made up stories. As the *Carpathia* entered New York harbor, crowds gathered, and people eagerly sought out loved ones.





**CHECK IT OUT!**

Can hypothermia ever save lives?



“... and finally the ghastly noise of the people thrashing about and screaming and drowning, that finally ceased. I remember saying to my mother once, ‘How dreadful that noise was,’ and I always remember her reply, and she said, ‘Yes, but think back about the silence that followed it . . .’”

**SURVIVOR EVA HART, A SEVEN-YEAR-OLD SECOND-CLASS PASSENGER**

**FATAL FLAWS**

Despite the terrible cries for help, just one lifeboat—No. 14 (below)—went back to pick up people in the water. Those in the other boats were afraid of being pulled down by the suction of the *Titanic* sinking (which, as it turned out, was not very strong). They were also afraid



of being overturned by desperate people trying to scramble on board. The lifeboat that went back found only four people alive in the water—and one of them soon died.



◀ **FROM NEW YORK,** some survivors went to Washington, D.C., to testify about what had happened. Others went to Plymouth, England, aboard

the *Lapland*. At Plymouth, they were taken to the train station (left) before going to testify at the British inquiry into the disaster.



**3:30 a.m.** Survivors in the lifeboats see signal rockets from the rescue ship, *Carpathia*.



**4:10 a.m.** Lifeboat No. 2 is the first picked up by the *Carpathia*.



**8:30 a.m.** Lifeboat No. 12 is the last one rescued. Three days later, the *Carpathia* arrives in New York with 705 *Titanic* survivors.

# Titanic's Legacy

In the early 1900s, science and technology seemed to be making the world better all the time. New drugs eliminated diseases, and new inventions like the automobile made life easier. However, the sinking of the “unsinkable” *Titanic* rattled everyone’s confidence in progress. The march of technology did not stop after April 15, 1912, but it did pause to learn a few lessons. The *Titanic* has remained a source of curiosity ever since.



CHINA SERVING PLATE



FIRST-CLASS DINNER PLATE



BANKNOTE



FIRST-CLASS DEMITASSE CUP

SILVERWARE



▲ **FLORIDA-BASED** RMS Titanic, Inc. owns salvage rights to the *Titanic*. It has retrieved more than six thousand objects from the wreck. The company vowed not to sell objects with historical importance. However,

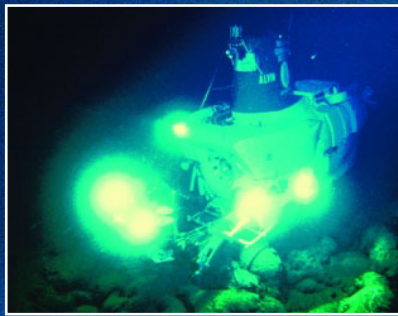
with the approval of the British and French governments, it has sold lumps of coal from the ship to raise money. Some people protest the salvaging,

saying that the *Titanic*'s wreck is a gravesite. Others say the recovered objects themselves serve as a memorial to the *Titanic*'s passengers and crew and provide valuable insights into life aboard the ship in 1912.

▼ **AT ONE TIME**, scientists studying the wreck believed that the iceberg did so much damage to the *Titanic* because the ship's steel had become brittle in cold water. However, newer research suggests that the steel was not like-

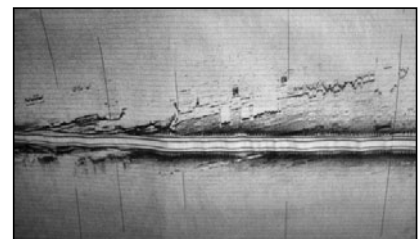
ly to crack in cold temperatures. More likely, the steel bent or gave

way due to the incredible force of the flooding water.



**In 1985, FRENCHMAN** Jean-Louis Michel and American Robert Ballard led the team of scientists who discovered the wreck of the *Titanic*, two and a half miles below the surface of the Atlantic.

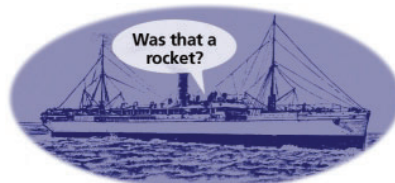
Underwater cameras were lowered to explore the wreck. In 1986, Ballard returned to the site, this time with a submersible, *Alvin*, which for the first time enabled humans to visit the wreck.



**TITANIC SCAPEGOATS**



◀ **ALMOST AS SOON** as the *Titanic*'s survivors reached New York, the press began looking for someone to blame. Survivor J. Bruce Ismay, managing director of the White Star Line, was their top tar-



get. The American press criticized him for boarding a lifeboat when so many others died.

▲ **WHILE THE *TITANIC*** was sinking, some on board saw the lights of a ship in the distance. The

*Californian* was accused of being the mystery ship that left the *Titanic* to its fate. Later investigations found that this probably was not true: a third ship may have moved between them. Even so,

the *Californian* may have seen the *Titanic*'s distress rockets. Also, the *Californian*'s radio operator had shut down its wireless for the night, as usual, so he never heard the *Titanic*'s calls for help.



**CHECK IT OUT!**  
What happened to the *Titanic*'s sister ships, *Olympic* and *Gigantic*?

▼ **THE *TITANIC* HAS** inspired books, poems, plays, films, and songs. The first movie came out just one month after the ship sank and starred survivor

Dorothy Gibson. Most people today know about the disaster through the 1997 hit movie *Titanic*, starring Leonardo DiCaprio and Kate Winslet.

► **TWO INVESTIGATIONS** into the sinking—one British, one American—led to big changes in how ships operated. Almost immediately, all ships had to carry enough lifeboats for all passengers, and lifeboat drills became mandato-

ry. Every large ship also had to keep its wireless working at all times. Shipping lanes were shifted farther south to avoid icebergs, and an iceberg patrol was set up to chart and follow icebergs and issue warnings.

