

### Input 3 Sinking of the *Titanic*

As the largest liner of her time at 46 329 tons, the *Titanic* was hyped as unsinkable by her owners, the White Star Line following her launch on 3 May 1911. She was lost on the last leg of her maiden voyage sailing to New York, when she struck an iceberg, and was fatally holed on the starboard side of her bow.

Although the construction included watertight bulkheads, they extended only about halfway up the ship. She could only withstand flooding of four compartments, but had in fact been holed in six, so her fate was inevitable. She took nearly 3 hours to sink, during which time most of the available lifeboats were launched, some less than half full owing to the confusion aboard (**Figure C4**).

Although most of those in the boats were later rescued by the *Carpathia*, over 1500 passengers and crew were lost in the freezing waters. The *Carpathia* had been alerted by frantic wireless distress messages from the stricken ship using the then relatively new Marconi radio sets. The same operators had received many warnings about ice ahead of the ship, but some of the warnings were apparently not passed on to the captain, or were ignored.

Another ship, the *Californian*, had been close by and seen distress rockets from the ship, but ignored them. Her intervention could have saved many who were lost to the freezing waters.

A US Senate enquiry was initiated in New York immediately news of the loss became known, chaired by Senator Smith. It established that the ship had been travelling at high speed into iceberg-infested waters, despite several warnings from other ships in the area.

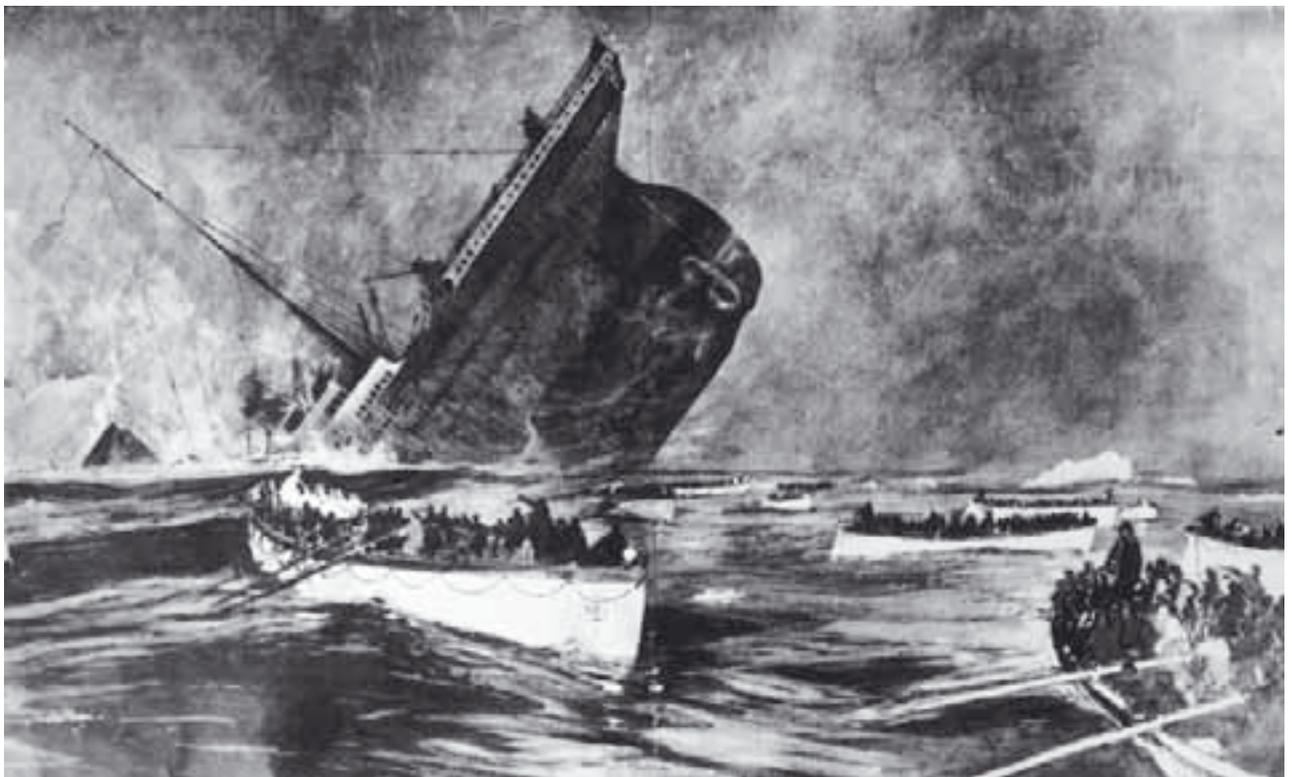
There were not enough lifeboats to accommodate the ship's crew and passengers, and the bulkheads were clearly insufficient to prevent the loss.

The enquiry recommended that, in addition to regulations about the lifeboats and construction of vessels, further regulations were needed for 24-hour manning of wireless stations on ships, priority given to distress calls and stand-by power available for emergencies.

The British Board of Trade enquiry was held shortly after in London and chaired by Lord Mersey, and came to the same conclusions as the US Senate committee. Captain Smith of the *Titanic* was found to have been negligent in steering his ship at high speed into a known icefield. A High Court action brought by relatives of the victims succeeded in providing monetary compensation for their loss.

The wreck was found in 1986 by Commander Ballard, and more information emerged about the failure. The ship was in two widely separated halves, showing that it split in two, probably just before the final dive to the seabed.

Although most of the original ice damage was covered with seabed deposits, later excavation showed breakage had occurred along rivet lines, where separate plates met on the hull. Some doubt has been cast on the quality of steel used for the rivets, because samples have been brought up for metallurgical analysis. The sub-zero temperature of the water that fateful night also lowered the strength of the steel, a problem encountered again during the Second World War by the mass-produced Liberty ships.



**Figure C4** Impression of the *Titanic* sinking