

## Exercise: Organization

This exercise requires that you create the title, headings, and subheadings for a report on the following research on the loss of life in the sinking of the Titanic. Take the liberty of narrowing the scope of the report to something that is manageable. Pages 37-40 in *The Craft of Scientific Writing* discuss how to create titles, pages 37-40 discuss how to assign headings and subheadings, and pages 45-49 discuss what kinds of information go into appendices. Assume that the report will be expanded so that breaking it into sections is justified.

The *R.M.S. Titanic* sideswiped an iceberg at 11:40 p.m. on April 14, 1912. Estimated to be able to stay afloat for 2 days under the worst scenario, the ship sank in less than 3 hours [Gannon, 1995].

The iceberg created a 300-foot gash in the *Titanic's* hull above and below the waterline.

Tests on *Titanic's* steel showed that the steel had high sulfur content, which increases the brittleness of steel by disrupting the grain structure [Hill, 1996]. This increase in brittleness contributed to the severity of the hull's damage.

Captain E. J. Smith had not slowed the ship's speed that night, although the ship's wireless operators had received several ice warnings. The ship was moving at more than 22 knots.

The sea was a "flat calm," a rarity for these waters. Under such conditions, there was no "tell-tale phosphorescent ripple" against the iceberg [Gardiner and Van der Vat, 1995]. Lookouts in the crow's-nest on the *Titanic* did not spot the massive iceberg until only 5 minutes before the collision. That night, the lookouts had misplaced their binoculars.

Even before the iceberg was spotted, Quartermaster Hitchens at the helm had begun to turn to port. When the alarm sounded, he turned full to port. His turning caused the *Titanic* to sideswipe the iceberg, rather than hit it head-on. Experts believe that the ship would not have sunk so quickly had it hit the iceberg head-on [Gardiner and Van der Vat, 1995].

The lower section of the *Titanic* was divided into sixteen major watertight compartments. Actually, the compartments were watertight only in the horizontal direction--their tops were open. After the collision, six watertight compartments began filling with water. Soon, water spilled over the tops.

Scientists have concluded that the watertight compartments contributed to the disaster by keeping the flood waters in the bow of the ship [Gannon, 1995]. If there had been no compartments, the incoming water would have spread out, and the *Titanic* would have likely remained afloat for another six hours.

Flares were fired and *Titanic's* wireless operators sent out an SOS, but the wireless operator of the nearest ship, the *California*, had gone to bed at 11:30. Controversy exists on whether the *California* had seen the *Titanic's* signal flares. If so, why had its captain, Stanley Lord, not responded?

*Titanic's* steel showed high levels of oxygen, which leads to an increased ductile-to-brittle transition temperature. For *Titanic's* steel, that temperature was determined to be 25 to 35 degrees F [Hill, 1996]. The water temperature that night was below freezing.

The wrought iron rivets that fastened the hull plates to the *Titanic's* main structure also failed because of brittle fracture during the collision with the iceberg. Low water temperatures contributed to this failure [Garzke and others, 1994].

As it filled with water, the bow submerged, raising the stern out of water. When the stern reached an angle of about 45 degrees, the stresses in the ship's midsection (15 tons per square inch) caused the steel to fail and the bow to rip loose and sink [Gannon, 1995]. Contributing to this failure in the midsection was the design of *Titanic's* huge spiral staircase. The staircase not only weakened the midsection's structure, but served as a means for water to pass up through the ship.

The *Titanic* carried lifeboats for 1,178 people, a number that exceeded regulations of that time. However, the crew, which had never been drilled on the use of the lifeboats, was inexperienced at filling and lowering them. The first lifeboats into the water were not even half full. In all, only 705 were saved by the lifeboats.

Those on *Titanic* who went into the icy waters when the ship foundered died within minutes-hours before the *Carpathia*, the first rescue ship on the scene, was able to arrive.