

Blizzard of Glass

By Sally M. Walker

When the *Imo* and *Mont-Blanc* collided, the impact of the collision had not detonated the explosives in *Mont-Blanc's* holds. But the repeated shocks that occurred as the metal drums exploded on the deck crushed picric acid crystals and seriously jarred the TNT packed in the ship's holds. High explosives- such as picric acid and TNT- detonate under this kind of treatment, when the chemical bonds between the molecules of the explosive material are ripped apart. As the bonds break, they release energy, lots and lots of it, in a ferociously hot blast of gases called a shock wave. A shock wave races outward from the center of an explosion in the form of an enormous wave of pressure that is created when air molecules are pushed away from the blast site at supersonic speeds. When *Mont-Blanc's* cargo exploded, it was the largest manmade explosion that had ever occurred. It remained so until August 6, 1945, when the atom bomb was dropped on Hiroshima, Japan, during World War II.

Alan Ruffman and David Simpson, two scientists who later studied the explosive power of *Mont-Blanc's* cargo, estimated that the temperature at the center of the explosion was about 9,032 degrees Fahrenheit- more than three times hotter than the temperature needed to melt iron. The initial speed of the shock wave as it traveled out from the explosive cargo was about 5,000 feet per second- nearly five times faster than sound travels through air. No one could outrun the supersonic blast.

In less than the amount of time it takes to blink your eye, the shock wave had pushed across the piers and the railroad tracks. *Mont-Blanc's* hull shattered into pieces that rained down across Halifax, the harbor, and Dartmouth. The blast splintered wooden homes, turning them into piles that looked like jumbled matchsticks. Roofs caved in as the stories below them collapsed. All of the Richmond's churches and an orphanage were destroyed.

The shock wave snapped telegraph poles and trees in two as easily as if they'd been twigs. Electric wires, torn free and broken, sizzled and sparked on the ground. Train cars toppled off the rails, wagons overturned, and the horses that had pulled them lay dead in their harnesses. Throughout both cities, the windows in homes and stores and offices and schools shattered in a deadly blizzard of glass.