Source of Threat and Source of Assistance: The Maritime Aspects of the 1917 Halifax Explosion

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The 1917 Halifax explosion is usually thought of as an event that devastated the cities of Halifax and Dartmouth. It is true that most of the 1963 dead and 9000 injured were civilians - the largest single group of dead were Roman Catholics and/or housewives - and the greatest damage was to private homes in the Halifax's North End. But the explosion resulted from a fire caused by a collision between a Norwegian and a French ship. It damaged or destroyed four British merchant ships - *Calonne, Curaca, Middleham Castle* and *Picton* - and a Norwegian vessel (*Hovland).* It caused substantial damage to the British cruiser, *High Flyer,* a US Coast Guard vessel, *Morill;* three tugs, *Hilford, Stella Maris* and *Wasper B;* and another smaller vessel, *Raguse.* It also destroyed a schooner, *San Bernardo.* It left Halifax harbour so badly damaged that convoys were delayed, some incoming traffic was re-routed and the Admiralty changed the rules for North Atlantic shipping.

After the explosion, sailors from British, Canadian and American ships in harbour helped in search and rescue, and teamed up with civilians to use boats to transport the injured along the waterfront.[1] A US Navy ship, *Old Colony,* became a floating hospital. In addition, two other U S N vessels, *Tacoma* and *Von Steuben,* arrived in Halifax five and one-half hours after the explosion. For eight days, they assisted the Canadian Army with security.

After reviewing the situation in Halifax harbour prior to the explosion, this article looks at the collision that led to the fire and eventually to the explosion. It then discusses the response, before turning to an examination of the way that blame was assessed. Finally, there is a discussion of the implications of the Halifax harbour incident for maritime response to seaport incidents, and concludes that while ports are prone to disasters, effective response may come from the sea.[2]

There is already a great deal of literature about the Halifax explosion. There are four novels set in and around the explosion, two of them semi-autobiographical.[3] As well, there are scores of non-fiction accounts. The first doctoral dissertation to examine the phenomenon of disasters dealt with the explosion.[4] There is an unpublished manuscript by a Dartmouth journalist, Dwight Johnstone, and an instant book by another journalist, Stanley Smith.[5] There is an official history by Graham Metson and scores of articles, including no fewer than four on the medical response.[6] There is also an excellent book by Janet Kitz focussing on the relief efforts.[7] Yet there is little on the maritime aspects of the explosion. The exceptions are

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Michael T. Bird's book, *The Town That Died,* and Robert Power's chapter in *Ground Zero,* a collection of articles based on papers presented at a conference at St. Mary's University to mark the seventy-fifth anniversary of the explosion.[8] Bird tracked down naval records in the Public Record Office in London and the National Archives in Washington and used unpublished memoirs from participants. Power, on the other hand, used his experience as an ocean-going policeman, watch-keeping officer and pilot, his knowledge of Halifax harbour, and a careful reading of the transcript of the wreck inquiry to raise questions about the cause of the collision. But neither had access to much of the material in this article. Most of the evidence used here comes from previously untapped records, many of which were long kept classified, in archives in Oslo and Sandefjord, Norway; Paris; London; St. John's, Halifax and Ottawa; and Boston, Newport and Washington in the United States. It often was necessary to piece together information from several sources to construct the account presented here.

The Setting: Halifax Harbour

As the closest Canadian port to Europe, Halifax in 1917 was the main departure point for troops and war supplies and the main reception port for the injured coming home. It was also the assembly point for eastbound convoys. Ships coming down the St. Lawrence, from nearby Saint John, or from US ports like Baltimore or New York, came to Halifax and anchored in Bedford Basin until a convoy sailed. In addition, the Admiralty, with support from the United States, forced neutral ships crossing the Atlantic in either direction to come into Halifax for inspection. On 5 December there were thirty or forty ships in the harbour, mostly British and mostly anchored in Bedford Basin, the innermost part of the harbour. There were a few non-British vessels, such as *Gouverneur de Lantsherre* (Belgium), *Chicago* (France) and *Signe* (Sweden). A Danish ship, *Kentucky,* cleared inspection and sailed that day.[9]

In the main harbour there were seventeen ships tied up or at anchor. These included *Calonne* and *Curaca,* which were loading horses; *Hovland, Middleham Castle* and *Picton* (in dry-dock, just out of dry-dock, and waiting for dry-dock, respectively); two US Navy ships, *Old Colony* and *Old Glory;* and a US Coast Guard Cutter, *Morrill.* In addition, there were three convoy escorts, *High Flyer, Changuinola* and *Knight Templar,* a Canadian warship, *Niobe,* permanently tied-up as a depot ship; and two Canadian submarines, *CCI* and *CC2.* There was also *Raguse,* moored at the wharf by the Acadian Sugar Refinery. Two other ships - *Kanawha* and *North Wave* - appear in accounts of what followed; they must have been in the inner harbour as well.

There was also harbour traffic, including patrol vessels; the convoy liaison tug *Hilford;* and other tugs, like *Nerid, Douglas H. Thomas, Musquash, Wasper B* and *Lee.* There was a collier, *J. A. McKee,* and another tug, *Stella Maris,* which hauled barges of ashes from ships tied-up at the docks. There were two ferries-*Dartmouth II* and *Halifax II* (a third was being repaired) - bustling back and forth. There was a small motor ferry and some drifters carrying supplies to the ships anchored in Bedford Basin. In addition, there was a guard ship at the entrance to the Basin and a boat for the examining officer outside the harbour gates. There were also several smaller craft used by the Canadian Army Service Corps to move troops and supplies back and forth from shore to the islands in the harbour entrance.[10]

Ships Involved

IMO, the Norwegian ship involved in the collision, arrived on Monday, 3 December. By noon on Wednesday it had cleared inspection and customs and had its pilot on board. But when its coal delivery was delayed it was forced to wait overnight, since the harbour gates had closed. Like many Norwegians, the captain, Haakon From, was a whaler who was used to setting sail and letting the wind and waves carry him.[11] At forty-seven, he had spent more than a quarter of a century at sea, twelve years as captain. He had been to the Antarctic at least twice. The second engineer, Anton Andersen, was sixty-one years-old, with half a century at sea. Even younger crew members, like Louis Skarre and Sigurd Sorensen, both twenty-nine, had a decade of experience.[12] *IMO,* a former passenger liner, was purchased by a Norwegian firm as a whaling supply ship but chartered to an American charitable foundation to haul relief supplies to Belgium. It was in ballast bound from Rotterdam to New York.

Mont Blanc, the ship with which *IMO* collided, was a former passenger liner transformed into a tramp steamer. It had been purchased by the French Line because the war had created a desperate shortage of shipping. The ship had sailed from Bordeaux to New York to pick up cargo. But because its top speed of seven and one-half knots was too slow for the "fast" American convoys, *Mont Blanc* was sent to Halifax in the hope that it could join a slow Canadian convoy. Its sole protection was two guns - one fore, one aft - two piles of shells, and six gunners to work the guns (the gunners had to bunk in the already overcrowded crew quarters). The captain, Aime Le Medec, was born in the Loire Valley and grew up in St. Nazaire, as did his second in command, Jean Glotin, and his chief engineer, Antoine Le Gat. Although this was his first voyage in *Mont Blanc,* Le Medec had been with the French Line since 1906. By then, he had eleven years at sea. Le Medec's second lieutenants, Pierre Hus and Joseph Eugene Levesque, were from St. Malo, home port of the French explorer, Jacques Cartier. The rest of the crew was from French coastal towns, such as St. Nazaire, St. Malo, Nice, Rochefort, Noirmoutier and Lorient, or from Bordeaux. The men in the engine room were French but the oilers were Algerians.[13]

Mont Blanc's cargo left it overloaded and ungainly. In addition to shells piled by the two guns, it had barrels of aviation fuel lashed down on its deck. Its forward hold carried wet and dry picric acid, the main detonator in World War I. Its centre hold contained gun cotton. Aft, it was loaded with TNT.[14] With a flammable gas on deck and a detonator and explosives below, *Mont Blanc* was a floating bomb. A Canadian officer testified at the subsequent inquiry that he could not believe that the crew remained on board with such a dangerous cargo. In fact, in 1917 many ships left New York with similar cargoes. "

Collision and Its Effects

There is still debate about why *IMO* and *Mont Blanc* collided. After the submarine nets were lifted Thursday morning, *Mont Blanc* entered harbour keeping to starboard along the Dartmouth shore, as the rules dictated. It moved slowly and blew its whistle occasionally, especially as it passed the two ferries. *IMO* started to leave Bedford Basin at roughly the same time. After circling around ships at anchor, *IMO* came out of the Basin along the Halifax shore. It had intended to move to starboard (closer to Halifax) but encountered an incoming American ship, then *Stella Maris* towing barges, and was forced to keep to port.

Mont Blanc, seeing danger, started signalling. *IMO* did the same, although it appears it was not whistling at *Mont Blanc* but at the American ship and the tug. But *Mont Blanc's* captain, hearing the whistles and seeing *IMO* in his channel, decided on a desperation move: he ordered his ship to cut sharply to port across *IMOs* bow. Unfortunately, moments before *IMO* had gone into full reverse, which swung its bow to starboard. *IMO's* bow sliced into *Mont Blanc's* starboard side, ripping a hole near its bow, spilling gasoline and setting off sparks. The flaming gasoline poured into the hold containing the picric acid. Within seconds, *Mont Blanc* was on fire and the blaze was spreading rapidly.[16]

There were two major responses to the collision and the fire. *Mont Blanc's* crew - well aware that their vessel was about to blow up (unlike nearly everyone else, they knew its cargo) - abandoned ship and rowed towards Dartmouth. The crew shouted at two passing boats but few understood them, since French speakers were fairly rare in Halifax at the time. The others who reacted were not worried about *Mont Blanc,* since they were unaware of its cargo, but were more concerned about the fact that it was drifting towards the dock where *Picton* was being unloaded - it was known that Picton carried ammunition.[17] *High Flyer* and *Niobe* sent boats to try and attach lines to tow *Mont Blanc* away from *Picton,* and were soon joined by *Stella Maris.*[18] On shore, longshoremen covered *Picton's* hatches because they, too, were worried about its cargo: like most others, they did not know it was *Mont Blanc* that was the danger. Shortly after nine o'clock, gasoline and shells on *Mont Blanc's* deck began to explode. One explosion sent a sheet of flame towards *Wasper B,* hitting its gas tank. The tug soon blew up. At 9. 05. 34 a. m., on 6 December 1917, *Mont Blanc* exploded with one-sixth the power of the first atomic bomb.[19] The impact on Halifax was enormous - hundreds of fires broke out and thousands of people were cut by flying glass - but so too was the impact on the harbour.

Everyone in *Niobe's* pinnace was killed. One sailor on *High Flyer's* whaler survived; though injured, he swam to the Dartmouth shore. *Stella Maris* escaped the full impact of the explosion but was driven ashore by the wave the blast created; five of its crew survived. The tugs *Douglas H. Thomas, Nerid* and *Roebling* were severely damaged, as was the collier *J. A. McKee.* The tug *Musquash* was on fire and drifting towards *Picton.* A steamer crashed into the US Coast Guard cutter *Morrill,* depressing its upper and forecastle deck port side plates and carrying away the forward rigging. There were open seams in *Morrill's* deck and the hurricane forward of the pilot house moved slightly to starboard.[20]

On *Picton,* fifty-three of the sixty-eight longshoremen were dead, and two more died within minutes. Five persons were dead on *Hovland.* A dozen had died on *Curaca* and thirty-six on *Calonne. High Flyer,* though some distance away, had fifty injured seaman. On *IMO,* most of those above deck, including Captain From, the pilot, the helmsman and the deck hands, were killed, while most people below deck survived. The force of the explosion drove *IMO* ashore in Dartmouth, where it remained for a month. *Mont Blanc's* crew was largely safe. Just four were injured by flying debris and a single gunner died from his injuries.[21]

On shore, the Acadian Sugar Refinery was in ruins. *Raguse,* which had been tied up at the refinery's dock, was upside down; its captain, John Blakeney, and the crew were dead. At Pier No. 1 the submarines, *CCI* and *CC2,* were bounced around in the water by the force of the blast.[22] Both broke adrift when the wave caused by the blast swamped them. At Pier No. 2, the main Canadian Army reception area, all the partitions were torn down. Since the last ship with injured had arrived two days earlier there were just a few soldiers on duty. Nonetheless, Sergeant Ernest Carr from Prince Edward Island was fatally injured. Pier No.

6, which had been set ablaze by *Mont Blanc,* was gone. There was no trace of the schooner *San Bernardo,* which had been moored there. Bits of Pier No. 7 remained but it too was mostly wrecked. Pier No. 8 was demolished; its ruins could be seen beneath the water. Pier No. 9, the railway terminus, was partially intact but the sheds, tracks and freight were jumbled together. *Hilford* was in that wreckage: the wave caused by the explosion had lifted it six metres and dropped it on shore. The captain, Arthur Hickey, was washed overboard and drowned, but two crew survived.[23]

On the Dartmouth shore, *Curaca* was aground, its aft section partly under water; it had drifted across the harbour. *Calonne* was still moored along the Halifax docks. While its hull was intact, its upper works and deck houses were in ruins. The explosion also shattered the main glass window at the Royal Naval College, where the senior cadets gathered to watch the fire. A number of cadets were badly cut; others suffered eye injuries and had their careers cut short. Among the cadets present at that time were four who would reach flag rank: Kenneth Adams, Roger Bidwell, Edmond Rollo Maingay and George R. Miles. The college was moved for one term to the campus of Royal Military College in Kingston; the following term it was relocated to Esquimalt on the west coast.[24]

Rescue Work

On ***Niobe,*** those who survived hastily took cover as debris showered down. When things calmed down they did what they could. One officer had been in charge of a diving party; When the debris stopped falling, he tried to rescue the diver:

> He and the pumping party were blown yards from the pump, on which the shed had collapsed. The first man to recover rushed to the pump, got it going with one hand, while holding up the roof with the other. The officer dashed down the divers' ladder... struggled desperately to disentangle the divers' breast-ropes and air pipes.[25]

Another crew member jumped into the *Niobe's* cutter and pulled some sailors who had been washed off the gangplank out of the water. He then joined other sailors who were sent ashore to clear aircraft bombs out of a magazine and pile them so they could, if necessary, be dumped in the harbour. Some of that "ammunition" comprised highly explosive aircraft bombs, some of which were disposed of in the harbour. When the Admiralty decided to clear some harbour debris with explosives, it had to use divers to recover the bombs.

Sailors from *Changuinola* used boats to reach the North End, where they found too much to do and had too few men to do it. A lieutenant managed to pull some persons alive from the burning wreckage, but others were incinerated when the houses collapsed before they could reach them. As the fire spread it engulfed the railway tracks, making it difficult to move back and forth. The lieutenant rounded up four cutters, started loading the injured aboard, and took them by water to the docks closest to the hospitals. By 10 a. m., tugs were moving back and forth along the waterfront.

When the explosion occurred, the chief engineer from *High Flyer,* Commander John Hopkyns, was in Dartmouth running a training programme for fifty ratings from the engine room. He spent six hours directing his sailors in a door-to-door search of damaged homes. Some picked up the injured and carried them to hospital, while others collected extra beds

and bedding to make sure the infirmary was properly stocked. Crew members with first-aid training took over a school and started bandaging injured children. At 3 p.m., the engine room crew were called back to *High Flyer* when the captain decided to make steam on the main engines. They brought with them the crew from *Mont Blanc* because of a suspicion that they were responsible for the explosion.[26]

Harbour Inspection

While this was going on, Rear Admiral Bertram Chambers boarded the tug *Maggie.* After visiting *Changuinola* and *High Flyer,* he had *Maggie's* captain take him to Bedford Basin, where he found the ships awaiting convoy untouched. On the way back, he noticed someone waving from shore. As *Maggie* steamed closer, the Admiral realized that *Hilford* was on the docks. He found two of *Hilford's* crew but discovered that his convoy officer, Lt.-Cdr. Murray, was dead. Chambers had brought Murray with him from Sydney and was visibly upset by his death. He wired Whitehall that "there could be no question either as to the identity or the impossibility of life existing." Later, Chambers went to *Knight Templar,* where he asked Captain Walter Hose to take soundings in the Narrows to make certain there were no obstructions to shipping. Until this was assured, no ships would be allowed in or out of the Narrows. At 6 p.m., Hose reported that the channel was clear.[27]

Earlier, sailors from *Changuinola* had taken the few surviving longshoreman from *Picton.* Now *Picton* was on fire - and that conflagration looked as if it might get out of control. The local manager for the Fumess-Withy Line, James W. Harrison, boarded *Picton* and had it towed to safety.[28] Also on fire was the tug *Musquash,* which also carried ammunition. The tug was brought alongside *High Flyer,* and Leading Seaman Thomas Davis and Able Seaman Robert Stone climbed on board. They secured a line to *High Flyer,* which towed the tug to midstream. Once this was done, they got the ammunition, which was already badly scorched, and threw it into the harbour. By then the pumping lighter *Lee* had arrived. The two sailors broke into the gallery and the cabin so that *Lee* could use its hoses to put out the fire. Their captain recommended them for the Albert Medal. "At any moment," he said, "the ammunition might have exploded." The medal was presented by the King on 23 March 1918.

Americans Respond

Old Glory, which was tied up next to *Niobe,* packed as many injured as it could in its limited space. *Old Colony* organized 125 men into search parties. In a few hours, they brought fifty-four injured on board, but by by mid-afternoon seventeen had died. *Old Colony* was damaged but no one on board was killed. Howard Blackburn, a Royal Navy surgeon on *Changuinola,* used a boat to reach *High Flyer* and *Picton.* Then he transferred to the tug *Boonton* and helped thirteen surviving longshoreman aboard, although two died within minutes. Five were only slightly injured and were transferred to another tug. The remaining six were bundled into blankets secured from nearby homes and taken by wagon to the Victoria General Hospital. At one o'clock, *Boonton* towed *Old Colony* from Dartmouth to the British naval docks in Halifax. Blackburn went on board *Old Colony* to help treat the patients.

The US Navy cruiser *Tacoma* and the troop ship *Von Steuben,* a former German raider, were returning from Brest when the lookouts in both ships saw and heard the explosion and notified their respective captains. The senior captain, Powers Symington of *Tacoma,* immediately radioed Washington that he and *Von Steuben* were headed for Halifax, where they arrived about 2. 30 p. m., at about the same time as the first trains from outside the city.[30] As soon as they were cleared into harbour, the Americans sent a physician, R. M. Hayes, to help out on *Old Colony,* where Howard Blackburn from *Changuinola* was already operating. Hayes completed the task of turning *Old Colony* into a fully-equipped hospital ship. As he recalled:

> We then fitted up two operating rooms with equipment found on the USS Old Glory and supplied from USS Tacoma and USCG [Coast Guard] Morrill, the Naval hospital and the Victoria General Hospital... Later in the day we were furnished with three graduate nurses from the hospitals mentioned. I then notified the Superintendent of the Victoria General Hospital that we could care for one hundred patients [and] patients were then transferred.[31]

While Hayes was assisting on *Old Colony,* the American captains reported to Rear Admiral Chambers and, at his suggestion, to General Thomas Benson. By then, Benson's troops were exhausted from the gruelling job of recovering bodies. The General was delighted to have some fresh men to assist. From 8 p. m. Thursday until 8 a. m. Friday, and for several nights thereafter, seventy-five officers and men from *Tacoma* and 150 officers and men from *Von Steuben* patrolled the city. The officers and NCOs carried revolvers; the sailors had bayonets. This precaution was designed to prevent looting, as one participant recalled:

> He [General Benson] informed me that the situation was very much confused, and that owing to the fact that the fronts of all stories and buildings were broken in, he was afraid there might be looting during the night and that as his men had been on duty all day, he would be very grateful if I would take over the patrol of the business sections of the city during the night so that his men could get some rest.

The Secretary of the Navy approved what the ships did, even wiring a commendation to be read aloud to the crews of both vessels. He told them that the "Department desires *Tacoma* and *Von Steuben* [to] render all possible assistance. " But he also reminded them that "both vessels [are] urgently required for [the] prosecution [of the] war and departure should not be delayed beyond [the] time demanded by humanity. "[32] In addition to patrols, sailors from the ships did some repair work. Among the places they helped repair was a home for older women. There is no evidence that they discovered any looters.

Severe Problems

In his dispatch to London a few hours after the explosion, Rear Admiral Chambers indicated that the situation was as bad as it could possibly be. He said that while he hoped to sail the

current convoy shortly, Halifax was likely to be "out of action for some time." The Admiralty ordered all ships bound for the United States to by-pass the Nova Scotian port and head directly to their destinations. Ships bound for the Panama Canal would be checked at Kingston, Jamaica. After thoroughly examining the medical situation, the Canadian Army advised Ottawa that it could not handle all the incoming wounded:

> Pier two standing but interior destroyed have made arrangements to rebuild at once... Naval authorities state they can continue to handle men coming in. We will have to handle from ship to train as it will be impossible to use Clearing Depot for at least one month. Think if possible smaller boats should go to St. John [sic]. It will be hard to handle them here unless Railway can give quick despatch which they can not do yet.[33]

In view of this message, a troop ship bringing 1206 Canadian officers and men home on convalescent leave was diverted to a US port. Staff from Halifax went by train to meet it.

Concern about Halifax also increased pressure to keep the St. Lawrence open so that Montréal and Québec could be used for military traffic. The captain of the US Coast Guard Cutter *Morrill* reported that he was trying to make temporary fixes but asked permission to head to a US port for proper repairs. With Halifax temporarily out of action, the request was refused. *Morrill* was told to join *Androscoggin,* which was steaming from St. John's, Newfoundland, in an attempt to keep the St. Lawrence open. Later, those orders were cancelled and *Morrill* was told to assist a ship that had run aground at Savage Harbour, PEI.

The change in orders for *Morrill* reflected the fact that on Monday, 10 December, just four days after the explosion, the situation had improved dramatically. Chambers told a meeting attended by the Prime Minister and key officials from the port and the railway that the harbour was not blocked by the wreck of the *Mont Blanc.* Equally important, the only ships damaged were in the inner harbour - *Calonne, Middleham Castle, Picton, Hovland, Curaca, IMO* and *Mont Blanc.* All ships in Bedford Basin had escaped damage. Finally, the best news of all: while a convoy had been delayed because of damage to *High Flyer,* the essential repairs were almost done. (The Admiralty had considered using an escort brought from Bermuda or *Calgarian* but had decided to wait until *High Flyer* was repaired.)[34]

Five days after the explosion, *High Flyer* and *Knight Templar* left Halifax with a convoy of thirty-four ships. Four days after that, *Changuinola* escorted seven more ships out of the harbour. On Wednesday, 19 December, a third convoy sailed with seven fast ships escorted by *Calgarian* and *Hildebrand.* (By then *Hildebrand's* band had played at the first of a series of mass funerals.) Chambers reported to London that the first convoy had been delayed by damage to *High Flyer,* the second "by the general disorganization following the explosion and by furious gales which held up all work," and the third because its escort, *Hildebrand,* was late arriving. Over all, however, the convoy situation was restored. There were still major problems in Halifax, especially in the city. But ships were now coming in and out of harbour without difficulty. Convoys were being formed. Neutral ships were being inspected. This was partly because only one naval officer - Lt.-Cdr. Murray - and one pilot - William Hayes on *IMO* - had been killed, and only one boat used by the navy, *Hilford,* had been put out of action.[35]

Assigning Blame

There were many questions that needed answers in the wake of the explosion. Why, for example, was *Mont Blanc* loaded with such an obviously volatile cargo? Why was it allowed to pass through the inner harbour when it could have anchored safely near the harbour entrance, away from where anyone lived? Why was there other traffic moving in the harbour when such dangerous traffic was passing through? None of these questions were dealt with at the subsequent inquiry, which was concerned with only one thing: who bore the responsibility for the collision? The answer - after the case moved through the legal system all the way to the Judicial Committee of the Privy Council in London - was that the two ships were equally responsible. The original inquiry had blamed *Mont Blanc.* The jurists in London said that was wrong: both should have sensed there was danger of a collision and both should have stopped. Angered at this, the Mayor of Halifax attempted to prosecute *Mont Blanc's* pilot and captain in the criminal courts. The cases were thrown out.[36]

Most of the damage to Halifax was on land. Most of the response also came by land, first on trains from nearby communities and later by trains from communities further away, including communities in New England.[37] But a significant response - both immediately and for some weeks - came from the harbour. The catastrophe in Halifax did not mark the first time that disaster relief had come from the sea. In the 1870s the Americans had responded by sea to a major fire in Saint John, New Brunswick.[38] The British, Italian and Russian navies had all assisted after the Sicilian earthquake at the beginning of the twentieth century.[39] Later, the Royal Australian Navy provided most of the relief after Cyclone Tracy devastated Darwin, Australia.[40] Ships provided most of the relief after the 1964 Alaskan earthquake and Canada partially repaid the Americans for Halifax by sending aid to Florida after Hurricane Andrew.[41] But it was only because of the evidence collected about Halifax - material reported in this article - that the author began to look for these examples of help from the deep, and to notice that there were many similarities to Halifax and other destructive events.

The Halifax explosion is often seen as an event that damaged a city. Yet the explosion began in the harbour; there were significant effects on the harbour and there was an important maritime response. Halifax therefore illustrates something that has been largely ignored by disaster scholars - that while seaports are especially prone to disaster, the sea may also provide the means by which there can be an immediate and effective response.

NOTES

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1. Travel along the streets that connected the North End with the central part of the city was difficult because of the hundreds of fires.

2. This point is discussed at greater length in Joseph Scanlon, "Help from the Deep: The Potential of Ocean-Based Response to Disaster," *Disaster Prevention and Management,* V, No. 3 (1996), 15-22.

3. The novels are McKelvey Bell, *A Romance of the Halifax Disaster* (Halifax, 1918); Hugh MacLennan, *Barometer Rising* (Toronto, 1941); Jim Lotz, *The Sixth of December* (Markham, ON, 1981); and Robert MacNeil, *Burden of Desire* (Toronto, 1992). Bell was the Chief Medical Officer for the Canadian Army in Halifax; the novel reflects his experiences during and after the

explosion. MacLennan was a schoolboy at the time of the explosion but the book, perhaps Canada's best-known historical novel, includes scenes drawn from his memories. Although MacNeil's novel is not autobiographical, he did grow up in Halifax and his novel includes material drawn from stories told by family members. The historical accuracy of these novels and other works of fiction about the explosion is discussed in detail in Joseph Scanlon, "Myths of Male and Military Superiority: Fictional Accounts of the 1917 Halifax Explosion," *English Studies in Canada,* XXIV (1999), 1001-1025.

4. Samuel Henry Prince, "Catastrophe and Social Change, Based Upon a Sociological Study of the Halifax Disaster" (Unpublished PhD thesis, Columbia University, 1920).

5. Dwight Johnstone, "The Tragedy of Halifax: The Greatest American Disaster of the War" (Unpublished manuscript, Public Archives of Nova Scotia, c. 1919); and Stanley K. Smith, *Heart Throbs of the Halifax Horror* (Halifax, 1918).

6. The official history did not appear until nearly sixty years after the explosion when it was resurrected by Graham Metson in *The Halifax Explosion, December 6, 1917* (Toronto, 1978). On the medical response, see F. T. Tooke, "An Experience through the Halifax Disaster," *Canadian Medical Association Journal,* VIII (1918), 308-320; F. A. Foster, "The Halifax Disaster," *Journal of the Maine Medical Association,* (1917-1918), 199-203; and W. J. Connelly, "The Halifax (Nova Scotia) Explosion of 1917: An Epilogue," *Journal of the Royal Society of Medicine* (1987), 774-775. A more recent book chapter shows that the eventual organized medical response confirms to the latest theoretical work on the handling of mass casualties. See Joseph Scanlon, "EMS in Halifax after the 6 December 1917 Explosion: Testing Quarantelli's Theories with Historical Data," in Russell R. Dynes and Kathleen J. Tierney (eds.), *Disasters, Collective Behavior, and Social Organization* (Newark, DE, 1997), 99-114.

7. Janet Kitz, *Shattered City: The Halifax Explosion and the Road to Recovery* (Halifax, 1989).

8. Michael J. Bird, *The Town That Died: The Story of the greatest Man-Made Explosion before Hiroshima* (Toronto, 1962); and Robert C P. Power, "A Look back at the Collision between *IMO* and *Mont Blanc* with Seventy-five Years of Hindsight," in Alan Ruffman and Colin D. Howell (eds.), *Ground Zero: An Assessment of the 1917 Explosion in Halifax Harbour* (Halifax, 1994), 377-388.

9. The names of the ships in the harbour were drawn primarily from Lloyd's records of shipping movements in the Guildhall Library, London. They were confirmed using other sources, including the records of subsequent convoys in Great Britain, Public Record Office (PRO).

10. The latter vessels were unknown until the current author located and interviewed the son of the Canadian officer who ran these supply boats. He even had photos of these small craft.

11. J. N. Tonnessen and A. O. Johnsen, *The History of Modern Whaling* (Berkeley, 1982).

12. The names of the crew were obtained from various records, but the ages were worked out from tombstones in the main graveyard in Sandefjord, where many *of lMO's* crew were eventually buried. One of those buried in Sandefjord is Captain From, who was killed in the explosion. A Norwegian woman whose mother comes from Dartmouth located his grave for me.

13. The had-written records listing the names of the crew and their hometowns were found in the Archives of the Services Historiques de l'Armée Maritime, Palais de la Reinne, Chateau de Vincennes, Paris. French merchant vessels were placed under naval control during the way, which explains why the file is in the naval archives. Although some records were found of Captain Le Medec's family in St. Nazaire, his birth records could not be located. While there are also reports that he was later awarded the Legion of Honour, there is no record of his name in the museum in Paris dedicated to those who have received this award.

14. This description of the cargo is taken from information supplied to the Governor General by Canadian authorities and subsequently passed on to London. It is in the Governor General's papers at the National Archives of Canada.

15. There was testimony to this effect by an official of the French line during the subsequent inquiry. He was at first reluctant to admit this but the judge insisted that he answer.

16. There are many accounts of what happened and all agree on most of the details. The best source is the transcript of the subsequent inquiry,

which is now in private hands. I am grateful to Janet Kitz for making it available. My own analysis, however, is also dependent on information provided by Robert Powers, both in his article in *Ground Zero* and in a personal interview.

17. PRO, Admiralty (ADM) 53/44308, *High Flyer,* Log, states explicitly that its crew did not know about *Mont Blanc's* cargo.

18. Some years after the explosion one of the officers on *High Flyer* wrote an account of the *efforts to put* a line on the burning *Mont Blanc.* See *Evening Standard* (Halifax), 6 December 1936.

19. There are still discussions about whether there were one, two or three explosions and whether the Halifax incident was the largest human-made blast prior to the first atomic bomb. Although others have questioned his version, the most authoritative account of the explosion was written by a distinguished Dalhousie University physicist. See Howard L. Bronson "Some Notes on the Halifax Explosion" *Transactions of the Royal Society of Canada,* XII (1918), 31-35. Since Bronson presented his paper in 1917 he obviously could not compare the size of the explosion to later blasts. That was done by Jay White in "Exploding Myths: The Halifax Harbour Explosion in Historical Context," in Ruffman and Howell (eds.), *Ground Zero,* 251-274.

20. The description of the injuries on *High Flyer* and the damage to *Morrill* is taken from reports at the PRO and United States,, National Archives (NA), Washington. The most important file was PRO, MT 25 9/78576.

21. These figures were derived in part by using logs from these ships, some of which are located at Memorial University of Newfoundland (MUN), Maritime History Archive (MHA), Agreements and Accounts of Crew. As well, evidence came from hospital records, especially those from Truro, and from the list of the dead in morgue records at the Public Archives of Nova Scotia (PANS). The records in Truro are still in a box, yet to be sorted.

22. The material on the two Canadian submarines is from a private diary is in the Public Archives of British Columbia. There is now a book on the subs but it does not mention their journey to or their experience in Halifax.

23. While some of the details were pieced together from various accounts, most of the information is in NAC, RG 24/5592/N5.5, Records for Military District # 6.

24. The information about the College is now in documents in the archives at the Canadian Naval Base at Esquimalt. The careers of the crew were traced with the help of Canadian naval authorities.

25. In preparation for his planned official history, Archibald MacMechan collected accounts from many who were involved in the response. All of these accounts were kept by the Halifax Relief Committee and its successor, the Halifax Relief Commission, are in PANS, Manuscript Group (MG) 1.

26. The detailed accounts from Halifax are now in naval records the PRO.

27. After the war, Rear Admiral Chambers wrote a detailed account of his involvement in the *Naval Review,* III, No. 1 (August 1920).

28. PANS, MG 1, vol. 2124/57, James W. Harrison to J. E. Furness, 2 January 1918.

29. *Old Colony* had stopped in Halifax for repairs while bound for England, where it was to be turned over to the Royal Navy for use as a hospital ship.

30. Within hours of the explosion trains started arriving from Truro, Kentville, Wolfville, Windsor and new Glasgow, all in Nova Scotia, and from Moncton, New Brunswick. Later trains came from further away, including from the United States. The story of this response can be found in Joseph Scanlon "The Magnificent Railways Rail Response to the 1917 Halifax Explosion" *Canadian Rail,* No. 461 (November-December 1997), 143-153.

31. The logs and other reports of the American ships involved can be found in individual files for each ship under the ship's name at the NA.

32. All this material is in the files for the two ships at the NA. At the time of the explosion, *Old Colony* had stopped in Halifax for repairs. It was bound for England where it was to be turned over to the RN as a hospital ship. As it happened, its service as a hospital ship came much sooner than expected. As was the case with a number of ships, its files were difficult to locate, since it appears elsewhere as a British ship.

33. NAC, RG 24/1825, Records for Military District # 6.

34. Prime Minister Borden was in Prince Edward Island campaigning when the explosion occurred. He finished his day there then cancelled a planned trip west, heading by boat and train to Halifax. His attendance at the briefs presented by Admiral Chambers was noted in the meticulous minutes of the Halifax Relief Committee. See PANS, MG 1/2124, "Minutes of the Halifax Relief Committee."

35. PRO, MT 25/9/78576, Chambers Dispatches.

36. The story of the legal battle can be traced in a number of places. Perhaps the best is Donald A. Kerr, "Another Calamity: The Litigation," in Ruffman and Howell (eds.), *Ground Zero,* 365-375, which argues that the proceedings were less than adequate. "At every level," he concluded, "it may be fairly said that the results were astonishing and often bizarre."

37. Scanlon "Magnificent Railways," 143-153.

38. George Stewart *The Story of the Great Fire in St. John, N. B* (Toronto, 1877).

39. Reginald Belknap, "Earthquake Relief Work at Messina and Reggio" *The Survey* (May 1914), 116-119; amd Salvatore Cortesi "The Earthquake in Sicily and Calabria" *The Independent* (February 1909), 254-257.

40. Eric Johnston "The Navy's Disaster Operations in Darwin After Cyclone Tracy," *Sitrep,* XII, No. 1 (1987), 24-29.

41. Joseph Scanlon "Help From the Deep: The Potential of Ocean-Based Response to Disaster," *Disaster Prevention and Management,* V, No. 3 (1996), 15-22.