

# Natural Hazard Research

CONVERGENCE REVISITED: A NEW  
PERSPECTIVE ON A LITTLE STUDIED TOPIC

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## PREFACE

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### SUMMARY

This paper examines the response to a major fire that took place February 12, 1990 near the city of Nanticoke, Ontario, Canada. Over 14 million rubber tires were consumed in the blaze, which involved 17 days of firefighting and hundreds of individuals from institutions, voluntary agencies, private companies, and four levels of government.

Much of the response to the fire could be labeled, "convergence behavior"--the coming together of a variety of individuals and groups (including the media) at the disaster site. However, although convergence behavior has frequently been observed and mentioned in the disaster literature, it has not been well studied. The author attempts to take a new and somewhat different look at the phenomenon by examining a number of incidents, finally focusing on the fire. The research suggests that the original conception of convergence needs revision. For example, convergence can occur in the absence of media and official response, it can create congestion "singlehandedly," and it is not necessarily confined to one location.

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## INTRODUCTION

The Ontario, Canada, city of Nanticoke, just north of Lake Erie, is a quiet, sparsely populated community. Except in built-up areas, traffic usually consists of a few cars moving along secondary roads, usually driven by residents. The one focus of traffic--though just during working hours--was a storage area for rubber tires, but even at the busiest periods it never attracted more than the occasional car or truck. At 1:02 a.m., Monday, February 12, 1990, that began to change. A police constable from Haldimand-Norfolk, the region where Nanticoke is located, saw what he thought was a distant brush fire. He radioed his dispatcher to call the fire department and headed to the scene. There, he listened incredulously as a lady told him he was not seeing brush burning but a tire pile on fire.

The constable was the first to spot what has become known as, "the Hagersville tire fire," a fire involving 14 million rubber tires. For the next 17 days, hundreds of individuals and groups from institutions, voluntary agencies, the private sector, and from four levels of government became involved in the response, changing the quiet city into a center of never-ending activity. Because of the fire and the response to it, roads were widened and new ones built. A water treatment facility was constructed. A school was shut down and some businesses closed. Patients had surgery delayed. About two thousand aboriginals were told to leave their homes. Media responded not just from regional outlets, but from such American programs as ABC's "Nightline," and from Europe (Scanlon and Prawzick, 1991).

The fire affected not just Nanticoke but places well removed from the scene. It forced meetings of police, social workers, and voluntary agencies in small communities like Port Dover and cities like Brantford, in addition to meetings of officials in the provincial capital, Toronto. Firefighters at Canadian Forces Base Petawawa were put on standby. There were questions in the Canadian House of Commons in Ottawa about the role of the federal government.

Much of the overwhelming response to the tire fire fits under the label "convergence behavior," a term first used in 1957 by Fritz and Mathewson and now generally accepted.

Disaster scenes are points of convergence. Early NORC studies documented this response pattern; since that time it has been observed in numerous other countries. (Drabek, 1986, p. 174)

Disaster scenes are points of convergence, and convergence behavior has been observed in the United States and many other countries including Canada, however it has not been well studied. Though convergence is mentioned in much of the disaster literature and examples of convergence are frequently cited, no single study has focused on convergence. It is a widely accepted, little studied concept (personal interview, E. L. Quarantelli). This paper attempts to overcome that gap in knowledge by taking a new and somewhat different look at convergence by examining a number of incidents, then focusing on the Hagersville tire fire. The research suggests that the original conception of convergence needs revision--that, for example, convergence occurs even without media and official response and that convergence alone is enough to create congestion. It will also show that convergence is not confined to one location.

The material for this study was collected by the Emergency Communications Research Unit (ECRU) at Carleton University in Ottawa, Canada. ECRU was established in 1970 and since then has studied roughly 70 emergency incidents. Most of ECRU's research has been funded by Emergency Preparedness Canada. The study of the Hagersville tire fire was funded by the Canadian Police College and Stelco, the Steel Company of Canada. A case study of the response to the fire has appeared in the Canadian Police College Journal (Scanlon and Prawzick, 1991).

#### ORIGINAL DEFINITION OF CONVERGENCE

In their paper, Charles Fritz and J. H. Mathewson (1957, p. 4) identified three types of convergence:

- 1) personal convergence - the actual physical movement of persons on foot, by auto or other vehicles;
- 2) informational convergence - the movement or transmission of messages; and
- 3) material convergence - the physical movement of supplies and equipment.

The authors wrote that while convergence could be official (emergency agency personnel rushing to the scene, passing messages, bringing in rescue equipment), their interest was in unofficial or informal convergence:

For present purposes, we shall assume the need for convergence by agencies and personnel that have official disaster responsibilities. (Fritz and Mathewson, 1957, p. 4)

Fritz and Mathewson described five types of unofficial or informal convergence: the returnees, the anxious, the helpers, the curious, and the exploiters. Returnees include everyone from victims who have been evacuated and wish to return, to absentees who wish to find out what has happened to their families and their property. The anxious include friends and relatives and others who identify with persons in the impact area. Helpers include all forms of volunteer help, whether survivors helping each other or those who are unaffected helping survivors. The curious include all those who wish to see what happened. Exploiters include a mix of persons with antisocial objectives: looters, souvenir hunters, relief stealers (persons who take advantage of free accommodations, meals, and other services provided to victims) and profiteers. Even though they included exploiters, Fritz and Mathewson wrote that there was little evidence that many persons fit into that category:

Certainly the dire predictions of widespread looting, stealing, profiteering, mob violence, and crime that have been frequently made in the past have rarely, if ever, been fulfilled. (1957, p. 50)

Fritz and Mathewson also wrote that convergence could occur in two main ways: 1) by persons moving about and searching for information in the impact area, and; 2) by persons searching for information by making contact with the impact area or inquiring elsewhere. They also said the media are a major cause of convergence. By reporting generalities about what has happened, the media make parts of its audience anxious, triggering both a direct response from those nearby and an informational response from those further away:

Persons who are distantly removed from a disaster site and who have no identification with the struck community may be satisfied with a general news announcement . . . For many persons, however, this . . . is simply an anxiety-stimulator. They want to know specifically what area was struck, who was killed or injured and who is safe. (1957, p. 63)

The needs in disaster are strategic and selective needs. Equipment, supplies and services are needed in particular quantities, types, times and places. The mass media are not well adapted to serve this strategic supply purpose since there is little control that can be exercised over the potential donors once the appeal is made. (1957, p. 26)



Fritz and Mathewson offered two basic solutions to convergence. One involved better information gathering and dispersal systems and more control of the media. The other involved more careful control of access to a disaster site including a prearranged pass system. To assure better information, the authors suggested recruiting all sorts of persons into a special communications corps. They mention amateur radio operators, persons with loud speaker equipment, and telephone operators as well as the mass media. This group would gather and disperse information so rapidly that many of the long-distance inquiries would stop:

Much of the convergence from remote zones can be attributed to the absence of specific and detailed information concerning the geographic scope of the disaster and the persons directly affected. If such information was immediately available in dispersed information centers throughout the country, and this fact was well known to the populace, it is likely the volume of informational, personal and material convergence on the disaster area could be reduced materially. (Fritz and Mathewson, 1957, p. 71)

The authors also argued that problems created by a sudden demand for information could be reduced if announcements of what had taken place were delayed until information could be acquired:

One of the most effective ways of securing such lead time would be to delay public announcements of the disaster until the organized units would have had an opportunity to arrive on the scene . . . The possibility of developing this type of coordination between the broadcast media and official disaster agencies should receive further consideration. (Fritz and Mathewson, 1957, p. 75)

To control movement, Fritz and Mathewson suggested some sort of prearranged pass system (without being too specific) including traffic controls not only close to the site but, perhaps, even as far as 80 to 150 kilometers away. They also suggested control over supplies might be assisted by the establishment of some sort of clearing house to which agencies in need could turn for assistance.

### CONVERGENCE IN HALIFAX

Although the term "convergence" was invented by Fritz and Mathewson in 1957, its three forms--personal, informational, and material convergence--had been spotted long before. One of the first to write about disaster was Dwight Johnstone, friend and

colleague of Samuel Henry Prince, the Canadian priest generally recognized as the world's first disaster scholar (Prince, 1920; Scanlon, 1988). Johnstone, like Prince, wrote about the December 6, 1917, Halifax explosion. (A French munitions ship blew up in Halifax harbor with a force one-sixth the power of the atomic bomb used at Hiroshima leaving one-quarter of the population dead or injured.)

Johnstone (c. 1919) not only identified all three forms of convergence covered by Fritz and Mathewson, he indicated something they missed--that convergence can occur before a disaster. The Mont Blanc had caught fire as a result of a collision and it burned for 20 minutes before exploding. Many in Halifax, curious about what was happening, went to see:

The news had spread on both sides of the harbor that a ship was on fire, and consequently many wended their way to the waterfront. I wonder wherein lies the mystic attractiveness of a fire. (c. 1919, p. 27)

Many watched the Mont Blanc from their doors and windows and admired the beauty of the flames. Others swelled the crowd now stretched along the waterfront . . . A group of happy little children on their way to school ran down to the shore and climbed on a pile of lumber to, "see the ship on fire." (c. 1919, p. 28)

Many of these curious were killed or injured when the burning ship blew up.

In addition to identifying informational convergence, Johnstone suggested some ways of dealing with it:

Suspense relieving calls and the emergency messages comprised by far the major part of the telephone business during the first days following the disaster. Indeed the company publicly requested subscribers to refrain from unimportant calls and conversations of a social nature. But even then the calling was unprecedented. (c. 1919, p. 86)

The local traffic increased one hundred and twenty percent over its average figure and for days people thronged the long distance department office in long queues reaching to the middle of the street. (c. 1919, p. 87)

Twelve men were brought to the City from St. John, Truro, Amherst, Quebec and Montreal to assist the thirty-three regular members of the local staff . . . Even then they could scarcely handled the telegrams . . . the company sent out no less than six hundred messages per hour or fourteen thousand messages a day for a week after the explosion. (c. 1919, p. 92)

Johnstone even spotted a special type of sightseer, the political visitor, the forerunner of presidential visits like the ones Jimmy Carter made to Three Mile Island and Mount St.

Helen's:

Less than a hundred yards away volunteers are searching the ruins of a house for bodies. With sledge hammers, pick-axes, crow-bars, and levers of all kinds, they tug at the twisted wreckage . . . A passing sleigh pauses and a man joins the little group of onlookers. It is the Prime Minister of Canada. (c. 1919, p. 98)

Robert Borden, the Canadian prime minister, was making a stop in Halifax in the midst of a mid-war election campaign, the first in which any Canadian women were allowed to vote. He was not the only VIP to get involved. Two weeks later, the Duke of Devonshire, Governor General of Canada, arrived. One of the telegrams which flooded in was from the King.

Finally, Johnstone identified material convergence and how it was relieved:

So great was the outpouring of assistance, personal and material, including that from the United States . . . that the administrative situation in Halifax became extremely strained. The congestion swamped the workers and added temporarily to the difficulties of the situation. Accordingly, the Relief Committee on December 12 requested that no more volunteer helpers come to Halifax without first communicating with them and that parties desiring to donate supplies first notify the Committee of the character and quantity of the goods offered. In this way the congestion was relieved. (c. 1919, p. 123)

Since Johnstone wrote, many others have reported aspects of convergence. Moore mentions it in his pioneering study, Tornadoes Over Texas (1958, p. 25), reporting that when a call for volunteers was issued over the radio a local milk company which agreed to handle any offers was swamped with calls. McIntosh reports an incredible amount of informational convergence after the Lockerbie air crash:

Massive congestion to the public telephone network . . . brought normal telecommunications almost to a standstill, an insatiable demand for telephone lines for emergency and support services and for voluntary agencies and the media. (1989, p. 17)

ECRU found similar conditions at the Gander air crash in 1985. In its study of the response, ECRU reported that persons from 65 agencies visited the site of the crash within 48 hours. Many others tried to get a look at the site by telling police they were visiting friends at a nearby community (Emergency Communications Research Unit, 1987, p. 38). But all of these accounts are descriptive rather than analytical. This paper tries to do something more.

### CONVERGENCE WITHOUT MEDIA

The telephoning at Lockerbie was undoubtedly in part a result of media activity and media-sparked calling, just as Fritz and Mathewson (1957) would have predicted. The same sort of thing has happened elsewhere. When an aircraft crashed in Dryden in Northern Ontario, for example, the telephone lines to the police department and the hospital were both jammed by long-distance calls from anxious relatives or potential relatives and from the media:

Media called the town, the OPP (Ontario Provincial Police), the funeral home, MNR (Ministry of Natural Resources), the Red Cross, anyone they could reach. At some places, these calls were a minor nuisance . . . But at the OPP and the hospital the flood of media calls severely hampered the ability of these agencies to communicate in town or out. (Scanlon, Osborne, and Simard, 1989, p. 253)

The media can help create a problem, but overloaded communications are not just a result of media activity. They occur even when the media are not involved.

When a train derailed, caught fire, and spilled some chemicals in Mississauga, Ontario (eventually 217,000 persons were evacuated), initial telephoning involved citizens reporting the incident (the fire could be seen for kilometers) and police calling in to report for duty. Within minutes all police telephone lines were tied up (Scanlon and Padgham, 1980, p. 41).

The same type of thing happened after a downtown building explosion in North Bay, Ontario, and this time the media were not involved. The first news report (over the radio) came 19 minutes after the incident. By then, word of mouth and telephone communications had spread the story and generated enormous personal convergence. By tracing person-to-person communication chains, ECRU researchers found that about 20% of the city's population first learned of the explosion from radio or television. Four times as many, nearly 80%, learned first by word of mouth, and they acted on what they learned telling others or by going to the scene:

Asked if they had seen the disaster site, roughly half the people in the sample said, "yes." A great many of them also said they got there quickly. Eight point two per cent . . . said they had seen it within half an hour. Assuming that the sample was reasonably representative this means that somewhere between 3,000 and 4,000 persons were at the site within the first hour . . . Of those who went, about 45 per cent. said they went from simple curiosity . . . Only a small percent - 8% - said they went because their jobs took them there. (Scanlon and Taylor, 1975, p. 9)

Within two minutes, staff at Bell Canada had noticed the increased telephone traffic. Within 12 minutes--seven minutes before the first news report--the company had to institute controls over telephone calling (Scanlon and Taylor, 1975, p. 9). The media were not yet involved but there was already informational convergence.

### OFFICIAL CONVERGENCE

The convergence at North Bay was not only informal or unofficial. There was also official convergence of people, information and supplies:

The disaster site soon attracted all kinds of official vehicles - police cars, fire trucks, ambulances, gas trucks, hydro trucks, telephone trucks, mobile radio units - enough to clog the downtown area. (Scanlon and Taylor, 1975, p. 9)

From their sample data, ECRU researchers estimated that between 300 and 500 persons were involved in the official response. Since there were roughly 50 persons injured or killed, that represents three to five times as many respondents as there were persons directly affected.

Although Fritz and Mathewson took the position that official convergence is acceptable, they did admit in a footnote this sort of convergence can lead to problems:

Disaster areas are frequently visited by officials in far greater numbers than are actually needed for reconnaissance; supplies and/or equipment needed for a later phase of the disaster are shipped into the area during the emergency period; relief centers or supply distribution points are sometimes established in areas where they can not efficiently serve the population . . . and the volume of official communications and operational messages flowing into disaster areas probably could be reduced by more efficient coordination and screening. (1957, p. 4)

Having seen the congestion at North Bay, ECRU researchers agreed with this view. They decided to use the tire fire as a case study of official convergence. They found that official convergence can be enormous and complex, and that it occurs not just at the scene but away from it. They also found convergence may occur in waves and, over time, may fall into predictable patterns becoming not ad hoc but an organized aspect of behavior. They also found, as was the case in North Bay, it can happen without media involvement.

Trying to sort out their findings, ECRU field staff divided those involved in the

response to the tire fire into two categories:

- 1) Type - fire, police, municipal, provincial and federal government, institutions, utilities, the private sector, voluntary agencies, research units, native organizations, emergent groups, environmental groups, the media; and
- 2) Location - whether those involved were at the site during the incident, near the site during the incident, or not on or near the site during the incident.

ECRU defined "on-site" as being at the scene of the fire, inside the evacuation perimeter, or having to pass through a police check point in order to become involved. Overall, 346 participants were identified, including 50 media organizations. Of these, 159, including most of the media, were on-site during the incident, some immediately, some later (Scanlon and Prawzick, 1991, p. 166).

#### Examples

On-site examples were:

- an Ontario Provincial Police (OPP) constable, one of the first police officers on-site, who returned to help fight the fire in his other role as a volunteer firefighter;
- a plumber who let his business go for a week so he could serve as a volunteer firefighter, one of many volunteers who lost money fighting the fire;
- stand-by ambulance crews--though there were just four incidents over the 18 days, one a raccoon bite;
- firefighters from the Six Nations reserve who brought a tanker to the scene to assist although they had had to respond to two house fires on their reserve the night the tire fire started;
- a staff member from the clerk's office in Port Dover who made a hasty trip to the fire scene to deliver the city's emergency declaration so it could be formally signed by the acting mayor;
- a farm resident who helped out an Ontario Provincial Police (OPP) constable by taking over a road block while the constable found a place to relieve himself;
- work crews from the city and the region who widened the roads to service the heavy traffic and, when snow hit the fire area, kept the roads plowed;
- a helicopter and crew from the Department of National Defence who helped pick up water samples and gave the media an aerial view of the site;

- private contractors, most of whom helped move tires as part of the actual firefighting; others were involved in drilling, doing other tests, hauling away contaminated runoff water;

- staff from a trucking company in Simcoe who went to the site to assist the OPP move its temporary command trailer--a move forced by a shift in wind direction;

- an Ontario Hydro employee who hooked up two electrical connections at two separate locations so the OPP command vehicle could move with a wind shift and have power simply by pulling out its power cord and plugging it in again;

- an employee of a local construction firm who shaved off his beard to conform with health and safety regulations regarding the wearing of a properly fitting self-contained breathing apparatus (his children did not recognize him);

- scientists from McMaster University who rented a truck to haul a measuring device to the site which helped them determine that smoke was about equal to what a nonsmoker would get from an evening in a smoke-filled bar in North Carolina; and

- city and regional road crews who used plastic provided by Ontario Hydro and slag from Stelco Steel to build a brand new on-site road system in less than 48 hours. There were also persons there to pick up the inevitable garbage, install and service portable toilets, provide telephones, and even deliver the mail.

Off-site but still involved were the following:

- a regional government employee who stood by a fire hydrant to make sure that tankers got the water needed for the fire and to make certain that the hydrant did not freeze up;

- staff at a computer company doing some demographic studies for regional government who were able, within a couple of hours, to produce estimates of how many persons would have been affected by different evacuation areas;

- a hospital administrator who cancelled all elective surgery in case his hospital had to receive patients from the West Haldimand Hospital in Hagersville;

- officials at Transport Canada who, at the request of the OPP, issued a NOTAM (Notice to Airmen) that gave a police sergeant authority over flights in the fire area;

- staff at a Hamilton psychiatric hospital who offered their own cars to drive

elderly citizens from Hagersville to Hamilton should a nursing home have to be evacuated;

- a Salvation Army officer whose van got stuck in the mud while he was picking up blankets from a Salvation Army camp in Selkirk for use by evacuees on the Six Nations reserve; and

- a federal governmental social worker from Emergency Health and Welfare Canada who made a special trip to help concerned citizens set up an outreach program, designed to reassure any who had emotional problems resulting from the fire.

There were many, many others.

### Fire and Police

The two most important responders were the fire service and the police. Both had extensive resources on-site.

The first firefighters to respond came from Hagersville, a town that provides fire coverage to parts of the neighboring city of Nanticoke. (The fire became known as the Hagersville fire because of that response.) Even en route, the Hagersville chief knew what he was facing. His department had put out a previous fire at the tire pile, and he and his colleagues had often discussed the possibility of a major tire fire. With that in mind, the chief radioed his deputy to request two stations, Waterford and Jarvis, to send pumpers, and for two further stations, Kohler and Caledonia, to dispatch tankers. (There was no water system close to the tire pile.)

When it was clear little could be done to stop the fire--it had been started when youths threw a can of burning gasoline onto the tire pile--the chief returned to Hagersville and called the fire coordinator. The coordinator called in equipment from towns like Delhi, Vittoria, Port Dover, and Selkirk. He even brought in the pumper from Caledonia, which had moved to cover Hagersville. That left Hagersville covered by one 18-year-old pumper, a pumper which did, in fact, respond to a car fire that night. By midnight Monday, less than 24 hours after the fire had been set, 185 firefighters from 17 stations had become involved. By the end of the week, nearly 500 firefighters from 26 different stations were involved.

Although the initial fire response was much greater than the initial police response, the first three emergency units to reach the scene were all police. Minutes



after the Haldimand-Norfolk constable arrived at the scene, he was joined by two units from the Ontario Provincial Police (OPP) because the fire was in their patrol area. From then until midmorning, the police response remained modest because it was night, the tire pile was several kilometers away from any settled area, and even further from the nearest town. Since the smoke could not be seen in the darkness and there was no traffic, police had little to do. They did not even report the incident to divisional headquarters.

By morning, however, demands on the police were slowly starting to grow. For one thing, the number of persons on-site was growing. Besides the firefighters, there were officials from the provincial Ministry of Environment (MOE), the provincial Office of the Fire Marshall, the acting mayor of Nanticoke (the fire chief had called him), and the regional chairperson. The Medical Officer of Health, the director of social services, and the emergency coordinator from nearby Hamilton-Wentworth arrived in case his region was threatened. Volunteers came into the area to prepare and serve food and the media began assembling. The increasing numbers of people led to demands for perimeter control, which is a police function. There was another important reason for police presence: the huge cloud of smoke rising above the fire scene was making everyone, including local health officials, increasingly worried. If an evacuation was ordered, the police would be needed.

Monday evening, the mayor declared the incident a municipal emergency and decided local residents should be warned of the smoke dangers and advised to evacuate. That meant an immediate expansion in involvement by the Ontario Provincial Police (OPP) (despite the name, "provincial," they are the municipal force in many parts of Ontario). The OPP called in members from eight detachments to assist. Senior OPP were also on hand from divisional headquarters and a helicopter came from the OPP college at nearby Brampton. Off-site, Haldimand-Norfolk police helped nearby Port Dover prepare for evacuees, and at Brantford, city police there responded similarly.

Eventually there were 18 check points along the evacuation perimeter, and it took uniformed staff from all eight divisional detachments--Cayuga, Simcoe, Brantford, Burlington, Milton, Norfolk, Welland, and Niagara Falls--to staff them around the clock with the help of some auxiliaries. The OPP ran the 18 check points with 38 constables,

with 18 on point duty each 12 hour shift, one rotating, and one sergeant acting as overall supervisor. The system was run from a mobile command vehicle staffed by a civilian dispatcher, one of an ever-increasing number of command vehicles on-site. By this time there were private cars, police cars, telephone trucks, power trucks, works vehicles, environmental vehicles, and an ambulance, not to mention dozens of fire trucks, parked at the site.

Behind the scenes, the OPP worked with investigators from the Office of the Fire Marshall, collecting evidence and trying to track down those who had set the fire. (Charges were eventually placed against five youths and all were convicted.)

#### City, Regional Government

In Ontario, in addition to villages, towns, cities and counties, the province has created areas known as regions. The first was Metro Toronto, but now there is a regional government for the metropolitan areas around cities such as Ottawa, Hamilton, and Sudbury. Most of these regional governments cover major urban areas and the surrounding suburban sprawl. The region of Haldimand-Norfolk is different; though it includes one fairly sizable city, Simcoe, it consists largely of farmland, with pockets of settlements. One of the region's smaller cities, however, is Nanticoke, which placed the fire not only in a city but also in the region of Haldimand-Norfolk. Given this, the initial response inevitably involved city and regional staff, often working as teams.

The road problems, for example, were dealt with by city works (Nanticoke) and regional roads (Haldimand-Norfolk). Crews from these two departments checked out the bridges in the area near the fire--they were worried about the heavy traffic--and made certain roads carrying water tankers were regularly sanded, because the tankers were spilling water that could easily turn to ice. Because of the many mobile command vehicles parked near the site, work crews aided by private contractors also hauled in fill and widened the nearest road to the site.

Besides the work crews, other regional personnel were involved in the early response. Plans for the evacuation were put together by the region's Medical Officer of Health, the region's director of social services, and the emergency coordinator from Hamilton-Wentworth. Working as a group, they drafted a notice which advised persons what to take with them, where to go if they needed someplace to stay, what number to

call to report in or ask for assistance, and what to do with pets (leave them behind). The notices were reproduced by support staff at the regional office.

By the third day, the mayor of Nanticoke had decided the incident exceeded his city's capabilities, so he asked the region to take control. By that time, the city and region were both involved in on-site garbage collection because the increasing numbers at the site required special arrangements to pick up garbage. Clerks from the region were taking minutes at the meetings. Staff at the cafeteria at regional headquarters were serving hundreds of extra meals, and regional social service staff, working with voluntary agencies, had arranged for shelters to be set up in a number of centers. Well before the shift from city to regional control, the region had become heavily involved in the response.

### Provincial Government

The fire was first a city, then a regional, emergency but from the start it was also a matter of provincial concern. A few hours after the fire was set, an official from the provincial MOE was on-site and was followed by scores of others from various provincial ministries. (In Canada provincial entities headed by a cabinet minister are called ministries, while federal entities headed by a minister are called departments.)

That first official called immediately for equipment to test the air; it arrived before morning. Forty minutes later another MOE officer arrived to check the runoff water. After that, the ministry's response kept expanding. The Senior Environmental Officer, Water, arrived just after noon to organize surface water sampling. The Air Quality Chief, who took over as Environment's site manager, arrived with the Senior Media Relations Officer shortly after two o'clock (they had been at the same meeting) bringing with them a sophisticated air monitoring van. The van was on-site and operational by 3 p.m. Monday.

Later Monday, the site manager for the MOE assembled a team of hazardous materials experts who would monitor weather and air testing out of Hamilton, the nearest major city. Tuesday, a hydrogeologist was sent to determine groundwater flow direction. Wednesday, MOE started building dikes to control runoff water. Thursday, oil started to appear with the runoff water. MOE dug a well and got trucks from a local refinery and private truckers to carry the oil to a nearby refinery for recycling. That

same day, MOE dug a deep irrigation trench to be used to pump runoff water back onto the site.

Over the next few days, the MOE site manager signed an agreement with a farmer to build a containment pond (for storage of excess water) and a water treatment facility on his property. Agreement was also reached to store water at the Townsend water treatment lagoons. There, because of legal requirements for migratory birds, a man (known colloquially as a "bird banger") had to be hired to fire off a pistol to keep birds away.

Environment's buildup continued. Ten days after the fire started, a mobile lab arrived to expedite sample analysis. That same day, the Elgin water treatment facility sent an agricultural pump to the site, and staff from a water treatment plant were brought in to run it, leaving the plant without maintenance personnel.

The MOE's response was, in short, immediate, massive, and continuing. While the numbers of MOE personnel never matched the 500 persons who came on-site as volunteer firefighters, they far exceeded numbers of police, ambulance, or other response agencies. As will be described later, it was the first wave of a major provincial response.

#### Federal Government

Canada has a federal system of government and emergencies fall under provincial rather than federal jurisdiction. Because of this, though there were regular questions about the fire in the federal House of Commons, all the cabinet ministers could say was that the federal government was willing to assist. As far as the ministers knew, no federal agencies were involved. In fact, there was a great deal of federal involvement.

A Department of National Defence helicopter crew assisted various agencies in gathering water samples and assisted the OPP by offering the media air trips over the site. Officials from the Department of Indian and Northern Affairs were at the Six Nations reserve. Militia units provided blankets and radios. Some 350 sleeping bags were sent from Canadian Forces Base Toronto. In Brantford, the militia arranged to receive up to 150 evacuees in its armories.

Another federal agency, Canada Post, tried, not always successfully, to keep up postal service. At times, rural postal delivery was normal because police allowed the carriers through road blocks. At other times police, usually from detachments outside

the area, did not let the mail through. At its worst, about 20 persons were without delivery. When residents nearest the fire were forced to leave their homes and take temporary accommodation in trailers in Townsend, Canada Post forwarded their mail without charge.

The fire chief at Hamilton's Mount Hope airport (a federal fire department) helped the provincial MNR service its water bombers, which were flying from there to Lake Erie to the fire. Environment Canada (not to be confused with the provincial MOE) helped test water samples. As mentioned above, a federal social worker with Emergency Health and Welfare Canada spent two days helping provincial officials and local persons put together an outreach program for affected citizens. Finally, as will be discussed later, various federal inspectors were in the evacuation area helping to check possible contamination. In total, 27 federal agencies became involved.

On day six, February 17, the commanding officer of Canadian Forces Base Petawawa's Engineers and an officer from the Special Service Forces visited the fire site to see how troops could operate, for example, searching for a suitable tents sites. They also explored a works yard to see if it would be a suitable site for a field kitchen in case they were asked to provide a food service for firefighters. They told an emergency control meeting they were ready to help, without charge. They were eventually turned down.

The Department of National Defence got further involved when Canadian Forces Base Bagotville twice sent CF-5 high altitude jets over the site to take infrared photos to expose hot spots in the fire. The flights were discontinued when the provincial forest fire agency, the MNR, decided its planes could do the job more effectively.

#### OTHERS ON-SITE

The three major players on-site in the early stages--fire, police, and environment--had little difficulty coordinating their own activities. Most of the firefighters either knew each other or knew who was in charge. Volunteer fire units are involved in backup and mutual aid so often that they have little difficulty working together. The same is true of the police. Since all the police came from the OPP, even though from different detachments, they had no problem working as a group. In the case of the provincial MOE,

even though their respondents came from a number of different locations, they were part of the same department and part of an organized structure. But firefighters, police, and environment were only part of the response on-site.

Utilities. Bell Canada crews set up special telephone lines and assisted with telephone service when command vehicles had to move each time there was a wind change. Hydro crews came in to provide power to the command vehicles. Gas crews were also on hand. Others included:

Private contractors. One firm brought in portable toilets, another supplied front-end loaders and other construction equipment. A drilling company performed test drilling, and a local company provided water for the test drill sites. The nearby steel plant provided heavy equipment from its slag yard and slag to build a new, temporary road system. Water tankers were brought in by Environment to truck contaminated runoff water to the Clarkson water treatment plant near Mississauga to be stored until treated, and a steady flow of tankers hauled water for the firefighters.

Research units. These included the group from Carleton who prepared this report and scientists from McMaster University in Hamilton. In addition, two environmental groups, Greenpeace and Citizens Against Glanbrook Tire Dump (a local group of concerned citizens worried about another tire pile), became involved.

Volunteers. The first to organize food service was a woman in a home next to the fire. Though three months pregnant, she, two of her neighbors, their children, and her husband prepared coffee for firefighters and police. They pooled their coffee pots and any mugs or cups that they had and set up a coffee station at the Salem Rockford Church just across from the fire. By Monday afternoon this informal food service turned into a formal arrangement when, at the request of the mayor, a councillor from Haldimand took charge. (By this time the original volunteers were exhausted, having been up all night, and were now being evacuated.) From then until the following week, the volunteers carried on. One OPP constable was assigned to relieve those at check points and to see to it that those delivering food could move about without hindrance.

The volunteers provided the firefighters three meals per day serving more than 100 persons each time. They spent just more than \$700, and since most of the supplies were donated this led to a great deal more participation. Tim Horton's (a chain of shops

started by a former Toronto Maple Leaf hockey star) supplied enough doughnuts to cover each coffee break. McDonald's supplied orange drinks. Coca-Cola and Pepsi distributors supplied numerous cases of pop.

Politicians. The mayor of Nanticoke and the chairperson of Nanticoke's emergency committee were on-site the first night and the regional chairperson arrived the next morning. The local member of the provincial legislature paid a visit as did the area's federal Member of Parliament and provincial cabinet ministers--the Solicitor General, the Minister of Environment. The leader of the New Democratic party (now the provincial premier), his environmental critic (now Minister of Environment), and the local NDP candidate (now a member of the legislature) all visited the site.

Other participants. Salespersons from chemical companies arrived anxious to show firefighters that their product was ideal to put out the fire. Additionally, when staff from the Ontario Fire Marshall set up an office in Jarvis, they were flooded with calls from persons who said they knew how to put the fire out. Suggestions ranged from dousing it with sand to blowing it up with an atomic bomb. Most callers offered to fly in at government expense.

Some of the persons who visited the site came in private cars, but many were in various official vehicles. The OPP, who were the site managers, had enormous problems with perimeter control. There seemed to be an endless flow of visitors, some of whom were quite important. The Solicitor General, for example, is the minister to whom the OPP report.

### Media Response

Media involvement, like the police response, began slowly. The first photographer was on-site less than 90 minutes after the fire started, but several hours passed before the second arrived. The first reporters were not there until morning. After that, representatives arrived from 50 different media outlets, many of them coming in teams. By midmorning Monday, officials on-site found their cellular telephones of little use because they, plus the media, had overloaded the system.

During the first few hours, police on perimeter questioned whether media should be allowed on-site. After discussion, they were allowed in, though they had to leave their vehicles outside police road blocks. But, for at least the first day, no reporter was

prevented from getting close to the fire. Later, site access was more controlled and more organized; the media were taken in organized convoys, riding either in OPP vehicles or in vehicles obtained by the OPP (for example, vans from Union Gas and a Baptist church).

The first photographer on-site was from the area's major daily, the Hamilton Spectator. The second came from the nearest daily, the Simcoe Reformer. The fact that the first two media persons on-site were photographers probably flows from a news norm: fires make great pictures but without dead or injured there is not much of a story. Next on-site were reporters the Simcoe Reformer and another daily, the Brantford Expositor. In addition there were reporters representing half-a-dozen weekly newspapers from towns in the area--Caledonia, Delhi, Port Dover, Port Rowan, Grand River, and Tilsonburg.

After the Canadian Press news agency (Canadian Press is the Canadian equivalent to the Associated Press) distributed its first story at 7:30 a.m., television crews began to arrive. First was a crew from CFTO in Toronto, the anchor station for the private CTV network. Soon there were crews from CHCH-TV in Hamilton, CFPL in London, CKOC in Kitchener, as well as CTV network. Later, there was a crew from the CBC TV network. Eventually photographers, reporters, camera crews, and other media personnel would come from most eastern Canadian media, from media centers in the United States (Buffalo is just an hour's drive from Hagersville), and from Sweden, France, and Holland. Local media also got overseas phone calls; a news director in Simcoe had a live interview with BBC Radio from London.

Although most media came by road, many, even local newspapers, decided the event was worth an aerial photo. Early Monday, the sky over the fire began to fill with aircraft. The Brantford Expositor was the first to hire a plane, next was the Simcoe Reformer, then the Toronto Star and the Hamilton Spectator. Eventually, at the request of the OPP, Transport Canada put out a NOTAM restricting air traffic over the immediate fire area to emergency traffic, mainly provincial water bombers, an OPP helicopter, and a helicopter loaned by the federal Department of National Defence. (All air traffic had not been media. One plane carried a flying instructor and a student, another a curious airport employee from Hamilton.)



Most media who came on-site early left to develop photographs or file their stories. Unlike the later arrivals these small-town journalists did not have cellular telephones or lap-top computers (the Simcoe Reformer did not install computers in its newsroom until a year later). CFTO in Toronto was the first to bring a portable satellite unit to the scene. The unit was parked on the corner of the site by Monday afternoon. City TV was next but it was forced to park further away (CFTO had arranged its closer access through OPP headquarters in Toronto).

Later arrivals from other major TV outlets and the major newspapers were a boon to the economy. Although the CFTO crew drove back and forth to Toronto every day, other media settled in near the site, usually in the motels in nearby Simcoe. Some of the local media felt somewhat intimidated by the influx of elite media such as the New York Times, ABC News and the Toronto Globe and Mail. All the media gaped as an ABC crew arrived in a white limousine, each crew member wearing what (to the less well-dressed Canadians) appeared to be five hundred dollar suits and two hundred dollar Gucci shoes (ABC even offered a Lear jet to fly key players to New York so they could appear on "Nightline").

On Monday and Tuesday, the media were allowed on-site on their own. Wednesday, they were allowed to use their vehicles under police escort. Thursday, the daily bus trips began because the Wednesday arrangements proved unsatisfactory; some journalists wandered off, occasionally right into the fire area. Firefighters complained they could not work under such conditions. One CBC Radio reporter was taken to a hospital, apparently suffering from smoke inhalation.

The new bus system did not control all media visits. One local reporter got in by posing as a volunteer firefighter. Two others, a TV camera person from Global Television (it serves Group W in the United States) and a freelance photographer, crawled across fields and through mud to get some night pictures of firefighting. One got his eyebrows singed.

The media were not unwelcome. Provincial government agencies vied for media attention, as did their political bosses. The overall "winner" was the MNR whose spokesperson won media affection by handing out toy water bombers for children and by appearing for news conferences in a highly visual hard hat. But the coup went to the

Solicitor General's department whose minister was first on-site shaking hands when the fire was put out.

### SPIN-OFF ACTIVITY

Convergence was not confined to the area around the fire. There was significant spin-off activity in communities nearby, at the provincial capital, Toronto, and even hundreds of kilometers away at Canadian Forces Base Petawawa.

The first important spin-off activity involved preparations to receive evacuees at three main locations: Port Dover, Brantford, and on the Six Nations reserve.

At Port Dover, a reception center was set up at the Port Dover Composite School. The material brought to the school filled up half the gymnasium and forced the school to cancel gym classes for a day and a half. When school officials noticed no arrivals, they suggested a move to the Port Dover Community Centre next door. At noon Wednesday, about 50 students and volunteers carried the supplies over to the community center and the Red Cross volunteers moved as well. The school remained on call in case the situation worsened.

Various fast-food chains donated lots of food. Doughnuts were donated by Mr. Mugs in Port Dover, breakfasts by McDonald's in Simcoe. Port Dover Red Cross also got food or offers of food from the IGA food store, the Erie Beach Hotel, and Knechtel's. Since no evacuees arrived the volunteers ate the food themselves or gave it to volunteers making meals for firefighters. Beds, mattresses, and blankets were donated by Ontario Hydro. Air mattresses and sleeping bags came from the militia in Brantford. Bedding was also received from the Norfolk General Hospital and the Salvation Army in Simcoe and Dunnville.

Fifty members of the Hugh Allen Royal Canadian Legion volunteered to help run the center, run errands, and help with food. Bell Canada provided two cellular phones. Gamble Ship Yards donated use of its fax machine and even had one of its employees relay messages. For the first 24 hours, St. John Ambulances were on hand to provide first aid. The Regional Health Unit kept a nurse on duty for the first four days. Because the Port Dover Red Cross is quite small, it asked Brantford Red Cross for assistance. Brantford had the registration and inquiry cards Port Dover needed and also brought

food from Calbeck's Food Markets.

In the city of Brantford, where there were reports that as many as 10,000 evacuees would arrive, planning began with a late Monday afternoon meeting attended by city officials including the chief executive officer, the chief of police, the medical officer of health, staff from community and social services as well as from parks and recreation, the OPP detachment commander in Brantford, and volunteers from the local Red Cross. All had been contacted by a "fan-out" telephoning procedure which is one segment of the city's emergency plan.

The Ohsweken and Lion's Park ice arenas would serve as backup shelters, and staff were put on alert so that planks could be laid on the arena ice surface at short notice. Arrangements were made with the local Red Cross to provide volunteers to staff the centers. The Red Cross contacted two other groups--the Union Hall Ladies Auxiliary and the Old Windham United Church Ladies Auxiliary--who agreed to work as well. As a precaution, the Red Cross purchased some bread for sandwiches and reached an agreement with two grocery stores that they would open, even in the middle of the night, and provide on credit anything that was needed. Beds were procured from the John Noble Senior Citizens Home in Brantford and would have been used for the civic center, had it been necessary. As it turned out, no evacuees came.

Similar plans were being put into effect at two aboriginal communities downwind from the fire. From the start, officials from two reserves, New Credit and First Nations, attended the emergency meetings on-site, and on Tuesday they were told they needed to act. These communities have their own governments, their own fire service, and their own police and were ready to respond.

As soon as it received a warning from Environment, the New Credit Reserve moved its older residents, taking them to the Six Nations home for the elderly. It also hastily photocopied fliers (almost the same as those used in Nanticoke the day before) that advised residents to leave because of smoke danger and arranged for these to be distributed to all households. By midday Tuesday most persons on the New Credit Reserve had moved. Some went to the Six Nations reserve, where the community center had been set up to accommodate between 150 and 200 people. Most moved in with family or friends. The evacuation was carried out by members of the band council

assisted by the Six Nations police force (there is no aboriginal police force on the New Credit Reserve).

At the Six Nations Reserve, where there is a resident police force, the warning came not from Environment but from the OPP to the Six Nations police. Once it was issued, the OPP came onto the reserve to assist the Six Nations police, volunteer firefighters, members of the band council, and representatives from Health and Welfare Canada go door-to-door telling persons they should move. About 450 of the reserve's 1600 homes were affected. Since most homes were not affected, those who moved were able to find alternative accommodation.

The community center at Six Nations had been set up as a reception center by a number of agencies working together--the band's health unit, police, fire department, roads department, band council, and some volunteers from the Salvation Army. The overall administrators of the center were personnel from the band council and the medical office on the reserve. The Salvation Army got sleeping bags and blankets from a summer camp at Selkirk. Mattresses were brought in from the John Noble Home in Brantford. (The community center, itself, became a center of convergence.)

#### OTHER OFF-SITE ACTIVITY

Activities off-site were not confined to plans to receive evacuees. A nearby Esso refinery processed some of the oil that was being produced by the burning tires. A steel plant processed some of the contaminated runoff water. Supply companies provided foam, breathing apparatus, uniforms and other equipment. A t-shirt manufacturer made special t-shirts. Ontario Hydro provided plastic sheeting to go with the slag for the new road system. Much of this material had to be moved quickly, increasing the traffic to the area and the site and, inevitably, the amount of road maintenance, sanding and plowing.

There was also activity at Canadian Forces Base Petawawa, hundreds of kilometers from the scene. On day five, February 16, the base put 40 firefighters from its firefighting school and 1,000 troops on 12-hour standby. They also loaded bulldozers onto trucks. They felt they might be needed if a decision was made to attack the fire 24 hours a day.

Finally there was activity at local schools, hospitals, and nursing homes. The

hospitals and nursing homes were warned but not evacuated, and two of the schools actually closed. When Walpole North Elementary School shut down--it was in the evacuation area--the school board set up an emergency plan whereby its students would go to classes at Hagersville Secondary school, about six kilometers away. Children would be bused there and have "open concept" classes in the cafeteria and the gym with a portable blackboard. The plan was never carried out; the children simply missed a week of school. The other shutdown occurred when the principal of St. Mary's, next door to West Haldimand Hospital, closed the school because he saw smoke and because parents said the hospital was being evacuated. The decision caused some problems when some children arrived home and their parents were not there to greet them.

Though other schools were not affected, some school bus routes were. Buses were not allowed in the evacuation area, forcing some children to walk out past OPP road blocks. It is not clear how many children did that since some families had evacuated, others had not. There was no affect on school attendance.

Other schools were kept on alert. The Haldimand school board was notified by Environment that shifts in the winds might call for further closures. The schools on alert included Hagersville Secondary School, Parkview and Northview Schools in Hagersville, and Jarvis Public School. In all cases the board kept principals informed on a day-to-day basis. A routine early-closure procedure would have been used if necessary.

### HOSPITALS, NURSING HOMES

While no hospital or nursing home actually closed, the threat of closure did have an impact. When the West Haldimand Hospital thought it might have to move its 21 chronic and 26 acute care patients it asked four other hospitals to be prepared to receive them--Norfolk General in Simcoe, and Dunnville Hospital, Brantford General, and St. Joseph's in Brantford. Norfolk General started to limit the number of admissions and cancelled elective surgery for three days. Dunnville Hospital discharged a few patients early and made arrangements for others to be cared for at home. Brantford General had a plan to discharge some patients and cancel some surgery; however it remained unused. St. Joseph's Hospital categorized patients for early discharge.

To make certain there would be transportation available to move the patients, the

ambulance service contacted ambulances at 11 hospitals as well as Metro Ambulance in Toronto. The assistant regional ambulance manager directed eight ambulances to stand by at the West Haldimand Hospital, sending more traffic into Hagersville (19 more were on standby in their own service areas).

The two other Hagersville institutions--Norcliffe Life Care Centre (a nursing home) and Chateau Royale (a retirement home)--also made moving arrangements. Norcliffe's hastily conceived plan called for its residents to be transported to three other homes, Grandview Lodge in Dunnville, Norview Lodge in Simcoe, and Port Dover Health Care Centre. While that plan was being prepared, a woman working at St. Olga's nursing home in Hamilton who was unable to talk to anyone in Hagersville because phone lines were jammed, arranged to have the residents taken to the cancer unit at the Salvation Army Henderson Hospital and Hamilton Psychiatric Hospital on Hamilton mountain. She lined up family cars owned by staff members at St. Olga's (the nursing home where she worked) and staff at Hamilton Psychiatric. Only when she drove to Hagersville (she never did get through by phone) did she discover another plan had been worked out.

Chateau Royale's plan, developed with the help of regional police, called for some residents to be picked up by family members, some to be sent to West Haldimand Hospital (which was also waiting to be evacuated), and some to go to a home in Jarvis called Leisure Living. At Leisure Living, the owner was making his own plans in case he had to evacuate. His plan was for his 25 residents to be taken to Dunnville where there were eight empty rooms in a vacant house owned by a local real estate agent.

At Grandview Lodge, which was to receive residents from Norcliffe, some nursing staff put in extra hours to set up beds and others were put on call. Because the lodge never received any cancellation notice--the original call came from ambulance--the beds were kept ready for the next two weeks. The other nursing homes remained ready to take in evacuees but were not required to spend money or bring in extra staff.

### TESTING AND CLOSURES

In addition to previous activities, government officials were checking the affected area to determine if food or agricultural products had been affected by the smoke. The

movement of vehicles carrying these officials added to the traffic in the area.

Although nothing serious was ever discovered, fear led to some shutdowns. Four local meat processing companies in the evacuated area, Miedema's Meats, Teal's Pure Pork Sausage, Fred's Meat Products, and Jepson's Meats, were ordered to close temporarily. A local grocery was not only forced to close but lost long-time customers who were afraid to purchase food from the area.

Miedema's Meats in Waterford shut down when the OPP informed it that it was in the evacuated area. Its meat had to be kept in sealed containers until it was checked by the Ministry of Agriculture and Food. Fred's Meat Products in Hagersville was not only told to close, it was "advised" by the Ministry of Agriculture and Food to throw out all the meat in the store--a loss of nearly \$2,000. It has filed a claim. Teal's and Jepson's were both closed for a week and had to be inspected before they were allowed to reopen.

L & B Country Mart in Waterford was closed for 13 days. When it reopened it had to throw out its produce because most of it had gone bad. The Mart also experienced some loss of customers who were concerned about the quality of food and produce coming from the fire area. The owner posted signs stating that his milk and cheese were from Toronto in a desperate attempt to calm fears. All in all the store recorded substantial losses in sales and the three members of its staff lost earnings.

The Ministry of Agriculture and Food had a team of engineers and scientists collecting samples of feed, milk, meat, eggs, and crops. These were tested at a private lab in Toronto and nothing was found. Because of concerns about water, the Ministry suggested farmers not use water from nearby Sandusk Creek and also suggested all cisterns be disconnected. One local firm, Cam the Water Man, hauled water for one farmer for nearly a year. Two others, rather than risk contaminated water, loaded their cattle on trucks and moved them out of the area.

A number of federal government laboratories were involved in the testing. In Toronto, scientists at Health and Welfare Canada laboratories performed some of the water tests, working with samples flown to Downsview by a Defence department helicopter. Other tests were done in Ottawa at labs run by Agriculture Canada and the federally funded National Research Council.

### WORKER SAFETY

Concerns were not confined to food, water, soil, and evacuees. There were also concerns about workers on-site. The branch manager for Industrial Health and Safety of the Ontario Ministry of Labour works in the same building in Hamilton as other provincial officials, and he had seen a number of his colleagues go to the fire. Until Friday, his own involvement consisted solely of watching media reports. He assumed others were paying attention to worker safety on-site. That day, however, he got a call from the region's medical officer of health asking that he come and assess the situation.

On Saturday, the branch manager, an inspector, the ministry's senior hygiene consultant, and one hygienist went to the site and immediately became concerned. There was no decontamination area. Persons, in their view, were not using proper protective equipment such as coveralls and gloves. Heavy equipment operators and some fire-fighters were not wearing breathing apparatus. About noon, the inspector suggested that work cease until proper protective equipment was supplied and training given to all site workers. Although he did have the authority to close the site as an unsafe workplace under section 29 (1) of the Occupational Health and Safety Act, he never formally took such action. Nevertheless, the site was closed from approximately noon Saturday to Tuesday afternoon. Before it re-opened, equipment operators were taught how to use self-contained breathing apparatus (training was done by staff from the Ontario Fire College at Gravenhurst, brought in for this task). Brackets for such apparatus were welded into the cabs of heavy equipment (which meant a team of welders had to be brought on-site). Supplies were ordered and delivered. Once operations restarted, health and safety staff remained on-site to ensure worker safety.

### THE PROVINCE STEPS IN

The health and safety officials were just a small part of the increasing presence of a provincial group which was to become involved in the fire. Throughout the first week, officials in Toronto, the provincial capital, had been monitoring events, even paying an occasional visit. Midweek, for example, the head of Emergency Planning Ontario visited the site. On Friday afternoon, this changed when fire personnel told the regional chairperson they could no longer handle the fire. For one thing, they reported, the



volunteer firefighters were exhausted. For another, many of them were finding the nonstop demands of firefighting too much (some were in business for themselves and were losing all of their income).

Startled by the news, the head of Emergency Planning Ontario put together plans for a top level meeting. Saturday morning, he met with the Deputy Solicitor General, the Deputy Environment Minister, the Assistant Deputy Minister from the Solicitor General's Department, and staff from the Solicitor and Deputy Solicitor General's Offices, and the Cabinet Office. He told them that in his view there were two questions:

- 1) Should the province declare the fire to be a provincial emergency?
- 2) If not, how should the fire problem be handled?

There was some support for the first alternative. A case involving the tire yard had been in court for some time, and there had been allegations the fire was a result of provincial negligence. Perhaps the province should intervene. This view was strong enough that an official was told to prepare a declaration of emergency. While he did so, the officials considered other possibilities. The fire could be turned over to one of two provincial agencies, the Ministry of Transportation and Communication (MTC) or the MNR. If the fire could be buried, MTC had the necessary equipment and it was already partly loaded. If the fire had to be fought, MNR was the best choice because it is the province's forest fire agency and it has a team of experienced firefighters on-call, most of them in Northern Ontario. Of course, if those alternatives were unacceptable, the province could ask the federal military to take over. Military personnel were already on standby and federal politicians, bothered by the questions in parliament, were anxious to become involved.

Ontario sees itself as a powerful, independent province, therefore asking the military to handle a provincial problem was not acceptable. Neither did using earth moving equipment to bury the fire seem practical. The fire would have to be fought, and that task would be given to the provincial forest firefighting agency, MNR. This decision was welcomed by the OPP who have an excellent relationship with MNR in Northern Ontario and had enjoyed MNR support at the Dryden air crash (Scanlon, Osborne and Simard, 1989, pp. 248-249).

MNR was not to function alone. The province and the region would establish a

joint task force, and a senior provincial official and the regional chairperson would chair its meetings. To provide staff support for this expansion of provincial involvement, Emergency Planning Ontario rented an office in a building near their regional headquarters over the weekend, calling it the Joint Response Centre. Office furniture was delivered by the Ministry of Government Services and Bell Canada installed telephone lines and telephones (it took longer to get the phones than to install the lines). Also purchased and/or delivered were eight cellular telephones, two fax machines, two photocopiers, and two word processors.

The new Joint Response Centre was running by Monday. It housed the Office of the Fire Marshal, OPP, MNR, the Ministry of Health, MOE, and a media relations person. Space was also allotted to the Ministry of Agriculture and Food, Environment Canada, and the Department of National Defence. Four local persons were hired to handle public inquiries.

### THE SECOND WAVE

While this structure was being created, the MNR was moving in its own team. Municipal firefighters fight fires by attacking them and putting them out. Forest firefighters put fires out too, but they do it quite differently. Instead of tackling fires head on, they move in from the sides, trying to redirect them, or they make a clearing (a "fire break") in the fire's path. MNR crews would need to make some adjustments if they were to extinguish the tire fire.

Aware of this, MNR officials set out criteria for their firefighting personnel. They decided all personnel would have to:

- have municipal firefighting experience;
- have been at least a crew boss;
- agree to make a long-term commitment, perhaps for a month;
- agree to the usual no alcohol rule;
- agree to accept re-training so they could be fully prepared for a new kind of task;
- arrive at the tire fire area by Monday evening (within 48 hours);
- agree to shave if they had facial hair so they could properly wear self-

contained breathing apparatus;

- accept the specific pay rate which included no overtime.

Over the weekend northern Ontario was scoured for persons who met those criteria (crews are not on standby during the winter). Selected personnel were flown to southern Ontario and driven to the area where they were carefully briefed. They were told local residents might resent paid professionals taking over. They should be very careful how they conducted themselves, making sure, for example, that they did not throw money around in town and did not boast about their skills. If they talked to the media, they would emphasize they were there to assist, not to take over. (The reason only crew bosses were wanted is that all MNR crew bosses have media relations training and experience.)

In addition, all MNR personnel would be shown how to use self-contained breathing apparatus. That task would be done by the staff from the Ontario Fire College, already on-hand to train the heavy equipment operators. But it meant still more equipment, all of it adding to the wave of provincial convergence to the area that weekend. (There were now also pockets of convergence in the communities where various agencies had rented hotel rooms.)

The problems with firefighting had also swelled media numbers, which had been dropping off as the fire became routine news. There were about 12 to 25 members of the media present for the first news conferences. By Friday, the day volunteers found the fire too much to handle, the number of media representatives swelled to somewhere between 40 and 60.

Finally, because the tire fire was attracting a lot of attention, officials from neighboring Quebec's MOE and Quebec's Office of the Fire Marshall arrived to have a look--one of many official visitors. The look turned out to be useful because it was not long before Quebec had its own tire fire at a place called St. Amable.

### TWO-WAY FLOW

Although area residents had been told they should evacuate, they were not told they had to do so, and they were not prevented from coming and going if they lived within the "evacuated area." This meant that in addition to all the other activity there

was a steady flow of residents back and forth across the police perimeter. That, along with the flow of fire personnel, equipment operators, staff from the utilities, various inspectors, and media, meant that there was so much steady traffic in and out of the site that police found it almost impossible to control. It was fairly easy, for example, to spot a firefighter if he was in uniform. But it was not so easy to identify an off-duty firefighter, an equipment operator, or an employee of one of the various contractors. Perimeter control is always a problem in early response. Because no one can be sure precisely what skills are needed at a site, police are reluctant to block access to those who say their skills are needed.

At the Hagersville fire, perimeter problems continued for 17 days. Even when police felt they had things under control, there were always visitors to whom access could not be denied. Provincial police, for example, could hardly stop a provincial cabinet minister from visiting the site, and if that minister got in they certainly could not stop someone from the opposition.

After a while activity in and around the site became routine. Firefighters, both from MNR and from local volunteer stations (they were still manning the pumpers and driving the tankers), would arrive each morning and leave just before dark. Media personnel would come in for a daily collection of visuals.

At the regional offices, the situation had become routinized as well. Each morning, participants met to share information about what had happened the day before and what was to happen that day. The meetings had begun as informal affairs at an unused church next to the site. Now they were held in a large room at regional headquarters with persons from 40 to 50 different agencies present. The original regulars-- police, the fire coordinator, the fire marshal's office, and natives from the two reserves-- had been joined by staff from Health and Welfare Canada, the Department of National Defence, the Haldimand-Norfolk regional police, provincial ambulance, city roads, regional works, Occupational Health and Safety, Ontario Ministry of Food and Agriculture, Agriculture Canada, persons from the clerk's office and Emergency Planning Ontario, and visitors. One day there was an official from the Home Office in the United Kingdom and the London Fire Brigade.

While these meetings were in session, the media would stand by waiting for a

news conference. Their presence, plus the presence of so many officials, meant parking at the regional headquarters was almost impossible to obtain. The office had also become a center for daily convergence.

To make decision making possible, a separate executive committee was established. It included the mayor, the regional chairperson, the medical officer of health, the assistant deputy minister from the Ministry of the Solicitor-General, and representatives from provincial Environment, Office of the Fire Marshall, and Emergency Planning Ontario.

Three subcommittees were also established: one on health and the environment (the medical officer of health, the MOE, Health and Welfare Canada); one on fire management and safety (the fire chief, regional fire coordinator, Office of the Fire Marshall, MNR, Occupational Health and Safety); and a third on financial and legal matters (Ministry of Municipal Affairs, legal representatives from the region and the province.)

### FINDINGS

The data on Halifax, North Bay, Mississauga, Dryden and the tire fire support the findings of Fritz and Mathewson (1957). Disasters lead to personal, informational, and material convergence. But the evidence in this paper suggests not only that convergence can be official and unofficial but that official convergence can also create congestion and that this may happen without media being involved. At North Bay there was on-site personal and material congestion within minutes, well before the media had reported the incident. At Mississauga, there was informational convergence off-site just as quickly, again without media playing a role. At Hagersville, convergence took longer to develop but so did the first news reports. In fact, at Hagersville there were no reports on the news wires until early Monday morning. By then the site was crowded with firefighters, police, tankers, the mayor, the medical officer of health, city and regional work crews and volunteers serving food.

The media played an important role in convergence at the tire fire. They were an enormous presence at the scene and over it. Their reporting was one of the reasons telephones were jammed. Their presence undoubtedly led to the presence of some

politicians, and their attention to the fire story was, no doubt, one reason for the willingness of the province and the desire of the federal government to intervene. But the data from a number of these case studies, including Hagersville, show personal, informational, and material convergence will occur even if the media are not involved.

These studies also suggest that convergence is not a one-time phenomenon. The buildup at the tire fire continued for days and came in waves. That was particularly true the first weekend, when the new arrivals from MNR, the Ontario Fire College, and additional provincial support staff swelled the numbers on-site and off. Convergence can also occur well away from the scene. There was limited convergence at the reception centers in Port Dover and Brantford (just because of meetings) and significant convergence in the First Nations Reserve.

The idea that there are several points of convergence has not, as far as we know, been suggested earlier in the literature on disaster, but it does appear valid. It happened in Mississauga where there was convergence at the site and at the main reception center established by the Red Cross at the Square One shopping center (Scanlon and Padgham, 1980). It happened both at the hospital and at the police station in Darwin, Australia, after Cyclone Tracy devastated the city in December 1974 (Scanlon, 1980). In Darwin there was a delay in movement until traffic routes were cleared, then the injured descended on the hospital. About the same time, both officials and the public converged on the police station, the one building with emergency power.

The idea that there may be peaks of convergence at different times is borne out by additional data. After the Zeebrugge ferry disaster, the peak number of inquiries to the police occurred 48 hours after the disaster (Jordan, undated, p. 30).

The study of the response to the tire fire also revealed something we noticed but were not able to study: that convergence towards the fire site created some vacuums--as when fire equipment summoned to fill-in at Hagersville was called to the site or when maintenance staff at the filtration plant left to work pumps at the scene. E. L. Quarantelli reported the same thing happened to the fire department during the response to the Watts riot in California (personal interview).

In one sense, Hagersville was a bad place to study convergence. Personal convergence was at a minimum because the site is isolated and because police controls

were in place before the media broadcast what was happening. Informational convergence was at a minimum because evacuees found private accommodation and their numbers were small. Unofficial material convergence was minimal because there were no appeals for public support, except for food. However, the absence of these unofficial forms of convergence made this an ideal place to study official convergence. Because the other forms of convergence were largely absent, the data clearly indicates that official convergence can be an enormous.

Hagersville also revealed that convergence is not just an immediate ad hoc reaction to a disaster. Over time, like many other things, it becomes routinized. What eventually happened in and around the tire fire was that the original unexpected and unplanned convergence turned into a daily routine, on-site and off. At regional headquarters, the situation was so routine that some staff not involved in the fire response managed to complete the annual budget process. Dealing with the fire had become complex and time consuming, but it had been absorbed into the region's daily routine.

### CONCLUSIONS

In terms of convergence, the tire fire may have been an unusual event in that the initial response was followed hour by hour, day by day, by a continuing buildup; the convergence came not in a steady flow but in waves; and the tires burned for days. Further research may, however, show that these phenomena are more common than previously believed and that convergence is a more complicated process than Fritz and Mathewson (1957) may have suggested.

It is worth asking whether the sort of routinization of convergence which took place at the tire fire would happen in an event with a shorter life span. Future research may explore whether, and how quickly, it occurs at other types of events. Additional questions need to be addressed. Can convergence be controlled by establishing some sort of pass system, by controlling the media, perhaps by enforcing an initial news blackout, and by creating some sort of information corps, as per Fritz and Mathewson's suggestion?

Although control of convergence at the tire fire was less than systematic--there were many players coming and going--a system of passes and tight perimeter control has

worked elsewhere. At Gander, for example, after the 1985 Arrow air crash, the Royal Canadian Mounted Police were able to control site access quite effectively:

Site clearance had to be arranged through the off-site emergency control center, then relayed to the on-site police commander and the perimeter. Sometimes access could be gained easily. At other times, as traffic piled up or access needed to be discussed, visitors had to wait up to 40 minutes . . . All had to be identified . . . most uniformed personnel - fire, police, military - were allowed in, but others had to have a pass or an escort. (Emergency Communications Research Unit, 1987, p. 40)

Gander may be an isolated case. Control systems have not worked so well where the emergency situation was more pressing. When police set up roadblocks in Mississauga where 217,000 persons were evacuated after a train derailment, they found many key personnel did not carry identification. Off-duty ambulance personnel and transit

drivers were unable to identify themselves, Even . . . emergency personnel, at times, caused problems for those on perimeter duty. Firemen, for example, are easily identified when in uniform at the scene of the fire. They are not easily identified when they are reporting for work in civilian clothes. (Scanlon and Padgham, 1980, p. 76)

Moore reports the same sort of problems much earlier, after the Waco and San Angelo tornado:

As the restricted area shrank, it was necessary to change the color of passes . . . Uniforms of any sort and official insignia on cars were usually honored without question, but in some cases public utility workmen trying to close valves and restore essential services had difficulty moving about. (Moore, 1958, p. 18)

While ground-level perimeter control may not be effective, aerial controls can work. At Hagersville, as reported above, the Ontario Provincial Police managed to stop media overflights by getting Transport Canada (the federal agency responsible for aviation) to issue a NOTAM prohibiting unauthorized flights over the fire. This worked because pilots are not prepared to risk their licenses by violating air regulations. Sometimes, however, such a control takes time to put in place, and media response is so fast that aircraft flying under visual flight regulations (which means they are not required to listen to radio advisories) are in the air en route to the site before a NOTAM can be issued. After the 1983 Coalinga earthquake in California, for example, helicopters from radio and television stations created an aerial traffic jam (Scanlon, 1991, p. 95).



Another form of control—especially control of official convergence—is the creation of what has come to be called a staging area; official vehicles from various agencies are brought to locations near the site then held there until they are wanted on-site. This technique was tried after the 1978 San Diego air crash:

Although the police medical supervisor tried to establish a staging area just north of where the jet hit, the response was so great the ambulances eventually parked in long lanes on both sides of the site. As there were no survivors, their presence became unnecessary. (Scanlon and Prawzick, 1985, p. 8)

The speed at which news spread by informal channels seems to suggest that Fritz and Mathewson's idea that a temporary blackout of all news about a disaster may not be practical but that television broadcast maps showing precisely what area has been affected (1957, p. 75) has proven useful. Barton makes a very similar suggestion in respect to warnings then suggests the approach might be useful after the fact:

Broadcasting news of the precise areas of danger would of course arouse some people . . . to converge on the scene . . . but highly individualized information takes so much time and effort to put together that it is more feasible after the immediate emergency period than during it. (1970, p. 196)

In the article "Coping With the Media in Disasters," Scanlon et al. adopt Fritz and Mathewson's ideas of reporting the precise area affected (though they credit it to Barton, 1970):

By reporting those areas not hit by a disaster, the media can provide reassurance to many who would otherwise call to see if their homes, their friends, their families have been affected. Normally it makes no sense to report what has not happened. In time of disaster, however, such reports may reduce the problem of local disaster response. (1985, p. 129)

Whatever the merits of that suggestion, it will not prevent the flood of calls from persons who still believe their relatives may have been affected. After the 1978 San Diego air crash, for example, the airline involved was besieged with calls for information:

The volume of calls . . . jammed its telephone system. The company's security officer, a former San Diego policeman, was forced to call on friends in police departments to bring in radio telephones and vehicles equipped with radios to establish communications with the outside world. (Scanlon and Prawzick, 1985, p. 27)

The same sort of thing had happened after the Lockerbie and Dryden air crashes.

Scanlon and Taylor (1975) offer one other suggestion. In their study of the North Bay building explosion, they suggest that media messages requesting persons to stay away from a site may be effective:

CFCH radio did request people to stay away from the scene, and there were requests to people not to use the telephone. Some people in the sample volunteered the information that they had stayed away from the scene as a result of a request to do so. In other words, requests for cooperation may be effective. (p. 11)

As noted earlier, Johnstone (c. 1919) reported the same thing occurred after the Halifax explosion.

In other places, officials have simply braced themselves for a flood of calls. Police forces in the United Kingdom have started setting up special centers solely to handle inquiries from those affected, and those who think they might be affected, by various incidents. The Department of External Affairs in Canada's federal government sets up a similar type of inquiry center to answer queries from persons concerned about Canadians caught in foreign incidents. The systems appear to work though not always immediately. Kent Constabulary reported that after the Zeebrugge ferry disaster the casualty center's phones were jammed for four consecutive days, even though extra lines had been installed. At one point, the bureau was receiving 360 calls an hour (Jordan, undated, p. 29).

The creation of one central place where information about victims can be obtained does reduce the strain on other locations. After the Edmonton tornado, the Red Cross collected information from all the affected hospitals and from individuals. Because it was then able to use the media to assure persons it could answer all enquiries about victims, it was able to steer callers away from specific institutions. The system did not work perfectly (some names were not made available to the Red Cross), but it does appear to have reduced the number of calls.

Although some new types of technology have been heralded as capable of overcoming convergence there is little evidence to support technological solutions. Cellular telephones, for example, have been hailed as ways to overcome overloading. They jammed at the tire fire and they have jammed at two other major incidents in the

United Kingdom. At Hagersville the media labelled the area around the site as the "dead zone" because of phone problems (Scanlon and Prawzick, 1991, p. 197). The problem is that such phones access the nearest available tower, a situation which, given convergence, makes overloading almost inevitable.

The real difficulty with controlling convergence during initial response to a disaster is uncertainty (for instance, are there fatalities, injuries, persons buried alive, broken gas lines, flooding, downed live wires) making it difficult to know what official response is required. Only when problems have been clearly identified is controlled response, or any sort of control over response, logical. No police officer, for example, is going to stop medical personnel from going to a disaster scene if he or she has any reason to believe some victims may still be on-site and in need of medical help. That means the only effective way of controlling official convergence is the rapid collection and assimilation of information, a conclusion that would come as no surprise to Fritz and Mathewson--it was the basis for their suggestion of some sort of communications corps:

In view of the imperative needs for help, information gathering tasks are usually relegated to a low order of priority. Hence, it may be necessary to develop public sanction by a program of education which would emphasize the crucial role of informational needs in a disaster. (1957, p. 70)

Fritz and Mathewson may have overlooked aspects of official convergence and overstated the role of the media in causing convergence, but they were quite correct that convergence is a function of lack of information and that it can be controlled only with carefully collected, shared, accurate information--something the very nature of a disaster makes difficult to achieve.

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