Fighting an Uphill Battle: a History of Public Health Reform in Fort William, 1892-1919.

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Preface

This thesis examines the public health problems faced by the city of Fort William from the 1890s to 1919. It deals specifically with the views of local health officials and the efforts that they undertook to remedy existing public health concerns. It also includes an investigation into the extent to which the urban community cooperated with, and facilitated, local public health efforts. Was there resistance to local public health initiatives? Did the medical community always work in cooperation with city health authorities? Was the City Council always in favor of public health efforts?

Each chapter begins with an examination of public health problems in Britain and North America as a whole, in order to ascertain whether or not Fort William's experience in the area of public health was typical. Each chapter demonstrates that Fort William's public health concerns were similar to those experienced throughout Britain and North America. With urbanization came numerous health problems, none of which was alien to Fort William. The unsanitary condition of urban centres was believed by public health reformers to be a central cause of high mortality among urban residents, along with the ingestion of impure food products. Such conditions created the ideal environment for the outbreak of infectious disease.

Each chapter also demonstrates that Fort William health officials adhered to British and North American models of health reform, embracing both the sanitary idea and the germ theory of disease causation in their attempts to prevent infectious disease from occurring. As local health authorities attempted to put these public health theories into practice, they encountered resistance from various segments of the city community, a development that was in no way different from those in other municipalities in the

English-speaking world. Resistance to public health efforts came from political authorities, physicians, the business community, and the city population in general, all of whom at one time or another refused to cooperate with local health officials. This served to limit their effectiveness. Despite this opposition, however, progress was made in reducing the mortality rate in Fort William.

Chapter One:
Public Health Theories in the Nineteenth Century and their Impact on English-Speaking Governments

This chapter examines the public health theories that existed in the nineteenth century, and the degree to which these theories were incorporated by English-speaking governments. In Britain, the nineteenth century brought increased urbanization, which led to concerns being voiced as to the effect such a trend would have upon the health of urban-dwelling citizens. Consequently, the health authorities of the English-speaking world began to regard urbanization as an inhibiting development, serving to undermine the health of citizens living within urban centres. Reformers of the mid-nineteenth century focused upon the necessity of sanitizing urban centres, and believed that such measures would lessen mortality rates. In the latter part of the century came the bacteriological revolution, which cast new scientific light upon the nature of disease and its relationship to the surrounding environment. In response to these newly emerging public health theories, governments in Britain, the United States, and Canada began to make use of both sanitary and bacteriological methods in their campaigns to limit the spread of disease within urban environments. These efforts demonstrated the importance of both avenues of health reform.

Urbanization and its Impact on Health

In Britain, urbanization in the nineteenth century brought about problems that affected the health of citizens. Throughout Queen Victoria's reign, a succession of reports uncovered extensive health risks, many of which were consequences of the staggering increase in slum housing, industrial pollution, and occupational diseases brought about by

rapid industrialization. Poor Law Commissioners in the 1830s introduced evidence to prove that Britain's towns were literal "death traps" due to inadequate water supplies, sanitation, and sewage disposal.[1] The extent to which British cities suffered from the ill effects of urbanization was clearly revealed by Edwin Chadwick, Secretary of the Poor Law Commission in the mid-nineteenth century. In his Report on the Sanitary Condition of the Labouring Population of Great Britain, published in 1842, Chadwick argued that environmental pollution within British cities led to the outbreak of numerous diseases, which in turn resulted in degradation. The presence of animal and vegetable filth, dampness, and close and overcrowded dwellings, were in Chadwick's opinion, major threats to the health of urban-dwelling populations. Moreover, he argued that defective water supplies hampered attempts at personal cleanliness and improper ventilation played a leading role in bringing about excessively high mortality.[2]

The evils associated with urbanization were not exclusive to Great Britain; North America suffered from similar problems resulting from the growth of cities. In the United States, environmental pollution was an increasing concern for city authorities by the mid-nineteenth century. American cities suffered from health problems related to unpaved streets, non-existent garbage disposal methods, and the presence of excrement

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[1] Roy Porter, Disease, Medicine, and Society in England, 1550-1860 (Cambridge, England: Cambridge University Press, 1995), 53. See also William A. Brend, Health and the State (London, England: Constable and Company, 1917), 148-67.

[2] Edwin Chadwick, "Report on the Sanitary Condition of the Labouring Population of Great Britain," in Medicine and Western Civilization, ed. David J. Rothman, Steven Marcus, and Stephanie A. Kiceluk (New Brunswick, NJ: Rutgers University Press, 1995), 237-8. For additional data relating to the condition of urban centres in Britain during the late nineteenth and early twentieth centuries, see James Walvin, Victorian Values (London, England: Penguin Group, 1987), 38-52.

from thousands of horses.[3] New York was regarded as one of America's unhealthiest cities, since it had the highest annual death rate (one in thirty-five) of any major urban centre within the United States. Sewage and sanitation arrangements were woefully inadequate, and fewer than half of the city's population lived in houses or apartments containing bathing facilities. Charles Rosenberg writes that the rivers were the only water sources available to the poor.[4] In Canada, advocates of urban reform saw the rural environment as being much healthier than the city, for overcrowding within Canadian cities brought about various health problems among urban residents. Urban reformers regarded women and children as being particularly susceptible to the problem of overcrowding, and believed them to possess weaker constitutions.[5] The city of Toronto, Ontario, suffered extensively from the harmful effects of urbanization. As its population grew from approximately ten thousand in 1834 to forty thousand in 1861, many Torontonians (including some notably-trained British physicians) began to voice concerns over the existence of slums in the city and the lack of water and waste-removal systems.[6]

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[3] Stanley K. Schultz and Clay McShane, "To Engineer the Metropolis: Sewers, Sanitation, and City Planning in Late Nineteenth Century America," The Journal of American History, 65, no. 1 (June 1978): 390.

[4] Charles Rosenberg, Explaining Epidemics and Other Studies in the History of Medicine (Cambridge, England: Cambridge University Press, 1992), 126. See also Stephen Smith, "New York the Unclean," in Medical America in the Nineteenth Century, ed. Gert H. Brieger (Baltimore, MD: Johns Hopkins University Press, 1972), 263-77.

[5] P. F. W. Rutherford, Introduction to Herbert Brown Ames, The City Below the Hill: a Sociological Study of a Portion of the City of Montreal, Canada (Toronto and Buffalo: University of Toronto Press, 1972), xv.

[6] Heather A. MacDougall, "Public Health and the "Sanitary Idea" in Toronto, 1866-1890," in Essays in the History of Canadian Medicine, ed. Wendy Mitchinson and Janice P. Dickin McGinnis (Toronto: McClelland and Stewart, 1988), 63.

Migration and immigration trends within the English-speaking world further contributed to the unhealthy living environment of cities, bringing about a substantial increase in city populations. The 1800s saw rural inhabitants in Britain migrating to urban centres in increasing numbers, and this resulting in growing problems of overcrowding. At the turn of the nineteenth century, roughly twenty per cent of the population of England and Wales lived in towns with a population of over 5,000 citizens; by 1851 over half of the population (54 per cent) did so. By 1911, almost eighty per cent of the British population was residing in urban centres. Anthony S. Wohl, in his book Endangered Lives: Public Health in Victorian Britain, writes that the movement from the British countryside to the towns was "relentless" throughout the century.[7] In the United States, a reaction occurred against large-scale immigration by the twentieth century, particularly against immigrants arriving from southern and Eastern Europe.[8] In Canada, the problems brought about by immigration attracted considerable attention. James Shaver Woodsworth, a prominent advocate for social reform in the late nineteenth and early twentieth centuries, painted a rather dark picture of the immigrants and the urban conditions in which they lived. Woodsworth wrote:

> Ignorance of the language, high rents, low standards of living, incompetency, drunkenness and other evils are already producing conditions as bad as are to be found in the slums of the great cities. Unless certain tendencies are checked at once, it is appalling to think what will result with the growth of the city.[9]

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[7] Anthony S. Wohl, Endangered Lives: Public Health in Victorian Britain (London, England: Methuen, 1983), 3-4.

[8] Marilyn Barber, Introduction to James Shaver Woodsworth, Strangers Within Our Gates: or, Coming Canadians (Toronto and Buffalo: University of Toronto Press, 1972), xi. Alan M. Kraut's Silent Travelers: Germs, Genes, and the "Immigrant Menace" (Baltimore, MD: Johns Hopkins University Press, 1994), 78-9, discusses the variety of public health concerns expressed by American authorities pertaining to immigration.

[9] Woodsworth, Strangers Within Our Gates, 217.

The Emergence of Public Health Theories during the Nineteenth Century

The emergence of the sanitary idea in the mid-nineteenth was an important historical development, as it enabled public health advocates to conclude that a correlation existed between the condition of the urban environment and the spread of disease. The sanitary idea originated in the 1830s and 1840s in Britain, in response to the ill health and poverty that accompanied urban-industrial development. Advocates of the sanitary idea believed that the unsanitary conditions of urban centres were directly related to the spread of disease. The cholera epidemic of 1831-2, which brought about terrifyingly high mortality rates, was regarded as a prime example, as advocates of the sanitary idea pointed to increased urbanization and industrialization as the cause of the epidemic. Chadwick was a strong proponent of the sanitary idea. Chadwick argued that the presence of environmental pollution resulted in outbreaks of disease. He based his observations on the miasmatic theory of disease causation. Proponents of the miasmatic theory argued that unsanitary conditions within cities were able to bring about atmospheric states that were the causative agents of disease. Chadwick and his supporters claimed that the removal of animal and human wastes from the cities was the only way in which these atmospheric states could be prevented from developing.[10]

Health reformers who did not wholeheartedly support the miasmatic theory included proponents of the contingent-contagionist theory, which became especially influential between 1850 and 1875. Its supporters argued that the atmosphere alone was not entirely responsible for bringing about disease; rather, the atmosphere played an

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[10] MacDougall, "Public Health and the "Sanitary Idea," 63-4. See also W. F. Bynum, Science and the Practice of Medicine in the Nineteenth Century (Cambridge, England: Cambridge University Press, 1994), 55-91.

important role "working in concert with specific or non-specific contagion."[11] In the eyes of contingent-contagionists, it was human beings who were primarily responsible for the transmission of disease. Despite these differences of opinion, miasmists and contingent-contagionists could agree on the need for people to keep clean, for both groups believed that cleanliness was a substantial aid in the prevention of contagion. Both concluded that a diseased person's soiled and dirty clothing should be shunned, as should the air that was polluted by their breath, their excrement, or any other bad smell around them.[12]

As the nineteenth century progressed, scientists postulated that diseases were specific in nature, and were the result of specific organisms. By the 1840s, some physicians had come to regard contagious or infectious diseases as being brought about by specific microorganisms. This idea became known as the germ theory of disease.[13] Louis Pasteur, a French chemist, was one of the first to undertake an extensive study of microorganisms and concluded that they gained admission into the body through various portals of entry. Pasteur surmised that, once a particular microorganism had invaded the body, it worked to bring about a disease specific to that microorganism.[14] Dr. Robert Koch, a German physician, contributed substantially to the study of microorganisms and their role in disease causation. Until the time of Koch's discoveries, it had not been proven demonstrated that microorganisms associated with a particular disease were the

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[11] MacDougall, "Public Health and the "Sanitary Idea," 64.

[12] Michael Bliss, Plague: a Story of Smallpox in Montreal (Toronto: HarperCollins, 1991), 21.

[13] John Harley Warner, The Therapeutic Perspective: Medical Practice, Knowledge, and Identity in America, 1820-1885 (Princeton, NJ: Princeton University Press, 1997), 277-8.

[14] W. M. Frazer, A History of English Public Health, 1834-1939 (London, England: Bailliere, Tindall, and Cox, 1950), 147. See also Louis Pasteur, "On the Extension of the Germ Theory to the Etiology of Certain Common Diseases," in Medicine and Western Civilization, 253-7.

cause of it. Through experimentation, Koch proved for the first time that specific microorganisms brought about specific kinds of disease. Koch's most significant contribution to the study of microorganisms was his discovery in 1882 of the organism responsible for tuberculosis. In addition, between 1882 and 1884, Koch managed to isolate the causative organisms responsible for cholera and amoebic dysentery. Other discoveries would soon follow.[15]

Public health authorities embraced the newly developing bacteriological and epidemiological theories. Towards the end of the nineteenth century, public health ideology in both Britain and the United States began to categorize their citizens into "risk populations" based upon what was termed the "great principle of specificity." The advent of bacteriology entrenched the concept of specificity into the understanding of disease processes. The identification of specific bacteria, in essence, had "cut through the misty miasmas of disease and had defined the enemy in unmistakable terms."[16] With the origins of bacteriological research came a reemphasis upon the study of epidemiology, a science that was likewise geared toward the control and elimination of infectious diseases. Charles Chapin, the superintendent of health of Providence, Rhode Island, was one of the leading proponents of the new epidemiology. Chapin published a text on municipal sanitation in 1901 but concluded soon after that many of the sanitary measures being carried out were wasted; rather than institute sweeping sanitary activities, Chapin argued, health officers should concentrate their efforts upon controlling specific routes of

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[15] Ibid., 150. See also Dr. Robert Koch, "The Aetiology of Tuberculosis," in Medicine and Western Civilization, 319-29.

[16] Elizabeth Fee and Dorothy Porter, "Public Health, Preventive Medicine, and Professionalization in England and America in the Nineteenth Century," in Medicine in Society: Historical Essays, ed. Andrew Wear (Cambridge, England, and New York: Cambridge University Press, 1992), 266.

infection. To control the outbreak of tuberculosis, for instance, it was not necessary to improve the living conditions of 100 million or so citizens living in the United States, only to prevent the 200,000 or so active tuberculosis cases from infecting others.[17]

The use of bacteriological laboratories served to reinforce the importance of these developments. In the United States, following the experimental work of Pasteur, Koch, and others, the bacteriological laboratory became the primary symbol of the new public health. The clarity and simplicity of bacteriological notions gave laboratories tremendous significance, for the agents that caused the outbreak of disease were now visible under the microscope. While working at the Lawrence Experimental Station in Massachusetts, for instance, William Sedgwick was able to demonstrate the transmission of typhoid through polluted water supplies and to develop quantitative methods for measuring the presence of bacteria in the air, water, and milk. Thus the laboratory made possible the identification of diseases under the microscope, and drew attention away from sweeping environmental reforms such as street cleaning, housing reform, and improved living conditions for the poor. According to Elizabeth Fee and Dorothy Porter, the approach of "locating, identifying, and isolating" bacteria was regarded as a more effective way of dealing with disease than environmental reform, and the bacteriological laboratory was used to facilitate this approach.[18]

Proponents of disease specificity regarded immunization as a vital tool in the prevention of disease outbreaks. Late in the nineteenth century, the administration of sera and vaccines became an essential tool in the elimination of infectious diseases.

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[17] Ibid., 267-8.

[18] Ibid., 266-7.

Treatment became possible for smallpox, rabies, diphtheria, typhoid, and other diseases.[19] Smallpox was the first disease to be treated through vaccination. Edward Jenner, a British physician in the late-eighteenth century, was able to establish that injections of cow-pox (a disease of the udder) could confer immunity to smallpox.[20] This procedure had the effect of reducing the potential for smallpox in areas where "massive vaccination" had been undertaken.[21] By the late nineteenth century, vaccination against smallpox had become a standard preventive measure of public health authorities.[22] The unvaccinated proved to be the most vulnerable to smallpox. Francophones living in Montreal, for instance, were less likely to be vaccinated than other nationalities, and therefore suffered more from smallpox than those of English or Irish background. French Canadian children who went unvaccinated proved to be the most common victims of the disease.[23]

The maintenance of personal hygiene was regarded by germ theorists as an essential tenent of disease prevention. The sciences of physiology, psychology, and pathology in the late nineteenth century led some health reformers to believe that the "science of hygiene" was possibly the greatest advancement of the medical community, permitting not only disease prevention but also the development of a human being's

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[19] James H. Cassedy, Medicine in America: a Short History (Baltimore, MD: Johns Hopkins University Press, 1991), 86.

[20]Bliss, Plague: a Story of Smallpox in Montreal, 46-7. See also Edward Jenner, "An Inquiry into the Causes and Effects of the *Variolae Vaccinae*, or Cow-Pox," in Medicine and Western Civilization, 299-309.

[21] Bliss, Plague: a Story of Smallpox in Montreal, 48.

[22]Jacalyn Duffin, History of Medicine: a Scandalously Short Introduction (Toronto, Buffalo, and London: University of Toronto Press, 1999), 154.

[23] Bliss, Plague: a Story of Smallpox in Montreal, 50.

physiological, moral, and intellectual condition. Broadly regarded as the art of maintaining health and the achievement of "the most perfect mind-body interaction," the science of hygiene comprised healthful work habits, the maintenance of good community relationships, and self-control over one's thoughts, desires, and habits.[24]

One particular element of hygienic reform was the campaign to reduce the high infant mortality rate. To accomplish this, public health reformers began a campaign of "glorifying, dignifying, and purifying" motherhood in the early 1890s. Thus, public health reformers in this period tended to regard maternal and child health in terms of personal health difficulties, which could be remedied through the provision of health visitors, infant care centres, and improved maternity facilities.[25] To convince mothers of the importance of hygiene in staving off disease, informational literature (which focused upon improving health and hygiene standards) was distributed to families by health authorities.[26]

Reformers who promoted personal hygiene directed their efforts towards the urban poor and linked their efforts to the pursuit of national efficiency. For example, Sydney and Beatrice Webb, who were leading Fabian Socialists in Britain, spent considerable time advocating approaches to the problem of the British Poor Law Administration. They stressed that any decrease in the prevalence of disease could be regarded as an economy measure. They argued that both public health reform and

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[24] Margaret M. Allemang, "Development of Community Health Nursing in Canada," in Community Health Nursing in Canada, ed. Miriam Stewart *et al* (Toronto: Gage Educational Publishing, 1985), 13.

[25] Jane Lewis, "Providers, "Consumers", the State and the Delivery of Health-Care Services in Twentieth-Century Britain", in Medicine in Society: Historical Essays, 322-3.

[26] Cynthia R. Comacchio, "Nations are Built of Babies": Saving Ontario's Mothers and Children, 1900-1940 (Montreal, Kingston, London, and Buffalo: McGill-Queen's University Press, 1993), 68-9. See also Mariana Valverde, The Age of Light, Soap, and Water: Moral Reform in English Canada, 1885-1925 (Toronto: McClelland and Stewart, 1991), 44-76.

medical treatment under the nineteenth century Poor Law would, in the long-term, save the nation money. In their work for the 1909 Royal Commission on the Poor Laws, the Webbs argued vigorously for a system of health care that would guarantee that the poor adopted hygienic habits. The Webbs' appeal to "healthy lifestyles" was supported by numerous social investigators, policy makers, and public health physicians in the early twentieth century.[27]

Despite the importance that was given to disease specificity throughout the late nineteenth century, many public health reformers continued to support the sanitary idea. Charles A. Winslow, a public health advocate who would later chair Yale's Department of Public Health, remarked unequivocally that public health was "the science and art of preventing disease."[28] In Winslow's opinion, the promotion of physical health, community efforts for the sanitation of the environment, the control of infectious diseases, and the education of the individual in the sphere of personal hygiene were all essential elements in the maintenance of community health. Alice Hamilton, an American physician and specialist in industrial diseases, carried out a survey concerning lead poisoning in Illinois. Her research established that thousands of American workers in that state were slowly being killed by white lead contamination. Instead of confining her activities to a specific avenue of infection (an action consistent with those who advocated disease specificity), Hamilton also took an interest in environmental contaminants. Joseph Goldberger, an American physician and medical researcher, made an epidemiological study of pellagra and concluded it was the result of dietary

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[27] Lewis, "Providers," 323-4.

[28] Charles A. Winslow, quoted in Fee and Porter, "Public Health, Preventive Medicine," 269.

deficiencies, not some unknown organism.[29] Charles Rosenberg, in his book Explaining Epidemics and Other Studies in the History of Medicine, writes that an interest in environmental determinants of health "remained alive and continued to dialogue with the new bacteriological etiology." For many health reformers, it was extremely difficult to abandon the well-understood causal relationship between the state of the environment and the spread of infectious disease.[30]

Implementation of the Sanitary Idea and the Germ Theory in the English-Speaking World

From the mid-nineteenth century onward, the British government worked to establish legislation implementing the sanitary idea. The first Public Health Act was passed in 1848. The legislation was enacted in response to numerous cholera outbreaks and was spearheaded by Edwin Chadwick. However, this legislation did not compel municipalities to enforce public health measures in their communities; it only offered them the option of doing so. As a result, very little progress was achieved in the field of sanitary improvement.[31] The Public Health Act of 1872 established sanitary administrations in every region of the country. This legislation was followed by the Public Health Act of 1875. The Act of 1875 laid out in detail the sanitary responsibilities of local authorities and regulated the relationship between central and local authorities. Contained within its 343 provisions were health concerns relating to the urban

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[29] Ibid., 269.

[30] Rosenberg, Explaining Epidemics, 299.

[31] Wohl, Endangered Lives, 149-51. See also G. M. Trevalyan, Illustrated English Social History (Harmondsworth, England: Penguin Books, 1964), Volume Four, 128.

environment: water pollution, sewage and its disposal, the regulation of streets and new buildings, the removal of nuisances, food inspection, sanitary burial, the regulation of markets, and the suppression of disease.[32]

The importance of the physical environment and its role in the spread of disease was also recognized in the United States. By the last decades of the nineteenth century, the social problems brought about by urbanization could no longer be ignored. Immigrants flooded into tenement housing, water and sewage systems were inadequate, and the death and disease rates within working-class slums were exceedingly high.[33] Throughout the 1870s and 1880s, extensive programs of sewer building were undertaken in various cities, and paving programs were implemented in order to improve drainage and to cover the waste-saturated soil of urban streets. The sanitary engineers who promoted these initiatives were continually emphasizing their sanitary importance.[34] By the turn of the twentieth century, mortality rates in the United States were in decline. This was due in large part to the implementation of municipal water systems.[35]

In Canada (although the federal government did not consider public health problems to be within its purview), reforms emphasizing the importance of the sanitary idea were eventually implemented. The British North America Act of 1867 had given the federal government extremely limited jurisdiction in the field of public health services. Consistent with the sanitary idea, health reformers believed that the collection of

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[32] C. Fraser Brockington, A Short History of Public Health (London, England: Churchill, 1966), 46-7.

[33] Fee and Porter, "Public Health, Preventive Medicine," 254.

[34] Schultz and McShane, "To Engineer the Metropolis," 393.

[35] Fee and Porter, "Public Health, Preventive Medicine," p. 273. n. 93. See also Richard Harrison Shyrock, Medicine in America: Historical Essays (Baltimore, MD: Johns Hopkins University Press, 1966), 126-138.

morbidity and mortality rates formed the basis for a concerted attack upon the health problems associated with urban-industrial growth. Since the collection of factual knowledge was regarded as an important tool in urban health reform, Canadian sanitarians sought to emulate their British and American counterparts by persuading the federal government to finance the collection of this vital information. During 1882 and 1883, Sir John A. Macdonald and his government agreed to contribute 10,000 dollars toward the payment of statisticians, provided that each city with a population of over 10,000 appointed a medical officer of health.[36]

The most extensive implementation of the sanitary idea took place in the province of Ontario. Ontario passed its own Public Health Act in 1882, which established a provincial board of health of seven members and increased the responsibilities of local boards of health. The Provincial Board of Health was responsible for the study of vital statistics, the carrying out of sanitary investigations, and the investigation of causes of mortality. However, the Provincial Board of Health had no way of ensuring that local boards carried out their sanitary responsibilities. Ontario's Public Health Act was subsequently amended in 1884 to require that local authorities maintain the sanitary condition of their communities. Communities with a population over 4,000 were authorized to appoint a medical officer of health and a sanitary inspector, and to fix their salaries.[37] The amended legislation further stipulated that local boards were responsible for the control of nuisances and that plans involving the installation of water and sewage

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[36] Heather A. MacDougall, "The Genesis of Public Health Reform in Toronto, 1869-1890," Urban History Review 10, no. 3 (February 1982): 3.

[37] Marion Royce, Eunice Dyke: Health Care Pioneer, from Pioneer Public Health Nurse to Advocate for the Aged (Toronto: Dundurn Press, 1983), 15-16.

systems be sent to the Provincial Board of Health for approval. Lastly, medical officers of health were empowered to inspect the sanitary condition of their cities' schools, factories, homes, and places of business.[38]

Yet the sanitary idea had to coexist with the latest bacteriological and epidemiological developments, as governments of the English-speaking world adopted the concept of disease specificity that followed the discoveries made by Pasteur, Koch, and others in the late nineteenth century. The concept of disease specificity called for a series of measures that were geared toward infectious disease prevention. The introduction of the public health laboratory was one of the many facets of the bacteriological revolution that was introduced into the mainstream of public health reform. In the United States, for instance, a health laboratory was established in Providence, Rhode Island, in the late nineteenth century and a state hygienic laboratory was set up in Michigan. At the Lawrence Experimental Station in Massachusetts, bacteriologists focused their activities upon the analysis of water and sewage supplies.[39] In Britain, bacteriological diagnosis was used in incidents of notifiable infections, with district public health officers demanding that government authorities set up laboratory facilities to facilitate such diagnoses.[40] In 1890, the first public health laboratory in Canada was established in Toronto by the Ontario Provincial Board of Health. The

[38] MacDougall, "Public Health and the "Sanitary idea," 83.

[39] Fee and Porter, "Public Health, Preventive Medicine," 266.

[40] Ibid., 270.

facility was used to carry out analyses of water, ice, milk, and pathological sections of animal tissue.[41]

To further combat the spread of infectious diseases, governments placed considerable emphasis upon the notification of disease outbreaks by health authorities. In Britain, several of the most common infections spread by social interaction were made notifiable in 1889, and the notification of such infections became compulsory ten years later. After 1900, the Society of Medical Officers of Health discussed the desirability of adding tuberculosis to the list of notifiable diseases. Arthur Newsholme, a fellow medical officer of health, cautioned against such a measure, suggesting that a notification system could not work without the full cooperation of the sanitary authorities, for it would be their responsibility to provide sufficient hospital and ambulatory services for the isolation of tuberculosis sufferers.[42] In Ontario, the amended Public Health Act of 1884 required local boards of health to report cases of smallpox, diphtheria, scarlet fever, cholera, and typhoid to the Provincial Board of Health.[43]

Public health officials within the English-speaking world would make use of both vaccination and quarantine in their efforts to control outbreaks of infectious disease. In Britain, a Smallpox Act was passed in 1871 making it obligatory for local boards of health to appoint vaccination officers. Fines were imposed on those who did not have

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[41] J. T. Phair, "Public Health in Ontario," in The Development of Public Health in Canada; a Review of the History and Organization of Public Health in the Provinces of Canada, with an Outline of the Present Organization of the National Health Section of the Department of Pensions and National Health, Canada, ed. R. D. Defries (Toronto: Canadian Public Health Association, 1940), 75.

[42] Fee and Porter, "Public Health, Preventive Medicine," 270-1.

[43] Phair, "Public Health in Ontario," 69.

their children vaccinated.[44] During the smallpox outbreak of 1885, Canadians were informed, by means of a vigorous vaccination campaign, how Ontario kept its death rate from smallpox down to 84 while over 3,000 people died from the same disease in Montreal.[45] Following that epidemic, local boards of health in Ontario were given the authority to conduct compulsory vaccinations.[46] Furthermore, isolation measures were used concurrently with vaccination measures. In Britain, the Isolation Hospital Act of 1893 enabled county councils to establish isolation hospitals. The costs involved, however, tended to limit such efforts.[47] In Ontario, an 1884 amendment of the Public Health Act required local boards to establish special hospitals for infectious disease cases; further amendments were made to the legislation in 1886 for the provision of isolation hospitals.[48] By 1903, isolation hospitals existed in most sizeable urban centres throughout Ontario.[49]

The practice of quarantining infectious disease patients was applied particularly to immigrants. In Britain, under the Public Health (Ports) Act of 1896, ships suspected of carrying cholera, or choleraic diarrhoea, were inspected. Ships could be detained for the length of time that it took medical authorities to inspect them and carry out disinfection,

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[44] Wohl, Endangered Lives, 133.

[45] Neil Sutherland, " 'To Create a Strong and Healthy Race': School Children in the Public Health Movement, 1880-1914," in Medicine in Canadian Society: Historical Perspectives, ed. S. E. D. Shortt (Montreal: McGill-Queen's University Press, 1981), 365.

[46] Phair, "Public Health in Ontario," 70.

[47] Wohl, Endangered Lives, 138.

[48] Phair, "Public Health in Ontario," 69.

[49] Sutherland, "To Create a Strong and Healthy Race," 369.

if necessary.[50] At the turn of the century, authorities in the United States were no longer content with state-supervised quarantine procedures, and thus Congress took up the task of protecting the nation from diseased persons arriving from abroad. This shift was, in part, reflective of the wider acceptance of disease specificity, yet it was also a defensive reaction to an upsurge in immigration, especially from Southern and Eastern Europe and Asia, which aroused fears in the United States of a massive alien public health menace. Immigration depots such as Ellis Island (locations where immigrants were medically inspected and detained before entering the United States) became, in essence, barricades against the perceived health evils of immigration.[51] Canadian medical authorities also implemented medical inspection and quarantine regulations concerning immigrants.[52] The Immigration Act of Canada, which had been passed by the federal government in 1910, ensured that diseased immigrants were prevented from entering the country, along with those suspected of becoming public charges.[53]

The governments of the English-speaking world also embraced the science of hygiene in their attempt to curb the incidence of infectious diseases. Initially, public health reformers concentrated specifically upon child hygiene. In the early twentieth century, child welfare advocates focused upon the encouragement of breastfeeding, improvement in the quality of milk available for artificial feeding, medically-prescribed formula for individual cases, and instruction in general childcare.[54] In the United States,

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[50] Frazer, A History of English Public Health, 213.

[51] Kraut, Silent Travelers: Germs, Genes, and the "Immigrant Menace," 77-8.

[52] Chief Medical Officer of Health, quoted in Woodsworth, Strangers within Our Gates, 192.

[53] Robert England, The Central European Immigrant in Canada (Toronto: Macmillan, 1929), 21.

[54] Comacchio, "Nations are Built of Babies," 62.

medical inspections to ascertain the health of individual schoolchildren began in 1894 in Boston. Three years later, New York's school program was also operating. Initially, inspections were focused upon locating infectious disease cases. As time went on, there occurred a gradual shift toward more thorough inspections, with an eye toward uncovering a wide range of disabilities and illnesses. In 1899, the Connecticut Legislature passed a law mandating eyesight tests in all of the state's public schools.[55] In Ontario, Dr. Hastings, the Provincial Board of Health's current medical officer of health, stated at a convention in 1905 that a large number of past child deaths in the province could have been prevented. With increased education of the public, Hastings believed that diseases affecting the young could be brought under control.[56] Cynthia R. Comacchio, in "Nations Are Built of Babies": Saving Ontario's Mothers and Children, 1900-1940, writes that, as in other western countries, the child welfare campaign in Canada depended upon three types of service to further its goal: advice to mothers on how to take care of children, diagnostic clinics, and domiciliary nurse visits.[57]

Hygiene measures were also extended to the problem of poverty and its perceived relationship to the transmission of disease. In Britain, as was mentioned previously, Sydney and Beatrice Webb, in their work for the 1909 Royal Commission on the Poor Laws, advocated the establishment of a system in which the poor would be instructed to look after their own hygiene needs.[58] Both of them regarded public health departments as serving to "create in recipients an increased feeling of personal obligation and even a new

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[55] Kraut, Silent Travelers, 234.

[56] Royce, Eunice Dyke, 24-5.

[57] Comacchio, "Nations are Built of Babies," 144.

[58] Lewis, "Providers," 323.

sense of responsibility." In short, the objective was to train people to adopt "better habits of life."[59] In the United States, it was believed that, generally speaking, those above the poverty line were protected from the effects of disease, since they had access to adequate sanitary facilities. The education of the poor, however, was a far more problematic undertaking. The central thrust of American health authorities' education campaign thus focused upon bringing "hygienic knowledge right to the individual in his home or shop."[60] Dr. Hastings, the medical officer of health for Toronto, regarded public health as a challenge with social and economic dimensions. He believed that epidemics arose from poverty, with its "concomitants of poor housing and inadequate nutrition." Diagnoses and the rehabilitation of the family (the social unit to which the patient belonged) were essential for the control of infectious diseases. The economics of the health question led Hastings to believe that a system of health insurance would be of immeasurable significance, an opinion he articulated before the Canadian Medical Association in 1917.[61]

Immigrant families were particularly encouraged to adopt hygienic practices. In the United States, it was emphasized that immigrant parents should have their children examined by a physician for diseases and other defects, especially before the beginning of a school year.[62] To promote hygiene among the immigrant population, a strong

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[59] Sydney and Beatrice Webb, State and the Doctor (London, 1910), 206, quoted in Lewis, "Providers," 325.

[60] C. E. A. Winslow, The Evolution and Significance of the Modern Public Health Movement (New Haven: Yale University Press, 1935), 52, quoted in Karen Buhler-Wilkerson, False Dawn: the Rise and Decline of Public Health Nursing, 1900-1930 (New York and London, England: Garland Publishing, 1989), 88.

[61] Royce, Eunice Dyke, 26.

[62] Kraut, Silent Travelers, 240-1.

emphasis was placed upon teaching immigrant children health and hygiene practices so that they could, in turn, relate what they had learned to their parents.[63] In Canada, religious organizations were central in the promotion of hygiene among the immigrant population. Although its central goal with regard to immigrants was the promotion of Christianity, the Methodist Church also endeavored to improve the social conditions of immigrant communities. The Fred Victor Mission in Toronto, the All Peoples' Mission in Winnipeg, and other Methodist organizations throughout Edmonton and Vancouver attempted to deal with the problems brought on by urbanization and industrialization. However, while the medical and educational aspects of the work were considered important to these organizations, their central objective was to win immigrants for Christianity.[64]

In order to promote the practice of hygienic living among the urban population, visiting health nurses were used increasingly by governments to carry out a number of public health functions. The idea of a health visitor originated with Florence Nightingale in the late nineteenth century. In her widely read paper, "Health Teaching in Towns and Villages," Nightingale outlined the details of this new plan. In the Nightingale plan, health nursing was to be carried out by women who had received specialized training in the field of hygiene. By 1918, the number of health visitors employed by local authorities in England had grown to over three thousand.[65] In the United States, other cities were quick to follow New York's example of hiring public health nurses. These public health nurses came to be regarded as "the most efficient possible link between the

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[63] Ibid., 241.

[64] Marilyn Barber, Introduction to Woodsworth, xvii.

[65] Buhler-Wilkerson, False Dawn, 89.

school and the home," instructing parents, students, teachers, and the family in applied practical hygiene.[66] In Toronto, goals relating to the promotion of personal hygiene required a corps of public health nurses, who would visit the sick in their homes and advise on the care of patients and other members of the family. Public health nurses in Toronto would also ascertain the social conditions of the home and whether or not the family income was sufficient to ensure the maintenance of adequate nutritional standards.[67]

In conclusion, urbanization and the health ills that it brought about led to concerns regarding the welfare of city-dwellers. Consequently, public health theories began to be voiced. Proponents of the sanitary idea argued that unclean cities resulted in the outbreak of contagious diseases and that such measures as sewage disposal, water purification, and the removal of urban nuisances were the only means to good health. Unlike proponents of the sanitary idea, those who believed in the concept of disease specificity did not dwell on the environment and its role in the outbreak of disease; rather, it was their contention that vaccination, quarantine, and health education would lead to a healthier urban community. Both avenues of health reform would remain important, as governments in Britain, the United States, and Canada incorporated both public health theories into their administrations. Urban cleanup initiatives would be promoted extensively, as would be vaccination, quarantine, and health education initiatives.

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[66] Luther Halsy Gulick and Leonard P. Ayres, Medical Inspection in Schools (New York: Charities Publication Committee, 1910), 80, quoted in Kraut, Silent Travelers, 239.

[67] Royce, Eunice Dyke, 29. See also Florence H. M. Emory, Public Health Nursing in Canada: Principles and Practice (Toronto: Macmillan, 1953).

Chapter Two:
The Origins of the Fort William Community and its Attitudes toward Public Health

This chapter discusses in a general manner the origins of the Fort William community, with an eye towards acquiring an overall understanding of its prevailing public health concerns throughout the late nineteenth and early twentieth centuries. The Canadian Pacific Railroad's construction of large facilities led to a population increase and, as a result, incorporation proceedings began to be put forward by Fort William authorities. Following Fort William's incorporation as a town in 1892, the urban population continued to grow via an extensive immigration program, which led to concerns being raised by citizens over the impact such a trend was having upon the health of the community. For boosters (those members of the community whose prime objective was the economic promotion of the town) no such health concerns existed; they proclaimed that Fort William was a municipality free of disease. The perceptions of boosters proved to be incorrect, however, as increased immigration brought with it overcrowding, urban nuisances, and inefficient sewer and water systems and caused many citizens to become increasingly concerned about the health of their city. The urban environment and its maintenance fell directly within the purview of the Fort William Board of Health, in tandem with the local medical officer of health. Fort William public health authorities were also assisted by voluntary organizations, whose programs were designed to facilitate urban improvements. Despite the actions of local medical authorities and voluntary organizations, however, boosters would continually attempt to stall urban cleanup measures by arguing that no health problems existed within the community.

The Coming of Industry to Fort William

The arrival of the railway industry in northwestern Ontario in the late nineteenth century began to transform Fort William from a fur trading post to an urban centre. The first European settlers in the Fort William area were attracted by the fur trade, and the broad waters of the Kaministiquia River provided excellent reasons for the building of Fort Kaministiquia in 1679. Later, after the international boundary was fixed at Pigeon River, the North West Company chose to locate Fort William near the same spot. The late nineteenth century brought with it changes that would revolutionize the community of Fort William. With the establishment of railways came significant government subsidies, which were used to pay labourers, suppliers, and businessmen. Preparations for railway construction were begun in Fort William in 1875, and during the following seven years many labourers were needed to complete the railway.[1] By the late 1880s, Fort William had been acknowledged as an important terminus for the Canadian Pacific Railway (C. P. R.).[2] In addition, the lumber industry in Fort William was proving lucrative, as massive numbers of trees in the area had to be felled in order to provide for railroad ties, trestles, bridges, wharves, and buildings.[3]

The railroad industry expanded its economic interests to the Kaministiquia River and the territory alongside it. The general manager of the C. P. R., William Van Horne, regarded the Kaministiquia River as a means to economic profit. Following the

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[1] James Stafford, "A Century of Growth at the Lakehead," in Thunder Bay: from Rivalry to Unity, ed. Thorold J. Tronrud and A. Ernest Epp (Thunder Bay, ON: Thunder Bay Historical Museum Society, 1995), 38.

[2] J. J. Wells, "History of Fort William," Thunder Bay Historical Museum Society: Papers and Records (1912-13): 16.

[3] Stafford, "A Century of Growth at the Lakehead," 39-40.

completion of its surveys, the C.P.R. concluded that the Kaministiquia River was the best possible site for the shipping of coarse freight (coal, grain, lumber). Throughout 1883 and 1884, the C.P.R. concentrated its activities along the Kaministiquia River, laying more lines of track and constructing grain sheds and Coal Docks.[4] The C.P.R. constructed grain elevators, as well, along the Kaministiquia River. In 1884 a large grain elevator was built, with three more being built by 1898.[5] By the latter year, Fort William had become a major port for coal and grain, and a divisional point for the C. P. R.[6]

Throughout the late nineteenth and early twentieth centuries, Fort William's population increased. F. Brent Scollie estimates that Fort William had roughly 690 citizens by 1881, which included the Natives of the Fort William First Nation. By the 1890s, Fort William's population had begun to grow substantially, largely due to extensive railway activity.[7] With the rise in population came suggestions for incorporation. In 1891, an application for incorporation was forwarded to the provincial government. The application was accepted, and Fort William became incorporated as town in 1892.[8] By 1901, Fort William's population had risen to 4,298 (a number that

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[4] Brent Scollie, "How the Fort William Plot Became Fort William," Thunder Bay Historical Museum Society: Papers and Records 16 (1988): 30. See also Wells, "History of Fort William," 30.

[5] Stafford, "A Century of Growth at the Lakehead," 41.

[6] Dr. Thomas Kane, Medicine in Thunder Bay (Thunder Bay, 1994), 55. See also Thorold J. Tronrud, "Building the Industrial City," in Thunder Bay: from Rivalry to Unity, 99-119. A. A. Anderson also discusses the historical development of Fort William's harbour in "The Development of the Harbours of Port Arthur and Fort William," Thunder Bay Historical Museum Society: Papers and Records 11 (1983): 42-8.

[7] F. Brent Scollie "The Population of Thunder Bay, 1884-1901," Thunder Bay Historical Museum Society: Papers and Records 7 (1979): 25. Between 1881 and 1892, the community of Fort William was part of the municipality of Neebing. Dr. E. B. Oliver, "Health Department," Thunder Bay Historical Museum Society: Papers and Records (1914): 29.

[8] Wells, "History of Fort William," 17-18. See also Scollie, "The Population of Thunder Bay, 1884-1901," 25.

was noticeably larger than that of its sister community, Port Arthur, which by comparison had a population of only 2,799).[9] In 1907, Fort William became incorporated as a city, with a population of 13,822.[10] Fort William's population would grow to 20,664 by 1911.[11]

Fort William and its Public Health Concerns

As Fort William continued to develop with respect to both population increase and industrial activity, the business community, in order to attract increased investment, began to promote Fort William's urban environment as being the healthiest of Canadian municipalities. Yet the business community, with its emphasis upon the acquisition of material wealth, was not in a prime position to make such observations regarding the health of their city. One particular business promoter in Fort William boasted that the community's sewer system was the finest in the nation, and in 1898 a Board of Trade pamphlet cited mortuary statistics to prove that Fort William had the healthiest climate. The pamphlet claimed that Fort William's "magical soil" absorbed all poisonous gases by way of a substratum of quicksand and gravel, located three to six inches below the surface and continually in motion. It was this substratum that "purified and removed" contaminating material.[12] In reality, however, members of the Fort William business

[9] Scollie, "The Population of Thunder Bay, 1884-1901," 23.

[10] Wells, "History of Fort William," 23.

[11] Scollie, "The Population of Thunder Bay, 1884-1901," 23.

[12] Fort William pamphlet, Fort William, Gateway to the Gold Fields to the Wheat Fields Annual, 1898 (Fort William Board of Trade, 1898), quoted in Thorold J. Tronrud, Guardians of Progress: Boosters and Boosterims in Thunder Bay, 1870-1914 (Thunder Bay, ON: Thunder Bay Historical Museum Society, 1993), 6.

community were not concerned with the city's health, for in their minds the principal characteristics of progress were not healthy urban conditions but rather the presence of ships, canals, locomotives, brick buildings, factories, shops, industrial workers, and machinery.[13] By 1913, it was clear that boosters were more concerned with profit-making than with health concerns, for most boosters by this period had risen from humble beginnings to lavish wealth, lived in large stone mansions, and drove luxury automobiles. Their children's weddings became opportunities for displays of wealth and position. Many wintered in the south, with some traveling in private railcars. Several wealthy families of Fort William had splendid yachts in their possession, as well.[14]

Fort William boosters turned to immigration to populate the community with a large workforce. The construction of the C. P. R. during the 1880s enabled thousands of immigrants to disembark at Fort William and board the railway for the remainder of the journey eastward. Inevitably, some of these immigrants chose to settle in Northwestern Ontario, in the hope of securing employment.[15] At the outset, this was particularly beneficial to boosters, who, perhaps more than anyone else, wanted citizens to populate the community. Visions of a population rivaling that of Chicago "danced in their heads." Boosters desired strong and industrious immigrants, who would be willing to endure long seasons of hard work. Immigrants from the U.S. and Great Britain were particularly desired, especially the economically disadvantaged, for it was thought that they would be less likely to complain about their living and/or working conditions. Thus, the boosters

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[13] Ibid., 11.

[14] Ibid., 42.

[15] Steven High, "Responding to White Encroachment: the Robinson-Superior Ojibwa and the Capitalist Labour Economy: 1884-1914," Thunder Bay Historical Museum Society: Papers and Records 22 (1994): 25.

of Fort William had a desire to control the immigration process, so as to determine the ethnic and social environment of their community. In this, however, they would be disappointed.[16]

The Fort William business community's desire to secure immigrant workers was not unique in this period; "favorable economic conditions and a vigorous immigration policy" led to a general increase in the number of immigrants arriving in Canada between 1897 and 1914. In all, the number of immigrants entering Canada grew from 21,000 in 1897 to 400,000 in the fiscal year 1912-13.[17] Large numbers of immigrants were of British and American origin (with American immigrants being primarily of German or Scandinavian background).[18] Also included in this immigration flow were Poles, Italians, Irish, Russians, Jews, and Ukrainians.[19] Woodsworth commented in his work, Strangers Within Our Gates: or Coming Canadians, that if one wanted to see the world, they had only to travel through Canada, for one could visit Turkey, Syria, India, China, and Japan–without ever having to leave Canadian shores.[20] Yet, even as Canadian political authorities sought to promote immigration as extensively as possible, citizens of British origin generally regarded immigrants as being inferior, lowering the prestige of the nation through their arrival and subsequent settlement.[21] To compound these concerns, the

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[16] Tronrud, Guardians of Progress, 42.

[17] Marilyn Barber, Introduction to James Shaver Woodsworth, Strangers Within Our Gates: or, Coming Canadians (Toronto and Buffalo: University of Toronto Press, 1972), xii.

[18] Ibid., xii-xiii.

[19] Woodsworth, Strangers Within Our Gates, 32-3.

[20] Ibid., 17.

[21] Barber, Introduction to Woodsworth, xvi.

arrival of immigrants led to the problem of overcrowding within Canadian cities.[22] By the early twentieth century, urban centres would possess what Woodsworth described as "foreign quarters," "shacktowns," "wards," "Chinatowns," "ghettoes," and "slum districts."[23]

Immigration trends in Fort William were ultimately unfavorable to the plans of boosters. As has been mentioned previously, boosters desired a large working population for the city. Boosters specifically desired farm workers and, as a result, "virtually every immigration scheme" that they developed was geared toward attracting immigrants who wished to undertake farming. Immigrants would arrive in abundant numbers, but they did not come to farm. Rather, the vast majority of immigrants arriving in Fort William chose to live and work in the city. These immigrants obtained employment in the railway, lumber, and mining industries, all of which required large numbers of unskilled workers.[24] The ethnic makeup of the immigrant community in Fort William was also varied, again contrary to the plans of boosters. In 1911, immigrants from the Austro-Hungarian Empire accounted for 2,430 people. Italian immigrants were the next largest population, with 917 people. Russian immigrants accounted for 835 people. Other nationalities would arrive as well by this period, albeit in smaller numbers. German, Belgian, Bulgarian, Chinese, Dutch, Greek, Indian, Jewish, Polish, Scandinavian, and

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[22] Ibid., xiv.

[23] Woodsworth, Strangers Within Our Gates, 214. See also Alan M. Kraut, Silent Travelers: Germs, Genes, and the "Immigrant Menace" (Baltimore, MD: Johns Hopkins University Press, 1994) for historical data relating to immigration in the United States.

[24] Tronrud, Guardians of Progress, 42.

Swiss immigrants chose to settle in Fort William.[25] Furthermore, the effects of immigration soon undermined the boosters' image of a healthy urban environment, free of disease. The message promoted by boosters of a clean and healthy municipality was contradicted by the kind of living conditions experienced by much of the labouring population. In sharp contradiction to the large stone mansions of the Fort William business community, with their well-manicured gardens, were the dingy, poorly-constructed tenement houses of the freight-handlers and the industrial workers, with their refuse-laden yards.[26] The unsanitary urban conditions that immigration brought with it undoubtedly marred the boosters' promotional image of Fort William, and resulted in a loss of external investment.

The mass arrival of immigrants to Fort William brought health concerns that would preoccupy health authorities throughout the early twentieth century. Overcrowding would be a central public health concern. Labourers' houses were built "as cheaply as possible to suit the needs of investors," complained one Fort William citizen in 1907. In twenty years, he added, the city would have nothing like the magnificent houses promoted in the advertisements but rather a collection of "dilapidated shacks, leaning affectionately upon another." The complaint did not seem exaggerated in any degree, for by 1907 a large number of tumbledown shacks had been built on the low-lying swamp around the Canadian Iron and Foundry Company's wheel and pipe factory in the Westfort region (see map at the end of this chapter). None of these had even the

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[25] Fifth Census of Canada, 1911: Religious Origins, Birthplace, Citizenship, Literacy, and Infirmities by Provinces, Districts, and Sub-Districts Vol. II (Ottawa: C. H. Parmalee, 1913), 240. See also Antonio Pucci, "Community in the Making: a Case of a Benevolent Society in Fort William's "Little Italy," Thunder Bay Historical Museum Society: Papers and Records 6 (1978): 16-27.

[26] Tronrud, Guardians of Progress, 43.

most rudimentary servicing. There was no provision of water, electricity, garbage removal, or sewage system.[27] The Daily Times Journal investigated the worsening conditions of the Coal Docks region (see map) in the following year and reported that increased numbers of people were dwelling amid filth that had accumulated in the gutters.[28] Conditions would not improve by 1913, for Bryce M. Stewart's social survey in that year described severe overcrowding. Stewart wrote:

> The most congested blocks are to be found in the Westfort and Coal Docks sections, many of which have 300 to 350 people. While this may not seem a great number, so many are crowded in the houses that there is a very serious congestion. The causes of this congestion are mainly the scarcity of houses and the high rents asked. Then, too, there is much seasonal work in Fort William, that large numbers of men are out of employment during the winter months, when navigation is closed, and construction work on the railroads has been suspended. There being no other place for these men, they crowd into the houses.[29]

With overcrowding came the problem of urban nuisances, including the roving of livestock through Fort William streets. Throughout this period, cows were permitted to graze on city streets, eat out of grocery barrels, and wander freely upon sidewalks.[30] Moreover, Fort William citizens had to beware of pigs taking their exercise on Syndicate and Victoria Avenues. An annoyed Fort William citizen complained: "if they were nice fat hogs they wouldn't look so bad, but as they are after the style of the South Carolina

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[27] Daily Times Journal (DTJ), 4 June 1907, quoted in Tronrud, Guardians of Progress, 43.

[28] DTJ, 26 June 1908.

[29] Bryce M. Stewart, Report of a Preliminary and General Social Survey of Fort William, March 1913, Directed by the Department of Temperance, and Moral Reform of the Methodist Church, and the Board of Social Services, and Evangelism of the Presbyterian Church (Fort William, 1913), 8.

[30] Joseph M. Mauro, Thunder Bay, a History: the Golden Gateway of the Great Northwest (Thunder Bay, 1981), 199.

razor-back, I can't say that they are particularly ornamental on the street."[31] Lucy Maud Montgomery, when she stayed at the Avenue Hotel in 1891, commented that Fort William was a pretty place with pretty scenery but in the same breath went on to say that the streets were filled with charred stumps, among which promenaded numerous pigs.[32] Stewart's survey of a city block between Home and Mountain Avenues in 1913 illustrated a similar trend. Within the block were housed twenty cows, five horses, and several hundred fowl.[33]

Polluted water resources would compound the threat posed by unsanitary living conditions within certain regions of the city. In 1890, water was being obtained from three community wells: one beneath the city hall, one at a community school, and another in the Coal Docks region. The water was then supplied to Fort William residents via water carriers. Residents were instructed not to use other water sources and to boil their water before using it. In 1896, Fort William experienced a series of problems resulting from a contaminated water supply, with respect to both quality and expense. Demands for purer water led to the installation of a waterworks system in 1899. Part of the process included installing an intake pipe in order to secure water from the Kaministiquia River. Drs. Hamilton and Birdsall strongly objected to the measure, pointing out that the intake source was downstream from two sewer outlets.[34] In 1907, at the same time as a booster was proclaiming Fort William's efficient sewer system, a Morning Herald reporter toured the Coal Docks region and expressed shock at what he observed. On McIntyre Street he

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[31] Quote by a Fort William citizen, in Mauro, Thunder Bay: a History, 199.

[32] Stafford, "A Century of Growth at the Lakehead," 43.

[33] Stewart, Report of a Preliminary and General Social Survey of Fort William, 15.

[34] Kane, Medicine in Thunder Bay, 79. See also Oliver, "Department of Health," 30.

reported "a gutter full of stagnant filth and semi-solid sewage matter" over a foot deep, around which children and dogs played, and where cows were producing milk for the delectation of the inhabitants.[35] In 1909, the Daily Times Journal reported upon similar conditions within the Coal Docks region. On Christie Street, it was reported that children were seen wading through sewage and stagnant water, with each of their steps producing clouds of mosquitoes and flies. A dog was also seen rolling in the stagnant water, with children pouring the water over it.[36] Thus, the very existence of unsanitary conditions in Fort William served to undermine boosters' carefully constructed image of a prosperous and progressive community. Frequent outbreaks of disease would further undermine the myth of a health-giving environment.[37]

It must be emphasized that Fort William's urban health concerns were not unusual, for other Canadian municipalities experienced similar problems. In 1882, the Toronto Globe described that city's water supply as "drinkable sewage." Citizens in Toronto had long been aware that sewage was being dumped into the Toronto harbour, the water resource from which they received their drinking water.[38] Complaints by Toronto citizens increased in the early 1880s and focused upon the presence of rotting garbage, improperly flushed and ventilated sewers, and major environmental pollution

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[35] Morning Herald (MH), 10 June 1907, quoted in Tronrud's Guardians of Progress, 43.

[36] DTJ, 26 June 1908.

[37] Tronrud, Guardians of Progress, 47.

[38] The Toronto Globe, quoted in Heather A. MacDougall, "The Genesis of Public Health Reform in Toronto, 1869-1890," Urban History Review 10, no. 3 (February 1982): 6.

problems such as distillery refuse and manure in Ashbridge's Bay.[39] Between 1885 and 1886, outbreaks of smallpox would test Toronto's disease notification procedures, as well as its capacity to organize and staff public vaccination stations.[40] During the late nineteenth century, Montreal was considered an extremely unhealthy city, its death rate being higher than that of London and Rome; it also fluctuated according to the economic and social background of each region. The wealthier classes of Montreal enjoyed good housing, spacious streets, and all the modern sanitary conveniences, while the labouring population endured exactly the opposite.[41] Herbert Brown Ames, another prominent social reformer of the period, remarked that overcrowding within certain regions of Montreal was proving to be a serious public health problem and suggested that such congestion be remedied by the opening up of new streets and parks.[42] Thus, Fort William, along with every other Canadian city, was faced with health problems concerning the urban environment.

Responsibility for Public Health in Fort William

Responsibility for the sanitary upkeep of the urban community rested with the Fort William Board of Health and its medical officer of health. Before Fort William's incorporation as a municipality in 1892, the municipality of Neebing's Board of Health

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[39] Heather A. MacDougall, "Public Health and the "Sanitary Idea" in Toronto, 1866-1890," in Essays in the History of Canadian Medicine, ed. Wendy Mitchinson and Janice P. Dickin McGinnis (Toronto: McClelland and Stewart, 1988), 82-3.

[40] MacDougall, "The Genesis of Public Reform in Toronto," 5.

[41] P. F. W. Rutherford, Introduction to Herbert Brown Ames, The City Below the Hill; a Sociological Study of a Portion of Montreal, Canada (Toronto and Buffalo: University of Toronto Press, 1972), xv.

[42] Ames, The City Below the Hill, 63.

looked after Fort William's affairs.[43] When Fort William became a municipality in 1892, it established its own board of health and position of medical officer of health.[44] From 1892 onward, it was the responsibility of the Fort William Board of Health to deal with the wide range of urban problems affecting the community. In 1897, Dr. Thomas S. T. Smellie, Fort William's first medical officer of health, reported upon the progress of sewer drain construction for Fort William. In the same year, work was begun on the Kaministiquia water supply, an effort that was promoted extensively by Fort William public health authorities.[45] Between 1897 and 1899, Fort William municipal authorities spent over sixty thousand dollars on the establishment of the Kaministiquia water supply.[46] In 1904, regulations were implemented by city public health authorities which required citizens to install indoor plumbing facilities. Following the passing of these regulations, the use of pit closets, along with the practice of depositing manure and refuse in the back lanes, was discouraged by city health authorities.[47]

Outbreaks of disease such as smallpox and diphtheria within the Fort William community were handled directly by the Fort William Board of Health and its medical health officer. In 1893, a smallpox epidemic broke out on an immigrant train headed for

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[43] Kane, Medicine in Thunder Bay, 108. Dr. Hamilton was appointed medical officer of health for the municipality of Neebing in 1881. He held office during the time Fort William was part of the municipality of Neebing, and he also held the position in Fort William for a period of months following its incorporation in 1892. Oliver, "Department of Health," 29.

[44] Ibid., 114.

[45] Ibid., 117. See also Rob Neff, "The Good Doctor: the Life of Thomas Stuart Traille Smellie," Thunder Bay Historical Museum Society: Papers and Records 20 (1992): 22. For additional information relating to Dr. Thomas S. T. Smellie, see also Mary R. MacLean, "Colonel Elizabeth Smellie, CBE," Thunder Bay Historical Museum Society: Papers and Records 3 (1975): 16-18.

[46] Wells, "History of Fort William," 19-20.

[47] Kane, Medicine in Thunder Bay, 78.

the Lakehead. Upon its arrival, the train was shunted back and forth between the two towns. Eventually, the citizens of Port Arthur settled the issue by blocking the train's return to their community, thus leaving it in Fort William's area of jurisdiction. Smellie spent three weeks vaccinating and treating the victims of the disease. In 1900, another smallpox outbreak occurred, with Fort William health authorities taking sweeping measures to contain it. Within three weeks of the epidemic's arrival, ninety per cent of the Fort William population had been vaccinated against smallpox. In order to contain the outbreak, public meetings were banned and schools and churches were closed. Streetcars were thoroughly fumigated following each shift, and a certificate of vaccination was required from passengers wishing to use the service.[48]

Although it was the primary responsibility of health authorities in Fort William to monitor and improve public health conditions in the city, a spirit of voluntarism pervaded social institutions in Fort William. The Fort William Relief Society was, to an extent, representative of the community's desire to alleviate the sufferings brought on by urban growth. The smallpox epidemic led to the creation of the organization in 1893. In order to meet the needs of the infected, the Relief Society appealed to the congregations of the various churches throughout Fort William. The notices given to the churches mentioned the things specifically needed, such as clothing, soap and towels, soups, milk, cooked meat, and vegetables.[49] From 1893 onwards, the Fort William Relief Society took care of a number of poverty and distress cases. In order for relief to be given, a visiting committee had to be sent to the residence in question to see if there was a legitimate need.

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[48] Neff, "The Good Doctor," 22-3.

[49] Dr. Thomas S. T. Smellie, "The Origin and History of the Fort William Relief Society," Thunder Bay Historical Museum Society: Papers and Records (1911-12): 18.

Fort William Relief Society members were known to walk in all kinds of weather to such areas as the Coal Docks.[50]

Aside from the Fort William Relief Society, church groups involved themselves in a campaign to clean up the less sanitary elements of their city. With the support of both the Presbyterian and Methodist Churches, Bryce M. Stewart conducted a social survey of Fort William, which detailed the unsanitary living conditions of immigrants. Stewart noted that the Roman Catholic Church was the principal institution giving private relief in the early twentieth century.[51] For the religious community in Fort William, the promotion of good health was regarded as an avenue to the assimilation of immigrant groups into English society. The religious community experienced obstacles, however, as Stewart wrote in 1913 that the "social and political forces of the community [were] having little force in the Canadianization" of the immigrant population. The immigrant community had its own churches and its own social gatherings. Immigrant children learned English, but Stewart added in the same breath that older immigrants did not do so, having little or no contact with libraries and/or personal instruction. Thus, English-speaking newspapers "scarcely reached" immigrant members of the community.[52]

The desire by Fort William religious groups to assimilate immigrants existed within a wider national context. From the late nineteenth century onward, some members of the Methodist, Presbyterian, and Baptist churches were inspired by a religious

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[50] Ibid., 19.

[51] Stewart, A Report of a Preliminary and General Social Survey of Fort William, 11.

[52] Ibid., 8. See also A. Ernest Epp, "The Achievement of Community," in Thunder Bay: from Rivalry to Unity, 180-202, for additional information pertaining to local church organizations and their relationship with immigrant groups.

movement known as the social gospel.[53] The goal of the social gospel movement was to bring about "the kingdom of God" on Earth through collective social change, turning away from the traditional practice wherein one was encouraged to undertake spiritual quests or attain "other-worldly bliss."[54] Urban health problems (such as slum housing) were thought to be counterproductive to the attainment of such a goal, and since many of these problems were thought to be the result of immigration, advocates of the social gospel sought to educate immigrant families in such things as proper childcare.[55] One of the most notable Methodist organizations devoted to this goal was the All Peoples' Mission, set up in Winnipeg in the late nineteenth century to instruct immigrant children in English. Under Woodsworth's administration, immigrant mothers were also encouraged to attend sewing, gardening, and English classes. In addition, nursing services were provided, along with fresh air camps and hospital treatment for sick children.[56]

Attempts by Fort William health authorities and the volunteer organizations to eliminate the danger to health associated with urbanization were not held in high regard by boosters, who, in their desire for progress, were not willing to admit that health problems existed in their city. In boosters' minds, the use of public funds to improve living conditions was both wasteful and unnecessary. Boosters would point to the winter of 1907 (when seventy-six people were found to be living in one dwelling amid

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[53] A. Ernest Epp, "The Achievement of Community," in Thunder Bay: from Rivalry to Unity, 187.

[54] Allen Mills, Fool for Christ: the Political Thought of J. S. Woodsworth (Toronto, Buffalo and London: University of Toronto Press, 1991), 10-11.

[55] Richard Allen, The Social Passion: Religion and Social Reform in Canada: 1914-28 (Toronto: University of Toronto Press, 1971), 11.

[56] Barber, Introduction to Woodsworth, ix.

horrendous living conditions) to reaffirm their contentions that these citizens seemed no less healthy than other Fort William citizens.[57] In one instance, opposition to the boosters came from the Fort William Board of Health, which made recommendations, via a committee, to clean and drain the Coal Docks region. The report was read before City Council, causing one of the aldermen to label it as one of the most "nonsensical" reports he had ever heard. The report was then "buried in a committee" which was not heard from thereafter. In the editorial section of the Daily Times Journal, boosters were considered responsible for burying the report, for it was they who were thought to have advised municipal authorities against such measures as sanitary cleanup schemes.[58] Stewart's social survey illustrated clearly the role of business promoters in stunting any potential health reform within the Fort William community. He stated that the attention of the municipality was focused entirely upon the securing of industries, with no regard for the people who were coming to work in them. Surveys pertaining to urban living conditions were instituted in a haphazard fashion (as best suiting the real estate interests in the city), with little or no thought given to city planning.[59]

In conclusion, matters pertaining to the health of the urban community were foremost in many Fort William citizens' minds. Boosters' impressions of a healthy, life-giving community were sorely undermined by the effects that an increased population had upon the physical character of the city. As a result of the rapid population increase (which was brought about primarily as a result of immigration), Fort William developed

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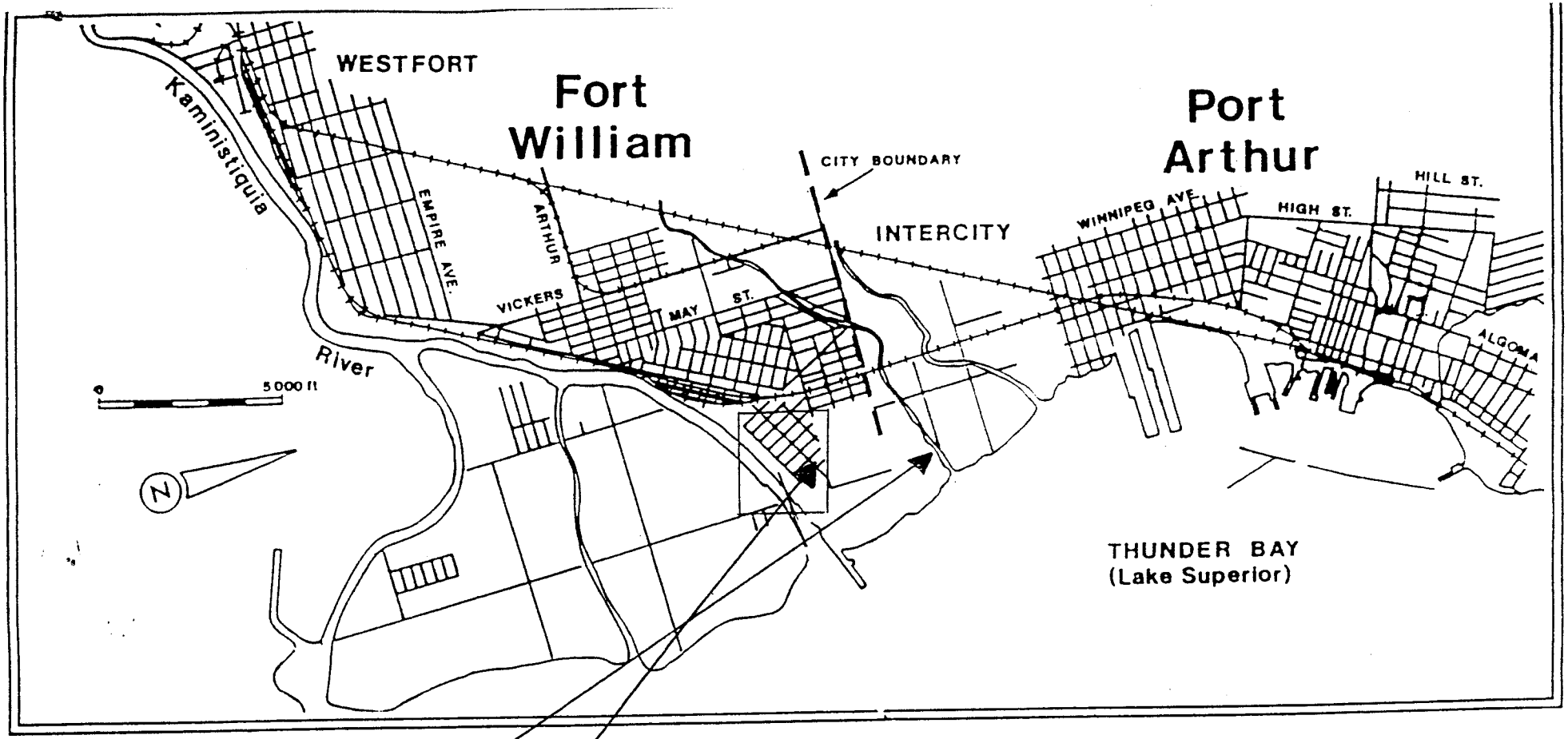
[57] Tronrud, Guardians of Progress, 44.

[58] DTJ, 26 June 1908.

[59] Stewart, A Report of a Preliminary and General Social Survey of Fort William, 12.

problems such as overcrowding, nuisance-laden streets, and inefficient water and sewer systems. The Fort William Board of Health, along with the medical health officer, was responsible for the maintenance of health within the community. The actions of the health department were reinforced by community voluntarism, which essentially came from the churches within the community. Boosters slowed public health progress significantly by their continued refusal to support the belief that Fort William was in need of public health funding.



Neebing River

The Coal Docks District

There were numerous coal dock areas in Fort William throughout the early twentieth century. However, it was this area of the city that was specifically referred to as "the Coal Docks."

Map of Fort William, 1900-1914

Courtesy of the Thunder Bay Historical Museum Society, Into the Century: Thunder Bay, 1900-1914 (Thunder Bay: Thunder Bay Historical Museum Society Publications

Chapter Three:
Public Health Reform and the Urban Environment

As larger numbers of people came to reside within urban centres throughout the late nineteenth and early twentieth centuries, urban living conditions began to deteriorate. Health authorities found themselves having to deal with the problem of impure water supplies, inefficient sewer systems, and urban nuisances such as unsanitary ditches, garbage-laden streets, and the unregulated presence of livestock and domestic pets. Health authorities looked primarily to the sanitary idea as a means of eradicating urban health ills. Yet they would also embrace the use of bacteriological laboratories, as these facilities were able to undertake examinations of city water supplies for specific diseases. As Fort William's population increased throughout the early twentieth century, local health authorities faced the same urban health problems. The increase in population brought with it overcrowding, sewage disposal problems, and urban nuisances such as uncollected garbage and outdoor privies. The city water supply would also become contaminated with typhoid, leading to an outbreak of the disease in 1905. City health authorities would turn to the sanitary idea in their desire to make Fort William a healthy urban environment while at the same time making use of laboratory facilities for the examination of urban water supplies. However, in their desire to initiate urban health reforms, local health officers were faced with an array of obstacles. City authorities, along with the general public, did not always see the need for reforms, and many saw the efforts of public health officers as unwarranted intervention in the private lives of citizens.

The Health of Cities in Britain and North America

During the late nineteenth and early twentieth centuries, urban populations in the United States and Britain grew dramatically, resulting in pronounced overcrowding. In the United States, the influx of people to cities brought about serious health concerns, as existing sewerage and water facilities were found to be inadequate in dealing with the increase in urban populations. As a consequence, American cities suffered from extremely high death and disease rates.[1] In Britain, the intense concentration of citizens within urban centres brought about severe health hazards; increases in population caused a strain on water and sewer facilities, the saturation of the sub-soil with waste products, and the spread of infection and contagion. In addition, as all available land was pressed into use, dwellings began to be established in courts, alleyways, back yards, and small parcels of empty lots, resulting in extreme overcrowding.[2]

Overcrowding had its impact upon the health of Canadian citizens as well. Margaret M. Allemang writes that by 1911, 45 % of the Canadian population was urban, despite the sizeable increase in the rural population during the same period.[3] As a result of increased urbanization, every Canadian city had within it regions where citizens dwelt in boarding-house slums and in overcrowded tenement dwellings.[4] Social reformer Sir

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[1] Elizabeth Fee and Dorothy Porter, "Public Health, Preventive Medicine, and Professionalization: England and America in the Nineteenth Century," Medicine in Society: Historical Essays, ed. Andrew Wear (Cambridge, England: Cambridge University Press, 1992), 254.

[2] Anthony S. Wohl, Endangered Lives: Public Health in Victorian Britain (London, England: Methuen, 1983), 291-2.

[3] Margaret M. Allemang, "The Development of Community Health Nursing in Canada," in Community Health Nursing in Canada, ed. Miriam Stewart *et al* (Toronto: Gage Publishing, 1985), 17.

[4] Ibid., 18.

Herbert Brown Ames was able to establish a high correlation between poverty and premature death in his social survey of certain regions of Montreal in 1897. He concluded that mortality rates in the crowded, working-class areas of Montreal were more than double those of high-income areas during the period under review.[5] The population of Toronto grew substantially during the late nineteenth century, as well. According to the 1891 census, the number of urban residents in Toronto had risen from 96,126 to 181,220 between 1881 and 1891. Rural Ontarians and immigrants who flooded into Toronto in search of work gravitated primarily toward factory industries. In 1881, 932 factories were employing 13,425 workers; by 1891, the number of factories in Toronto had increased to 2,401, and they were employing a total of 26,242 workers.[6] This increase in population had a detrimental effect upon the sanitary condition of the city, causing the Mail and Empire to write in 1897 that the living conditions in some areas of Toronto were little better than in many American slums.[7]

As city populations increased, concerns were voiced as to the potential threat of typhoid to urban residents. In the early-nineteenth century, typhus and typhoid were confused with one another. Yet by the mid-nineteenth century, typhus was found to be a rickettsial disease (spread by the body louse) while typhoid was discovered to be bacterial in form, transmitted (like cholera) through the ingestion of contaminated food or drink. Carriers of typhoid could often be immune from the disease, adding to the

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[5] Terry Copp, "Public Health in Montreal, 1870-1930," in Medicine in Canadian Society: Historical Perspectives, ed. S. E. D. Shortt (Montreal: McGill-Queen's University Press, 1981), 395.

[6] Heather A. MacDougall, "The Genesis of Public Health Reform in Toronto, 1869-1890," Urban History Review 10, no. 3 (February 1982): 4.

[7] *Mail and Empire*, in Michael J. Piva, The Condition of the Working Class in Toronto, 1900-1921 (Ottawa: Ottawa University Press, 1979), 126.

disease's complexity. Patients suffering from typhoid could expect to suffer from listlessness, loss of appetite, continuous fevers (which were often accompanied by a rash), and diarrhea. Typhoid sufferers were also known to have spots appear on the trunk of their bodies and experience constipation. Typhoid was primarily a water-borne disease and was not exclusive to any particular class of society–it attacked the wealthy and the poor alike. Ironically, the provision of sewers may have actually contributed to increased typhoid deaths, for contaminated waste materials often flowed forth from sewers into rivers that were a major source of drinking water. Typhoid outbreaks were a particular threat in cities, as deaths resulting from the disease were twice as numerous in urban centres as in rural areas.[8] Experiments carried out at the Lawrence Experiment Station in Massachusetts in the late nineteenth century demonstrated conclusively that typhoid could be transmitted through the ingestion of polluted water supplies.[9]

British authorities sought to avert the threat of typhoid by establishing improved water facilities in the urban centres. In Britain, Prince Albert died of the disease, and Edward, the Prince of Wales, contracted a severe case of it in 1871. Two years later, an outbreak of typhoid occurred at Caius College, Cambridge, drawing attention to the primitive conditions of the colleges from which Britain drew its leaders. Counties such as Northumberland, Durham, and Yorkshire had to deal with repeated typhoid outbreaks, while Darlington, Stockton, and Middlesborough were among the towns that would continue to experience epidemic typhoid down to the end of the century. All of these communities acquired their drinking water from the Tees, a river into which over twenty

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[8] Wohl, Endangered Lives, 127-8. See also Alan M. Kraut, Silent Travelers: Germs, Genes, and the "Immigrant Menace" (Baltimore, MD: Johns Hopkins University Press, 1994), 97.

[9] Fee and Porter, "Public Health, Preventive Medicine," 266-7.

villages poured their untreated sewage. British health authorities carried out significant improvements to existing urban water supplies in the late nineteenth and early twentieth centuries, reducing the virulence of typhoid within numerous urban centres.[10]

In the United States, typhoid was not an uncommon disease to contract. At the turn of the twentieth century, American municipal authorities paid little attention to water and its relationship to the spread of typhoid, as evidenced by the fact that only nine of the fifty largest cities possessed efficient water supply systems.[11] Within a few years, however, American health authorities began to state with increasing certainty that polluted water was the main channel by which typhoid microorganisms were transmitted.[12] By 1910, nearly every city in the United States had invested in efficient water supply systems as a guard against typhoid.[13] Yet American cities would occasionally fall prey to typhoid epidemics brought on by typhoid carriers. In 1906, 3,467 cases of typhoid were reported in New York, including 639 deaths.[14] The origin of the outbreak was eventually traced to a typhoid carrier, Mary Mallon, who was discovered to have infected several wealthy families while serving as a cook in their employ.[15] Mary Mallon came to the American public's attention in June 1909 when the New York American ran a story in its Sunday magazine section with the dramatic title:

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[10] Wohl, Endangered Lives, 128.

[11] Stanley K. Schultz and Clay McShane, "To Engineer the Metropolis: Sewers, Sanitation, and City Planning in Late Nineteenth Century America," The Journal of American History 65, no. 1 (June 1978): 393.

[12] Peter Van Avery, ed., "Public Health," The Reference Shelf (New York: H. W. Wilson Co., 1959), 178.

[13] Schultz and McShane, "To Engineer the Metropolis," 393.

[14] Kraut, Silent Travelers, 97.

[15] Ibid., 98.

"TYPHOID MARY–MOST HARMLESS AND YET THE MOST DANGEROUS WOMAN IN AMERICA."[16] Upon her death, Mary Mallon was known to have infected at least fifty-three individuals, three of whom died.[17]

In Canada, Toronto experienced particularly acute typhoid problems, with deaths caused by the disease peaking in the 1870s. Until that time, the supply of drinking water had been the responsibility of privately owned companies. Following a twenty-year campaign (which was begun in the 1850s), a public waterworks facility was established in the city; typhoid rates began to decrease as a result of this development. This decrease was also due in part to the replacement of Toronto's wooden water conduit with a steel one in 1870. Yet Toronto continued to experience problems concerning its water supply for, in addition to the sewage that was being piped into the city bay, the contents of many outdoor privies were continually being dumped there as well. In 1890 a pile of sewage was inadvertently driven through the underwater conduit pipe, resulting in the contamination of the city water supply. In February 1893, the conduit pipe was again damaged. Rising to the surface, the pipe sucked in a large quantity of human waste that had been deposited on the ice during the winter. These accidents caused typhoid rates to shoot upwards in the fall of 1890, 1891, and 1893.[18]

Sewage systems were perceived by health authorities as a means of preventing the contamination of city water supplies. In Britain, improvements in sewer construction did not take place until after the mid-nineteenth century. In 1866 (a year after the city of

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[16] Ibid., 99-100.

[17] Ibid., 102. For additional information relating to typhoid in the United States, see Judith Walzer Leavitt, Typhoid Mary: Captive to the Public's Health (Boston, MA: Beacon Press, 1996).

[18] Risa Barkin and Ian Gentles, "Death in Victorian Toronto, 1850-1899," Urban History Review, 19, no. 1 (June 1990): 23.

London had established its own sewer facilities), the Privy Council reported that significant developments in sewer construction had been carried out in many towns over the last few years. The city of Bristol had set up an efficient sewer system by this period, while other communities were in the beginning stages of establishing sewer facilities. By 1880, the Doulton Company, a prominent manufacturer of sewer pipe and drains, was producing 3,000 miles of sewer and drainpipe annually.[19] In the United States during the late nineteenth century, city authorities carried out extensive sewer construction programs. These programs were necessary for drainage purposes, as the newly established water closets of American cities had brought about an accumulation of surface water on numerous streets and lots.[20]

In Ontario, the initial efforts of the public health movement were focused upon providing sanitary sewers and improving methods of sewage disposal. The growth of the province's Division of Sanitary Engineering can be traced back to the work in 1883 of a committee on sewage and water supplies, under the direction of Dr. William Oldwright and Professor John Galbraith. Inspections and investigations of sewage disposal systems took up the majority of their time. By the turn of the century, sanitation had become one of the central concerns of the Provincial Board of Health, with sewage and water problems being studied throughout the province in the following years.[21] In 1895, the Provincial Board of Health was given the authority to require that all plans for water

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[19] Wohl, Endangered Lives, 108.

[20] Schultz and McShane, "To Engineer the Metropolis," 393.

[21] Phair, "Public Health in Ontario," in Public Health in Canada: a Review of the History of the Organization of Public Health in the Provinces of Canada, with an Outline of the Present Organization of the National Health Section of the Department of Pensions and National Health Canada, ed. R. D. Defries (Toronto: Canadian Public Health Association, 1940), 80.

supply installation and sewer works be submitted to it for approval. This measure resulted in the rapid improvement of sewer facilities and in the decrease of water-borne diseases such as typhoid fever.[22]

The germ theory assisted in facilitating the development of clean water resources within urban centres. As bacteriological techniques improved throughout the late nineteenth century, the public health laboratory was used increasingly by health authorities to examine of urban water supplies (to determine whether or not they were infected with disease).[23] In the United States, public health laboratories were used initially for the testing of public water supplies and the effectiveness of filtration systems.[24] In Milwaukee, a new health department laboratory began daily analysis of city water supplies in 1896. When it was found that the city water supplies were regularly being contaminated with sewage emissions, public health authorities began to push for the establishment of sewage disposal and water filtration facilities.[25] Ontario's first public health laboratory, which was established in 1890 in Toronto, gradually extended its work to the bacteriological chemical examination of water supplies. The laboratory was the first of its kind in North America to undertake analysis of urban water supplies.[26]

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[22] Ibid., 70.

[23] W. M. Frazer, A History of English Public Health, 1834-1939 (London, England: Bailliere, Tindall, and Cox, 1950), 376-7.

[24] James H. Cassedy, Medicine in America: a Short History (Baltimore, MD: Johns Hopkins University Press, 1991), 110.

[25] Judith Walzer Leavitt, The Healthiest City: Milwaukee and the Politics of Health Reform (Princeton, NJ: Princeton University Press, 1982), 60.

[26] See italicized section on pages 75 and 76 of Phair "Public Health in Ontario."

The growth of cities had led to an increase in urban nuisances. In Britain, urbanization brought with it nauseating odors, overflowing cesspools, poorly drained cowsheds, filthy abbatoirs, domestic pigsties, exposed dung heaps, and industrial waste.[27] As in Britain, the presence of industrial pollution in the United States created nuisance conditions and caused city rivers and lakes to have a foul smell.[28] American cities were also plagued by the existence of unpaved streets, uncollected garbage, and the presence of excrement from thousands of livestock. The situation in American cities was made worse by the establishment of new water closets in the 1860s and 1870s, the material from which filtered into the urban ground water tables converted large sections of city streets into a "stinking morass."[29]

In Canadian cities, nuisances dotted the urban landscape. Canadian cities exhibited such nuisances as industrial pollution, unventilated factories and workshops, and sub-standard dwellings.[30] Sir Herbert Brown Ames, in his social survey of Montreal in 1897, concluded that the outdoor privy was a "widespread evil" existing in too many regions of the city. In his mind, the outdoor privy was an "evil" that was so prevalent that only "drastic measures" would suffice to eliminate it.[31] In the early twentieth century, Dr. Hastings, the medical officer of health for Toronto, reported that every slum

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[27] Wohl, Endangered Lives, 153.

[28] Van Avery, "Public Health," 178.

[29] Schultz and McShane, "To Engineer the Metropolis," 390, 393.

[30] Peter Henderson Bryce, Organized Sanitary Work in Dealing with Overcrowding and Pauperism due to Immigration (Ottawa, 1907), 5-6.

[31] Herbert Brown Ames, The City Below the Hill: a Sociological Study of a Portion of Montreal, Canada (Toronto and Buffalo: University of Toronto Press, 1972), 46. See also Jean-Claude Robert, "The City of Wealth and Death: Urban Mortality in Montreal, 1821-1871," in Essays in the History of Canadian Medicine, ed. Wendy Mitchinson and Janice P. Dickin McGinnis (Toronto: McClelland and Stewart, 1988), 18-38.

region within the city had within it nuisances such as rear housing, dwellings unfit for habitation, unpaved alleyways, filthy yards, and privy-pits. Hastings considered the privy-pit to be the worst urban nuisance, calling it a "public nuisance, a menace to public health, and an offence against public decency."[32] In the city of Owen Sound, Ontario, householders were allowed to run sink drains directly into roadside gutters, and there was no established procedure for the collection of garbage. Additionally, since the city authorities refused to enforce their existing cow by-law, cattle were able to roam the streets freely.[33]

Governments began to take measures to eliminate nuisances from urban centres. In Britain, nuisance removal acts were instituted by Parliament during the mid-nineteenth century for the purpose of removing accumulations of excrement and other forms of refuse from city streets.[34] These pieces of legislation were incorporated into the Public Health Act of 1875, which provided for the removal of nuisances from urban centres, the maintenance of healthy dwellings, and the regulation of sanitary burial.[35] In the United States, health authorities undertook the paving of streets and the establishment of improved drainage, so as to remove the wastewater that had been accumulating on city streets.[36] Health authorities in the United States were assisted by various voluntary

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[32] Charles Hastings, Report of the Medical Health Officer Dealing with Recent Investigation of Slum Conditions in Toronto Embodying Recommendations for the Amelioration of the Same (Toronto, 1911), quoted in Piva, The Condition of the Working Class in Toronto, 128.

[33] David Gagan, "A Necessity Among Us": the Owen Sound General and Marine Hospital, 1891-1895 (Toronto: University of Toronto Press, 1990), 8-9. See also James Shaver Woodsworth, My Neighbor: a Study of City Conditions, a Plea for Social Service (Toronto: Stephenson, 1911), for information relating to the general condition of Canadian cities in the early decades of the twentieth century.

[34] Wohl, Endangered Lives, 153.

[35] C. Fraser Brockington, A Short History of Public Health (London, England: Churchill, 1966), 47.

[36] Schultz and McShane, "To Engineer the Metropolis," 393.

organizations, whose members devoted their time to social improvements of every variety, including municipal sanitary reform.[37] In Canada between 1840 and 1890, efforts were undertaken to secure clean streets, sewage removal programs, and other improvements.[38] Montreal's Health Bureau followed the same model as the British Public Act of 1875, its responsibilities being geared toward the removal of nuisances from city streets, yards, and other regions of the city.[39] In Toronto, city health authorities had managed to tear down 15,000 outdoor privy-pits (out of 16,000) by 1918.[40]

Despite the promising sanitary reforms that were instituted throughout the late nineteenth century, however, local governments had a tendency to resist any reforms to their urban environments. In the United States, many sanitary works were never completed as a result of constantly expanding urban populations. Furthermore, as the nineteenth century progressed, health officials had to continually prod city governments to speed up their sewer construction projects.[41] Anthony S. Wohl writes that sanitary reforms in Britain were implemented "not so much willingly, and enthusiastically, as sporadically" and more often than not in response to emergency situations. When a typhoid outbreak occurred in the Leeds suburb of Headingly in 1889, for instance, the resulting alarm and fear led to criticism being leveled at the state of public health in the community. Local governments often implemented sanitary reforms only when faced with civil litigation. This was especially the case where civil authorities were guilty of

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[37] Fee and Porter, "Public Health, Preventive Medicine," 256.

[38] Florence H. M. Emory, Public Health Nursing in Canada: Principles and Practice (Toronto: Macmillan, 1953), 16-17.

[39] Copp, "Public Health in Montreal," 396.

[40] Piva, The Condition of the Working Class in Toronto, 128.

[41] Cassedy, Medicine in America: a Short History, 110.

river pollution.[42] In Toronto, between 1869 and 1890, city authorities moved slowly when implementing sanitary reforms. Heather A. MacDougall writes that local politicians "grudgingly adopted" initiatives geared toward combating ever-expanding urban health difficulties. Although health experts, public health reformers, and provincial and federal governments all attempted to promote the establishment of efficient sanitation services in Toronto, their efforts met resistance from local rate-payers, property owners, and the city council.[43]

In summary, the rise in urban populations throughout Britain, the United States, and Canada in the late nineteenth and early twentieth centuries brought about severe health hazards that made urban centres unhealthy environments. Specifically, increases in urban populations put strains upon the quality of city water supplies and made sewer construction initiatives necessary. Along with the rise in city populations came various urban nuisances. Cities became associated with garbage-ridden streets, water-filled lots, stagnant cesspools, outdoor privies, and unregulated livestock. In accordance with the sanitary idea, public health reformers regarded these problems as being unique to urbanization and sought to have them removed via government intervention. Public health reformers were also assisted by germ theory developments, as the public health laboratory came to be used by governments for the testing of city water supplies. In response to the ever-worsening health problems brought on by urbanization, governments in the United States, Britain, and Canada began to pass legislation focused upon the

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[42] Wohl, Endangered Lives, 173-4.

[43] MacDougall, "The Genesis of Public Health Reform in Toronto, 1869-1890," 7.

regulation of city water supplies, the establishment of municipal sewers, and the sanitary cleanup of cities.

Sanitary Reforms in Fort William

As immigrants flooded into Fort William throughout the late nineteenth and early twentieth centuries, similar health problems began to develop. The city's health problems would be felt most severely in the Coal Docks and Westfort regions, areas that experienced increasing industrial development during this period. At the turn of the century, the Coal Docks region was an area comprising roughly two dozen blocks, separated from the rest of the city by the C.P.R.'s mainline yards, elevators, freight sheds, docks, and oil tanks (all of which lined both the Kaministiquia River and Lake Superior).[44] As the C.P.R. expanded its presence within the area, it required more and more labourers to work its facilities. In search of employment, immigrants gravitated toward the region in large numbers, and the area had become heavily populated by 1904.[45] Those who arrived from Ruthenia made up the largest element of the immigrant population in the area, while those of Italian origin formed the second largest immigrant group.[46] As larger numbers of workers moved into the area in search of employment, the population became increasingly concentrated, and shacks were built to meet the need for

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[44] Thorold J. Tronrud, Guardians of Progress: Boosters and Boosterims in Thunder Bay, 1870-1914 (Thunder Bay, ON: Thunder Bay Historical Museum Society, 1993), 43.

[45] Weekly Times Journal (WTJ), 21 May 1904.

[46] Bryce M. Stewart, Report of a Preliminary and General Social Survey of Fort William, March 1913, Directed by the Department of Temperance, and Moral Reform of the Methodist Church, and the Board of Social Services, and Evangelism of the Presbyterian Church (Fort William, 1913), 6. For more information relating to the origins of Ruthenian immigrants and their origins, see Tronrud Guardians of Progress, 67, n. 8. In addition, on page 43 of Guardians of Progress, Tronrud states that immigrants of Ruthenian descent comprised the largest immigrant group in the Westfort region.

cheap housing.[47] In Westfort, an industrial area located on the northern bank of the Kaministiquia River, similar housing developments had occurred, for a large collection of hastily built shacks had been established around the Westfort region's prevalent industries by 1907.[48] By 1912, the Coal Docks region had become the most congested area of Fort William and this development would prove to have detrimental effects upon its sanitary condition.[49]

Overcrowding quickly became a reality in the Coal Docks, resulting in the emergence of unsanitary living and working conditions. The hastily built shacks were unsanitary, and the potential for flooding in the region also proved to be a concern, as it was found that the area was relatively level with both Lake Superior and the Kaministiquia River. It was these urban features, according to the Weekly Times Journal, that were "enough to discourage sanitary engineers of modern ingenuity."[50] In 1909, Dr. Manion, the Fort William medical officer of health, noted that the Coal Docks region was unsanitary; sewers and drains were virtually nonexistent, and the overcrowding was extreme.[51] An article in the Daily Times Journal, titled "Where Humanity is Literally Bunched," reported that it was not uncommon for forty-five people to inhabit two-story frame structures in the region; one particular dwelling was found to

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[47] Morning Herald (MH), 15 June 1907.

[48] Tronrud, Guardians of Progress, 43.

[49] Stewart, Report of a Preliminary and General Social Survey of Fort William, 6.

[50] WTJ, 21 May 1904.

[51] Daily Times Journal (DTJ), 18 January 1909. Dr. Manion served as medical officer of health for the city of Fort William from 1906 to 1909. In 1910, he resigned from the post. It is likely that Manion was frustrated over his repeated attempts to persuade City Council as to Loch Lomond's importance as a viable water supply source. It could also be due to the fact that City Council had not established a new isolation hospital for the community by 1909, something Manion had sought to achieve. E. B. Oliver, "Department of Health," Thunder Bay Historical Museum Society: Papers and Records (1914): 32.

hold 68 people.[52] The Morning Herald wrote its own critique of the unsanitary conditions found in the Coal Docks in 1907:

> The Pressman has been in many lands, and on every continent he has investigated slum districts in Asia, Africa, London, and every continent in Europe, yet in all of his investigations he has never seen anything quite so foul, so abominably filthy, and disease provoking as the [Coal Docks] region.[53]

Despite such revelations, Manion argued that little could be done. In his estimation, the problem was primarily economic, as it was found that the wages received by workers were not sufficient to permit them to board at hotels or in uptown boarding houses, and the majority of labourers were not in any financial condition to build their own dwellings. Faced with this reality, workers had little choice but to reside together in large numbers.[54]

The overcrowded living conditions endured by workers were brought to light during the strike activity in Fort William in 1909. By that time, over a thousand men were employed in the Fort William freight sheds of the C.P.R. They were the largest work force in the region, and they were also the most militant when it came to demanding improved living and working conditions. Rising prices, harsh treatment by foremen, and an unfair bonusing system resulted in a seven-day wildcat strike beginning August 9, 1909.[55] The main grievance of the workers proved to be low wages, as they claimed that

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[52] DTJ, 23 January 1909.

[53] MH, 10 June 1907.

[54] DTJ, 18 January 1909.

[55] Thomas F. Beasley, "The Freight Handlers' Coal Strike: Col. Sam Steele Searches Strikers for Guns," Thunder Bay Historical Museum Society: Papers and Records 17 (1989): 18. See also Jean Morrison, "Labour in Fort William and Port Arthur, 1903-1913," Thunder Bay Historical Museum Society: Papers and Records 1 (1973): 23-30.

the wages they were receiving were insufficient to cover the costs of living.[56] In the same week that the strike was taking place, the Daily Times Journal published an article detailing the living conditions under which labourers in the Coal Docks region had to live. In an article entitled "Sanitary, Social, and Moral Conditions of the Coal Docks Needs Improvement," it was reported that between 3,000 and 4,000 people dwelt in the area amid clouds of flies. Many dwellings had only one window, and in the majority of cases they were never open, causing a repugnant odor to emerge from within living spaces. In addition, some boarding houses possessed tier after tier of beds, causing the airspace to be constricted and unhealthy. Sixteen people were reported to be living in one small shack while, in a widow's household, 78 people were known to reside.[57] Following the freight handlers' strike, clergymen criticized the railway companies for not looking after the social and economic needs of labourers, and argued that large numbers of workers were being imported into the city without any regard for their well-being. In Fort William, the Rev. Hiram Hull of Wesley Methodist Church initiated the founding of Wayside, a mission of the church in the Coal Docks region, with the intention of promoting Canadianization among the area's inhabitants.[58]

Bryce M. Stewart's social survey of Fort William in 1913 illustrated that the problem of overcrowding in the city had not improved significantly following the strike. Stewart concluded that the Coal Docks region was rapidly developing into a slum area. Many city blocks within the Coal Docks were congested, some containing as many as

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[56] DTJ, 26 August 1909.

[57] DTJ, 21 August 1909.

[58] Morrison, "Labour in Fort William and Port Arthur," 28-9.

350 people. He also concluded that the dwellings of the region were inferior to those in other regions of the city, as many of the citizens lived in one-story frame dwellings and shacks (not a few of which were located on lanes).[59] Stewart also expressed concern as to the living conditions in the Westfort region. Stewart surveyed a single block within this area and found it to be extremely overcrowded, with 332 people living in 132 rooms.[60] Like Manion, Stewart attributed these housing problems to a scarcity of dwellings and the high rents asked by landlords. According to Stewart, the frequency of seasonal work in Fort William also played a part, as large numbers of men found themselves unemployed at the onset of winter. Having found no employment by winter, these workers had little choice but to reside together in large numbers in order to cover the rental payments required.[61]

Not all Fort William citizens expressed concern over the congested areas of the city. In 1904, the Weekly Times Journal wrote that city authorities were doing little to clean up the less sanitary areas of the Coal Docks, adding that it was fortunate that the immigrants residing there were strong in constitution and used to living with few luxuries.[62] Although Manion acknowledged in 1909 that overcrowding was a reality within the area, he argued that little could be done to alleviate the situation, citing high rents as the central problem leading to urban congestion. But Manion then pointed out that sanitary reforms were not an absolute necessity in the Coal Docks, basing his argument on his own and others' perception of the residents' state of health. Since

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[59] Stewart, Report of a Preliminary and General Social Survey of Fort William, 8.

[60] Tronrud, Guardians of Progress, 43.

[61] Stewart, Report of a Preliminary and General Social Survey of Fort William, 8, 15.

[62] WTJ, 21 May 1904.

physicians were rarely called into the region, Manion concluded that immigrant families were of relatively good health. Various Fort William physicians supported Manion's view as to the health of Coal Dock residents, stating that the foreigners of the area possessed "remarkable constitutions" which guarded them against any illness brought on by overcrowding.[63] In another article, the Daily Times Journal reported that foreigners living in the Coal Docks area were content with the overcrowded living conditions and suggested that the average immigrant would "suffer from the direst pangs of loneliness if he were the sole occupant of a bedroom." The newspaper further added that immigrants who crowded into urban dwellings were not subject to illness. Again, a number of Fort William physicians expressed agreement.[64] This mindset would prove significant throughout the early twentieth century, as it served to hinder efforts by health authorities to initiate sanitary reforms.

The rise of industrialization and population in Fort William began to have a detrimental effect upon the quality of the city's drinking water. Manufacturers had been drawn to the banks of the Kaministiquia River with the hope of profiting from the expanding shipping and railroad industry present there. Businesses thus began establishing mills, brickyards, and other industries within the area of the Kaministiquia River.[65] This development caused health authorities to express concern that the growing industrialization would lead to the contamination of the city water supply. In 1902, it was found that the agitation of the river bottom (by the grounding and passing of large

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[63] DTJ, 18 January 1909.

[64] DTJ, 23 January 1909.

[65] Stewart, Report of a Preliminary and General Social Survey of Fort William, 4-5. See also the Fort William Medical Officer of Health (FWMOH), Annual Report, 1905.

freighters) near the water supply source, coupled with the increased depositing of sewage above the intake valve, was resulting in the pollution of the city water supply.[66] In addition, people were dumping large amounts of garbage along the banks of the Kaministiquia River between Kakebeca Falls and Fort William. Manion blamed the C.P.R. for the city's water difficulties. In his 1905 annual report, he made reference to the high sanitary standards being practiced by the Japanese army (which was currently involved in a war against Russia), which would have summarily executed any member of the C.P.R. for serving its soldiers water like Fort William in its current condition.[67]

Fort William's water concerns were brought clearly to light by an outbreak of typhoid, which occurred in the city in late 1905 and 1906. Eight hundred and thirty-two people would contract the disease, while 93 others would die from it. The typhoid outbreak was caused by the passage of a sea-going vessel that dragged its anchor, and struck the intake valve, loosening it. This caused large amounts of polluted water to contaminate the city water supply. During the course of the epidemic, McKellar Hospital was taxed to the limit, and emergency hospitals had to be established.[68] To limit the spread of the epidemic, the Board of Health moved that city newspapers print articles instructing citizens to boil their water and not to cut any ice from the Kaministiquia River.[69] In search of alternative water supplies, Fort William authorities turned to the use

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[66] FWMOH, Annual Report, 1902.

[67] FWMOH, Annual Report, 1905.

[68] Oliver, "Department of Health," 31. For additional information relating to the history of McKellar Hospital, see Elinor Barr, "A Hundred Years of Health Care: McKellar General Hospital," Thunder Bay Historical Museum Society: Papers and Records 28 (2000): 70-80, and E. Marion Henderson, The McKellar Story: McKellar's Pioneers in Lake Superior's Mineral Country, 1839-1929 (Thunder Bay: the McKellar Story Publication Committee, 1981).

[69] Fort William Board of Health (FWBOH), Meeting Minutes, 1 February 1906, 17 March 1906.

of city wells (see Chapter Two) and established water links to Crescent Lake, although this was regarded by most as only a temporary water supply source.[70]

The Loch Lomond watershed had come to be regarded as the most viable water source for the Fort William community, leading both health officials and various businessmen to push for its permanent use. Loch Lomond was considered an ideal water resource since it was close to the city and located upon mountainous terrain 332 feet above Lake Superior. Loch Lomond's elevated position was regarded as particularly important, since water from the lake could be supplied to the city through gravity, thus eliminating the need for a costly pumping system.[71] Support for the Loch Lomond project was strengthened when thirteen prominent businessmen made a trip to the Loch Lomond water site in 1906, in order to inspect it as a potential water supply source. Upon completing their observations, the majority of the businessmen present supported creating permanent links to the watershed as soon as possible.[72] Dr. Hodgetts, the Secretary of the Provincial Board of Health for Ontario, also expressed support for the Loch Lomond initiative. While on a tour of Fort William in 1906, Hodgetts undertook an inspection of the Loch Lomond site and found it to be an adequate water supply source, as it was surrounded by beach and devoid of decayed vegetation. To further emphasize the importance of the Loch Lomond watershed, Hodgetts remarked that many cities in

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[70] Dr. Thomas Kane, Medicine in Thunder Bay (Thunder Bay, 1994), 79. See also W. L. C. Greer, "The Fort William Water Supply, 1905-9," Thunder Bay Historical Museum Society: Papers and Records 2 (1974): 1.

[71] Gerri Noble, ed., "The Loch Lomond Tunnel and the Letters Edged in Black," Thunder Bay Historical Museum Society: Papers and Records 10 (1982): 4.

[72] WTJ, 7 April 1906.

England, continental Europe, and the United Sates would be willing to spend millions of dollars tapping such a resource.[73]

City Council was initially against the installation of a permanent waterworks facility at Loch Lomond, however, and instead promoted the use of a temporary water supply source in an attempt to save money. Upon investigation by municipal authorities, it was found that establishing a water connection to Loch Lomond would require the excavation of a tunnel through solid rock. The cost of such a project was estimated at $215,000, a price seen as being beyond the financial means of City Council. The City engineer, H. Sydney Hancock, was instructed to draft a less expensive plan for the construction of water links to Loch Lomond. When he was unable to do so, City Council opted for establishing water connections to Crescent Lake, an initiative that would cost far less than the Loch Lomond plan.[74] In response to this decision, Manion encouraged the construction of a new waterworks system at Loch Lomond by analyzing the situation in terms that business-minded city officials could understand. If each death represented a loss to the community of 5,000 dollars, Manion argued, then a clean water supply would result in an overall saving to the city of Fort William. City Council regarded Manion's observations as being credible, leading it to establish water connections to the Loch Lomond watershed in the summer of 1909.[75] By the following year, City Council had acquired all the territory within the drainage area of Loch Lomond in order to prevent any infection of the water supply with garbage or other materials. Regular policing was

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[73] WTJ, 10 November 1906.

[74] Greer, "The Water Supply of Loch Lomond, 1905-1906," 1.

[75] Tronrud, Guardians of Progress, 45-6.

instituted in the vicinity of the watershed, so as to prevent the contamination of the city water supply by picnic parties and the like.[76]

Health authorities continued to look warily upon the number of typhoid incidents in the city and to compare Fort William's progress with that of other cities. In 1914, 35 cases of typhoid were reported, along with four deaths. This was the lowest number in twenty years and caused health authorities to be optimistic that typhoid rates were on the decrease.[77] In 1919, Fort William experienced no deaths from typhoid.[78] Dr. Oliver, Fort William's medical officer of health at the time, could not help but compare his city's perfect record with that of Toronto, which had experienced three typhoid deaths in the same period.[79] The establishment of laboratory facilities in the city assisted in reducing the rate of typhoid outbreaks. At the turn of the century, no laboratory facilities existed in Fort William. Any water samples taken by local health authorities had to be sent away to the Provincial Board of Health for analysis.[80] In 1910, Fort William established its first public health laboratory, which was able to undertake examinations of the city water supply.[81] With the establishment of a branch of the provincial health laboratory in Fort William in 1919, other communities could also have their water supplies tested for

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[76] FWMOH, Annual Report, 1910.

[77] FWMOH, Annual Report, 1913-1914.

[78] FWMOH, Annual Report, 1918-1919.

[79] DTJ, 16 July 1919. Of all the medical officers of health since 1892, Dr. Oliver served the longest term, working from 1912 to 1922. Kane, Medicine in Thunder Bay, 75.

[80] FWMOH, Annual Report, 1904.

[81] FWMOH, Annual Report, 1910.

disease. Fort William health officers no doubt welcomed this development, for it was not uncommon for typhoid sufferers to enter the city from surrounding communities.[82]

Fort William health authorities would also pay close attention to the Neebing River throughout the early twentieth century. Because the river was used increasingly by the authorities to deposit the city's waste material, it was feared that its sanitary neglect might bring about possible recurrences of typhoid. By 1911, eleven sewer outlets had been connected to Neebing River[83] and Fort William health authorities, concerned that accumulations of sewage might result, sought to have any obstructions in the Neebing River removed. The Board of Health instructed owners of livestock to cease the practice of slaughtering their livestock along the Neebing River, and it further requested that the old railway equipment present in the river (resulting from past industrial activity) be removed in order to prevent the accumulation of sewage.[84] In 1919, the Daily Times Journal published an article detailing the provincial government's plans to dredge a channel to deep water at the mouth of the Neebing River. This measure was regarded as a significant improvement, since sewage had traditionally been known to accumulate at the mouth of the river.[85]

The construction of municipal sewers was regarded as an additional preventive measure against contamination of the city water supply. By 1904, Fort William

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[82] DTJ, 24 October 1919, 22 May 1919. For information pertaining to visitors who entered the city already infected with typhoid, see FWMOH, Annual Report, 1902 to 1919.

[83] Tronrud, Guardians of Progress, 67, n. 32.

[84] FWBOH, Meeting Minutes, 29 March 1910, 8 June 1914.

[85] DTJ, 23 August 1919.

authorities had established an efficient sewerage system.[86] In the following two years, a large number of new and permanent sewers were established on Fort William streets. Manion commended the city on this accomplishment, stating that a good sewer system contributed to the healthful condition of the city environment.[87] The Weekly Times Journal echoed Manion's congratulatory remarks, writing that the provision of sewers went "hand in hand" with sanity.[88] During 1907 and 1908, city authorities undertook to construct six more miles of sewer, along with five new sewer outlets.[89] The completion of sewers on Tarbat and Francis Streets in 1909 was publicized by the Daily Times Journal.[90] Dr. Wodehouse, the Fort William medical officer of health, himself made note of the extensive sewer construction that had been undertaken on various streets by the end of 1914, expressing his pleasure at such a development.[91] For those dwellings that made use of outdoor privies, sewers became especially important in later years for the disposal of night soil. Traditionally, city authorities had disposed of such material by hauling it to the nuisance ground. By the end of 1917, health authorities were making regular use of sewers for the disposal of night soil. Oliver regarded such a practice as

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[86] Kane, Medicine in Thunder Bay, 78.

[87] FWMOH, Annual Report, 1908.

[88] WTJ, 11 May 1907.

[89] DTJ, 8 January 1908.

[90] DTJ, 18 November 1909.

[91] FWMOH, Annual Report, 1910-1911, 1913-1914. Wodehouse replaced Manion as city medical officer of health in 1910. He resigned in 1912 to accept the newly-created position of Provincial Medical Officer of Health. Oliver, "Department of Health," 33.

both "natural and practical," as it reduced the expense of hauling night soil, and was a more sanitary practice.[92]

Despite such progress, health authorities in Fort William repeatedly criticized the lack of sewer systems in the more congested areas of the city. The Board of Health made a series of recommendations to Council in 1905, which called for the building of sewers in areas of the Coal Docks that required immediate sanitary attention.[93] Council did not heed the Board's recommendations, however. This decision came under fire from the Board, which accused Council of not taking into consideration its recommendations when instituting sewer construction in the region.[94] The complaints made by the Board of Health were supported by the Daily Times Journal, which reported that the eastern sections of the city were growing so rapidly that sewers were an immediate necessity on various streets.[95] In the Westfort region in 1907, health authorities could be no less dismayed over the complete lack of sewer facilities that were present there. Health authorities would continue to face obstacles to the setting up of sewerage systems. Sewer construction initiatives, when carried out, were often rudimentary in nature. For instance, sewers constructed near the Coal Docks in 1907 were sunk to a depth of only twelve inches.[96] In his social survey of the Coal Docks in 1913, Stewart stated that he found no bathtubs in any of the dwelling he inspected and that no indoor water closets had been

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[92] FWMOH, Annual Report, 1916-1917. Special night soil wagons, together with an efficient flushing installation, allowed for the disposal of night soil via sewers.

[93] FWBOH, Meeting Minutes, 25 August 1905.

[94] FWBOH, Meeting Minutes, 18 June 1907.

[95] DTJ, 5 August 1908.

[96] Tronrud, Guardians of Progress, 46.

installed. Moreover, sink and sewer water appeared in abundance wherever Stewart traveled.[97]

The construction of sewers in Fort William was accompanied by city health authorities' attempts to initiate sewer connections, their objective being to eradicate the outdoor privy, which they regarded as highly unsanitary. Initially, health authorities were pleased at the number of sewer connections being carried out by the city. To Manion's satisfaction, 200 sewer connections were undertaken in 1906.[98] In 1908, the Daily Times Journal reported that 158 permits had been issued during the year for sewer connections and that 204 houses had been connected to adjacent sewers.[99] Despite these promising developments, however, sewer connection initiatives in Fort William were hampered by the presence of outdoor privies. In his 1910 annual report, Wodehouse labeled the outdoor privy a "most dangerous foe to health and an eyesore quite overbalancing any street improvements." In hopes of removing the outdoor privy from Fort William, Wodehouse reminded City Council that it had the authority to institute sewer connections, and that it could also tax Fort William property owners for the expense.[100] Despite Wodehouse's suggestions, few sewer connections were undertaken during the early twentieth century.[101] In 1915, a large number of new shacks were built on an island directly adjacent to the city; the owners of these dwellings had set up outdoor privies,

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[97] Stewart, Report of a Preliminary and General Social Survey of Fort William, 15.

[98] FWMOH, Annual Report, 1906, 1908. In these annual reports, Manion makes no reference to those areas of the city that received sewer connections.

[99] DTJ, 8 January 1908.

[100] FWMOH, Annual Report, 1910.

[101] FWMOH, Annual Report, 1913-1919.

thus dispensing with the need to initiate sewer connections.[102] The situation was made even more problematic by the Board of Works, which initiated sewer construction programs, but stopped short of completing them due to financial constraints.[103]

With the outdoor privy being regarded as a continual city nuisance, Fort William health officials promoted their sanitary maintenance as another way by which to limit their impact. In 1906, the Board of Health instructed all householders possessing privies to acquire pails that would allow for the safe disposal of night soil onto wagons.[104] In 1908, the privies in the Coal Dock region were found to be particularly unsanitary and the Board of Health instructed that they be cleaned out immediately.[105] Notices were subsequently given to citizens of the area, instructing that any damaged privies be repaired in such a way as to comply with the pail system of disposal of contents. The Board of Health went further, instructing that chemical closets be installed on streets with no sewers, rather than outdoor privies, and that the use of metal pails in the disposal of night soil be continued.[106] Wodehouse wrote in his annual report that, if all tenants and property owners would cooperate with the Board of Health in maintaining the sanitary condition of outdoor privies, they would be assisting greatly in reducing the fly nuisance and the unsanitary condition of the lanes.[107] By 1915, particular attention was being paid to keeping privies free of flies and in a sanitary condition, yet progress was limited in the

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[102] FWMOH, Annual Report, 1915.

[103] FWMOH, Annual Report, 1916-1918.

[104] FWBOH, Meeting Minutes, 2 May 1906.

[105] FWBOH, Meeting Minutes, 19 August 1908.

[106] FWBOH, Meeting Minutes, June 5, 1912.

[107] FWMOH, Annual Report, 1913-1914.

Coal Docks, since many citizens did not have the financial means to maintain their privies in a sanitary fashion.[108] Moreover, the fact that many privies were improperly constructed tended to hinder the Board of Health's work further.[109]

The problem of flies was also related to the presence of livestock in the city, regarded by authorities as a perpetual urban nuisance for several reasons. In 1901, the Daily Times Journal reported that cows often roamed Fort William streets with clouds of flies hovering over them; these flies would in turn land on articles of clothing hung out in yards. On Fort William streets, merchants had to be constantly vigilant in keeping cows from eating their cabbage and green vegetables.[110] Dr. Thomas Kane wrote that livestock in Fort William were also responsible for the accumulation of animal wastes on city streets.[111] 1905 saw the first attempt by health authorities to regulate the presence of livestock in the city, as the Board of Health suggested that a by-law be established barring pigs and cattle from certain areas.[112] It further recommended that no pig or cow should be allowed within 100 yards of any dwelling.[113] Yet many citizens continued to keep livestock on their properties. In 1915 Oliver reported that a large number of citizens owned more than one cow (in violation of the city by-law, which allowed ownership of

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[108] FWMOH, Annual Report, 1915-1917.

[109] FWMOH, Annual Report, 1918-1919.

[110] DTJ, 16 January 1901. See also Joseph M. Mauro, Thunder Bay, a History: the Golden Gateway to the Great Northwest (Thunder Bay, 1981), 199.

[111] Kane, Medicine in Thunder Bay, 78.

[112] FWBOH, Meeting Minutes, 3 April 1905.

[113] FWBOH, Meeting Minutes, April 2, 1906.

only one cow) and that they were not careful to keep these cows on their property, being prone to letting them roam about freely.[114]

The unregulated ownership of livestock was especially prevalent around the Coal Docks, where it was extremely difficult for health authorities to control the actions of livestock owners. Stewart wrote in his social survey that the Coal Docks region possessed large numbers of dogs, fowl, cattle, and horses.[115] The keeping of livestock by the immigrant population became especially prevalent between 1916 and 1918 for, during this period, many immigrant families purchased heads of cattle for the purposes of increasing their income. Health authorities concluded that immigrant families bought livestock for the purpose of making illegal profits from the sale of milk, and prosecutions were subsequently undertaken. In addition, health authorities sought to lessen the problem by enforcing the removal of excess numbers of livestock from Fort William lots. These measures proved futile, however, as immigrant owners of livestock often responded by purchasing more cows when the health authorities' "backs were turned."[116] Following a house-to-house inspection in 1918, Oliver instructed that all pigs be removed from the Coal Docks region, yet his efforts were hampered by the Food Controller, who continually promoted the development of food production, guaranteeing the ongoing presence of pigs in residents' backyards.[117]

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[114] FWMOH, Annual Report, 1916-1919.

[115] Stewart, Report of a Preliminary and General Social Survey of Fort William, 15.

[116] FWMOH, Annual Report, 1916-1918.

[117] FWMOH, Annual Report, 1917-1918. An Order in Council of June 16, 1917, made under the provisions of the War Measures Act, 1914, provided for the appointment of a Food Controller, whose role was to supply as large a quantity of food as possible for the allied forces and the civilian population of Canada. The Canada Yearbook, 1916-1917 (Ottawa: J. De L. Tache, the King's Printer, 1917), 693-4.

With a rise in Fort William's population, the problem of uncollected garbage also grew more serious. By 1900, lanes and alleyways throughout Fort William had become laden with refuse, along with many of the back yards of business owners and public buildings.[118] By 1906, business owners were beginning to make use of bins in order to collect garbage, yet these were so unsanitary that they added to the nuisance. The garbage situation was further compounded by the predominance of unpaved streets and lanes and by the fact that many night soil collection pails were not properly cleaned out.[119] By 1910, the presence of open garbage receptacles had become especially problematic, since large numbers of hotel and restaurant owners commonly left their garbage bins uncovered. Surrounding these open receptacles were hordes of flies, believed to be carriers of typhoid. The situation was no different in the residential district, as many receptacles were found to be uncovered, and this led to their being tipped over by dogs. This, in turn, allowed domestic animals to roam in the garbage and then proceed to play with the children with whom they lived.[120]

Attempts were made by the city health authorities to remedy the problem of uncollected garbage throughout the early twentieth century without much success. By 1904, Fort William municipal authorities had established scavenging by-laws, which required that tenders be called for the job of collecting the city's garbage and transporting it to the nuisance ground. Yet this system was proved insufficient, for incidents occurred

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[118] DTJ, 8 March 1901.

[119] DTJ, 26 August 1908. Many families (and businesses, for that matter) tended to leave their garbage bins close to city streets and lanes, which often resulted in them being tipped over by persons or animals passing by. This undoubtedly added to the unsanitary condition of the city.

[120] DTJ, 9 July 1910.

in which garbage was not collected in an organized and consistent manner.[121] The Board of Works was therefore given the responsibility in 1906.[122] Procedures were set in motion for the purchasing of wagons to carry away the garbage, and the purchasing of a special wagon for the removal of night soil.[123] In 1908, hotelkeepers were instructed to provide receptacles, and restaurant owners were told to establish concrete structures or brick tanks for the burning of debris.[124] In 1913, in order to reduce the cost of transporting garbage to the nuisance ground, an incinerator was constructed.[125] Efforts were made to promote the use of receptacles, but health authorities faced concerted resistance. Part of the problem was that City Council did not provide for the production of garbage cans, which were regarded as more sanitary because they did not erode (unlike wooden receptacles).[126] Yet even after 1918 (when such machinery was available), homeowners and businessmen continued to resist the adoption of tin receptacles, regarding the instructions of health authorities as unwarranted interference in their private affairs.[127]

The accumulation of storm water and sewage in the ditches and lanes of the Coal Docks region throughout the early twentieth century was a persistent health threat. In 1904, an article in the Weekly Times Journal reported upon the sanitary condition of the

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[121] FWBOH, Meeting Minutes, 25 July 1904.

[122] DTJ, 27 July 1909. See also Oliver "Department of Health," 31

[123] FWBOH, Meeting Minutes, 13 March 1906, 17 March 1906.

[124] FWBOH, Meeting Minutes, 5 May 1908, 2 August 1909.

[125] Oliver, "Department of Health," 33.

[126] FWMOH, Annual Report, 1911-1912.

[127] FWMOH, Annual Report, 1918-1919.

Coal Docks. According to the article, the establishment of an efficient drainage system was of vital importance to the region.[128] Various Fort William citizens argued that drainage initiatives were an absolute necessity, but Manion did not support their view, arguing that the ingestion of contaminated water was the prime cause of ill health among Coal Docks residents.[129] Local politicians supported Manion, remarking in 1907 that there was no danger of a disease outbreak in the Coal Docks, and therefore no drainage initiatives were required.[130] Despite these arguments, the Board of Health requested that manholes be constructed on Fort William streets, and that ditches within the area be connected in order to carry off stagnant water.[131] The Board of Works undertook to drain the Coal Docks in 1908 by building plank ditches and filling and grading lanes. As a result, a substantial measure of subsoil and surface drainage was accomplished, but this was achieved on only a few streets.[132] In the vicinity of the Coal Docks , children could still be seen wading through stagnant water and sewage, every step producing "bevies of germ laden mosquitoes and flies."[133] To a large degree, the gravelling of lanes and streets made the problem worse, as such developments forced the storm water and sewage onto lots, and caused stagnant water to seep under the frames of dwellings.[134]

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[128] WTJ, 21 May 1904.

[129] Oliver, "Department of Health," 31.

[130] MH, 15 June 1907.

[131] FWBOH, Meeting Minutes, 10 June 1907, 3 September 1907.

[132] DTJ, 5 August 1908.

[133] DTJ, 21 August 1909.

[134] FWMOH, Annual Report, 1918-1919.

In conclusion, the growing population of Fort William during the early twentieth century experienced many health problems, the majority of which occurred in the Coal Docks and Westfort districts, areas that would become heavily industrialized and subject to overcrowding. In accordance with the sanitary idea, Fort William health officials pushed for the establishment of a clean water supply, an increased number of municipal sewers, and the eradication of urban nuisances. City health officers also adopted germ theory developments, making use of laboratory facilities for the examination of city water supplies. While health authorities were generally successful in establishing clean water supplies for the city, they could not be as optimistic with regard to the removal of urban nuisances, for their attempts met with continued resistance. Financial complaints, coupled with the protestations of many Fort William citizens, substantially hindered the efforts of Fort William health officials. Thus, privies, uncollected garbage, unregulated livestock, and inadequately drained areas continued to dot the urban landscape of Fort William in 1919.

Chapter Four:
Food Regulation

Public health reformers of the late nineteenth and early twentieth centuries believed that the regulation of food supplies was an unquestioned necessity. During this period food products were often sold across the counter after having been infected with external contaminants or adulterated with other food materials. In the absence of regulation, such products could also carry disease. Products sold in these conditions had the capacity to bring about severe cases of illness and even death, particularly among infants, whose immune systems were not strong enough to fight off infection from disease organisms. In the minds of health officials, the practices of food businesses were primarily to blame, as it was common for such businesses to neglect the sanitary condition of their facilities, while at the same time they failed to regulate the contents of their products. Health legislation was increasingly put in place that allowed for routine inspections of businesses and the bacteriological examination of food goods. Programs promoting maternal and infant hygiene also became important, for health authorities were aware that regulation could not be enforced within the home. Families were instructed in proper infant care, particularly as it applied to the nutritional needs of infants. Efforts to promote regulation often met with resistance, however, as many businesses came to resent what they saw as an infringement upon their free enterprise.

The Need for Food and Dairy Regulation in Britain and North America

Food supplies were susceptible to both accidental contamination from outside sources and deliberate adulteration for the purpose of increasing profit. During the late

nineteenth century, dairy supplies in the city of Milwaukee were reported to contain particles of manure, cow's food, animal and human hairs, mould, fungus growth, insects, moss, and other substances.[1] In the words of an American physician, "decaying animal and vegetable matter" was often sold in city markets. Such products subsequently found their way into consumers' homes.[2] In addition to being subject to contamination from external sources, food goods could be made unhealthy through adulteration. Dairy supplies could be made unfit through the addition of food coloring, sodium nitrate, formaldehyde, and boric acid.[3] In Britain, cow's milk was perhaps the most widely adulterated product in the Victorian period.[4] In the city of Toronto at the turn of the century, the milk supply was often found to contain high levels of water and food colouring.[5] In Milwaukee, a city known for its extensive dairy production, large amounts of water were often found in dairy samples.[6] Food products besides milk could also be subjected to adulteration, bringing about cases of dyspepsia and gastro-intestinal disorder, particularly among children.[7]

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[1] Judith Walzer Leavitt, The Healthiest City: Milwaukee and the Politics of Health Reform (Princeton, NJ: Princeton University Press, 1982), 175.

[2] Charles Rosenberg, Explaining Epidemics and Other Studies in the History of Medicine (Cambridge, England: Cambridge University Press, 1992), 126.

[3] William A. Brend, Health and the State (London, England: Constable and Company, 1917), 267.

[4] Anthony S. Wohl, Endangered Lives: Public Health in Victorian England (London, England: Methuen, 1983), 21-2.

[5] Michael Piva, The Condition of the Working Class in Toronto, 1900-1921 (Ottawa: Ottawa University Press, 1979), p. 119. See also Margaret M. Allemang, "Development of Community Health Nursing in Canada," in Community Health Nursing in Canada, ed. Miriam Stewart *et al* (Toronto: Gage Publishing, 1985), 8-9.

[6] Leavitt, The Healthiest City, 168.

[7] Brend, Health and the State, 265.

Food goods could also be carriers for disease. A cow's infected udder could bring about contamination of dairy products. Bovine tuberculosis, brucellosis, and streptococcal infection of the udder were some of the diseases that often infected cattle and subsequently contaminated dairy goods.[8] By 1910, it was confirmed by scientists that bovine tuberculosis was, indeed, a communicable disease. Germ theory would also implicate dairy products as being major carriers of typhoid, scarlet fever, and diphtheria.[9]

Infected milk could also bring on attacks of intestinal disease such as diarrhea. In 1903, New York pediatricians W. L. Park and L. Emmett published a report that established a strong link between artificial infant feeding and diarrheal illness during the summer months. Diarrhea became known as the "summer complaint" or *cholera infantum*. Diarrhea was an especially common disease among American children throughout the late nineteenth and early twentieth centuries.[10] In Britain, the sale of impure milk was just as disastrous for infants, bringing about cases of diarrhea and other gastro-intestinal diseases. In the 1880s, the Local Government Board undertook an extensive investigation of diarrhea throughout Britain and concluded it to be among the most fatal of infantile diseases.[11] In Ontario, infants who were artificially fed cow's milk

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[8] Lloyd E. Burton and Hugh H. Smith, Public Health and Community Medicine for the Allied Medical Professions, 2nd edition. (Baltimore, MD: the Williams and Wilkins Company, 1975), 235, 297. See also Risa Barkin and Ian Gentles, "Death in Victorian Toronto, 1850-1899," Urban History Review 19, no. 1 (June 1990): 19.

[9] Cynthia R. Comacchio, "Nations are Built of Babies:" Saving Ontario's Mothers and Children, 1900-1940 (Montreal, Kingston, London, and Buffalo: McGill-Queen's University Press, 1993), 44-5.

[10] James H. Cassedy, Medicine in America: a Short History (Baltimore, MD: Johns Hopkins University Press, 1991), 111, 117.

[11] Wohl, Endangered Lives, 22-3.

fell victim to intestinal disorders; diarrhea brought about a significant number of infant deaths in the province throughout the nineteenth century.[12]

The unsanitary practices of businesses played a determining role in the sale of unfit food products. For example, it was not uncommon for dairy producers to conduct their business within urban centres. Being surrounded by the urban environment, dairy producers had little choice but to allow accumulations of manure to pile up on their city lots, making it extremely difficult (if not impossible) to produce dairy goods in a sanitary fashion.[13] In No Other Gods: On Science and American Social Thought, Charles Rosenberg illustrated the problems brought about by the unsanitary handling of cattle. Dairy producers often kept their livestock in filthy and unventilated stables, without room to turn about. The livestock was also fed food materials that were extremely unhealthy. In the words of Rosenberg, such animals could be "expected to live but a short time, and to produce milk as foul as their condition and diet."[14] The overall condition of dairy production facilities could be just as unsanitary. It was not uncommon to find such facilities possessed of rubbish, dirty benches, and cracked and uneven floors, which allowed for the accumulation of dirt.[15] Furthermore, the way in which businesses handled their products gave cause for alarm. Employees often went about their duties

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[12] Comacchio, "Nations are Built of Babies," 36-7, 43, 48.

[13]Wohl, Endangered Lives, 21. See also Heather A. MacDougall, "Public Health and the "Sanitary Idea" in Toronto, 1866-1890," in Essays in the History of Medicine, ed. Wendy Mitchinson and Janice P. Dickin McGinnis (Toronto: McClelland and Stewart, 1988), 65-6; Michael Bliss, Plague: a Story of Smallpox in Montreal (Toronto: HarperCollins, 1991), 62-3; and Christopher Hamlin, Public Health and Social Justice in the Age of Chadwick: Britain, 1800-1854 (Cambridge, England: Cambridge University Press, 1998), 192.

[14] Charles Rosenberg, No Other Gods: On Science and American Social Thought (Baltimore, MD: Johns Hopkins University Press, 1976), 119.

[15]Brend, Health and the State, 275. See also Heather A. MacDougall, "The Genesis of Public Health in Toronto, 1869-1890, Urban History Review 10, no. 3 (February 1982): 6.

with hands and clothing that were excessively dirty, for instance.[16] Many employees wore aprons that were rarely, if ever, washed, while others chose not to wear any aprons at all.[17] It was also common to find milk churns uncovered and exposed to flies from cow stables. Lastly, three or four days often passed before dairy products were shipped to retailers, thus increasing the likelihood of souring.[18]

The establishment of laws relating to the safe supply of food goods was sought by governments. In Britain, food and dairy regulations were increasingly put into force during the nineteenth century. A Bread Act was passed for the entire country in 1836, which allowed for the admixture of various flours but established penalties for the use of adulterants. The act also required that all bread products be weighed before being sold. This piece of legislation was followed by the Adulteration Act of 1860. The general effect of this legislation was to make it illegal to adulterate foodstuffs or to add any injurious material to them.[19] Britain's Public Health Act of 1875 was another significant step toward the provision of healthy food and dairy supplies. Under the Act, the selling of decayed animal and vegetable products was outlawed, as was the selling of impure milk. To put teeth into these new regulations, the Public Health Act allowed for the routine inspection of shops, markets, abattoirs, dairies, and dairy distributors.[20]

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[16] Wohl, Endangered Lives, 21.

[17] Brend, Health and the State, 275.

[18] Wohl, Endangered Lives, 21-2.

[19] W. M. Frazer, A History of the English Public Health, 1834-1939 (London, England: Bailliere, Tindall, & Cox, 1950), 226.

[20] Terry Copp, "Public Health in Montreal, 1870-1930," in Medicine in Canadian Society: Historical Perspectives, ed. S. E. D. Shortt (Montreal: McGill-Queen's University Press, 1981), 396. See also Chapter Six of C. Fraser Brockington, A Short History of Public Health (London, England: Churchill, 1966).

Health officials in the United States and Canada were of the same mind when it came to the provision of healthy food goods. Following the Civil War, increased emphasis was placed upon improving canning and food preparation technology and initiating more rapid transportation of fresh fruits, vegetables, and dairy products.[21] Under the administration of President Theodore Roosevelt, significant progress was made toward ensuring the safe production of food supplies. In 1906, Congress passed President Roosevelt's proposed food and drug legislation, which was intended to regulate the sale of food throughout the country.[22] By the turn of the twentieth century, American public health officials were also initiating many programs aimed specifically at regulating the nation's milk supply.[23] In Ontario, Dr. Peter Bryce, the current Secretary of the Provincial Board of Health, sought the passing of legislation in 1882 that would permit dairy inspections, and as a result, the Public Health Act of 1882 was amended two years later to allow for the inspection of dairy and meat suppliers, both within and outside municipal communities. Moreover, local boards of health were made responsible for preventing the sale of unfit food and dairy supplies. Between 1887 and 1890, amendments to the Act gave municipalities the power to further regulate the activities of dairy facilities and slaughterhouses.[24]

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[21] Cassedy, Medicine in America: a Short History, 104.

[22] Peter Van Avery, ed., "Public Health," The Reference Shelf (New York: H. W. Wilson Company, 1959), 67.

[23] Piva, The Condition of the Working Class in Toronto, 119. See also Rosenberg, No Other Gods: On Science and American Social Thought, 119-22.

[24] J. T. Phair, "Public Health in Ontario," in The Development of Public Health in Canada; a Review of the History and Organization of Public Health in the Provinces of Canada, with an Outline of the Present Organizations of the National Health Section of the Department of Pensions and National Health, Canada, ed. R. D. Defries (Toronto: Canadian Public Health Association, 1940), 68-70.

Bacteriological examinations of food supplies were seen as an important component of public health reform. In 1890, the first public health laboratory in North America was established in Toronto. Under the direction of J. J. Mackenzie, a professor in pathology and bacteriology, routine laboratory tests were conducted on water, milk and pathological sections of animal tissue. Mackenzie also undertook tuberculin tests of cattle. Between 1903 and 1922, other laboratories of this nature would be eventually established in Ontario.[25] In the 1880s, the United States Department of Agriculture began making laboratory tests of food supplies. The Department's chemistry division, under the direction of Harvey Wiley, undertook laboratory examinations of food adulterants and preservatives used by businesses, with an eye toward maintaining both nutrition and safety.[26]

Keeping in step with the goal of providing safe food products, health authorities saw regulations (and the means by which to enforce them) as but one element of a much larger public health campaign. In order to ensure that unfit food products did not reach the mouths of infants, health authorities argued that mothers needed to be educated in proper infant care. The medical profession began to regard the childrearing practices of mothers as playing a central role in the dietary health of infants. Believing that negligent childrearing was the primary cause of infant death, physicians sought to educate mothers in the nutritional care of children. Mothers would have to be instructed in milk handling and preparation, especially with regard to feeding infants. With this in mind, Ontario

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[25] Ibid., 75-7.

[26] Cassedy, Medicine in America: a Short History, 116. See also Elizabeth Fee and Dorothy Porter "Public Health, Preventive Medicine, and Professionalization in England and America in the Nineteenth Century," in Medicine in Society: Historical Essays, ed. Andrew Wear (Cambridge, England: Cambridge University Press, 1992), 266-7.

health officials had begun to set up child welfare clinics by the early twentieth century, and to institute home nursing visits.[27] In the United States, health officials provided for regular home visits by welfare nurses. One of the many responsibilities of these welfare nurses was the education of expectant mothers in proper infant care.[28] In their education campaigns, American health authorities placed particular attention upon the importance of breastfeeding.[29] In Britain, as well, health authorities centered their education programs upon the importance of breastfeeding while encouraging mothers to strive for higher levels of personal and domestic hygiene.[30]

Various administrative and legal factors limited the effectiveness of these regulations. In late nineteenth century Britain, medical officers of health were empowered by a variety of acts to inspect food facilities, but these officials often possessed insufficient staff, and it was relatively easy for businesses to evade the vague sanitary requirements.[31] The situation had not improved by the turn of the century. Local health authorities often had to allow food and dairy violations to continue unchecked. According to William A. Brend, the "laxity or obscurity of the law" was often to blame, making it extremely difficult to secure the conviction of an offender

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[27] Comacchio, "Nations are Built of Babies," 47. For information relating to the role of public health nurses in Canada, see Marion Royce, Eunice Dyke: Health Care Pioneer, from Pioneer Public Health Nurse to Advocate for the Aged (Toronto: Dundurn Press, 1983), and Florence H. M. Emory, Public Health Nursing in Canada: Principles and Practice (Toronto: Macmillan, 1953).

[28] Karen Buhler-Wilkerson, False Dawn: the Rise and Decline of Public Health Nursing, 1900-1930 (New York and London, England: Garland Publishing, 1989), 104. See also Alan M. Kraut, Silent Travelers: Germs, Genes, and the "Immigrant Menace," 211-17.

[29] Cassedy, Medicine in America: a Short History, 111. See also Jacalyn Duffin, History of Medicine: a Scandalously Short Introduction (Toronto, Buffalo, and London: University of Toronto Press, 1999), 319.

[30] Jane Lewis, "Providers, "Consumers," the State and the Delivery of Health-Care Services in Twentieth-Century Britain," in Medicine in Society: Historical Essays, 322-3.

[31] Wohl, Endangered Lives, 21.

before a magistrate.[32] When federal food and drug legislation was passed in the United States in 1906, American food manufacturers initially complied with the new guidelines. In the following years, however, American public health reformers would see the major provisions of the food and drug laws made inactive by amendments designed to absolve food businesses of regulatory responsibilities.[33] When it came to punishing food suppliers for violations, many public health reformers in Canada claimed that it was difficult to secure convictions under the law. In Toronto, for instance, many milk suppliers operated on the outskirts of the city, beyond the jurisdiction of city courts, thus making it extremely difficult to regulate rural dairy practices.[34]

Food businesses more often than not resisted any attempts to regulate their private undertakings. In Britain, health authorities could respond to food violations by levying fines. However, the fines proved so minor that vendors and suppliers continued their practices.[35] In the early twentieth century, one could still find food and dairy facilities being operated in an unsanitary fashion.[36] In Toronto, health authorities faced concerted resistance from milk suppliers. Despite attempts by local health authorities to improve the city dairy supply, there continued to be cases of unfit milk being sold to Toronto consumers in the first decade of the early twentieth century.[37] In Milwaukee, health

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[32] Brend, Public Health and the State, 265.

[33] Van Avery, "Public Health," 68. Although it is not mentioned who brought forward the amendments in question, one could surmise that private businesses formed a powerful lobby in support of deregulation, something that political representatives would have little choice but to support.

[34] Piva, The Condition of the Working Class in Toronto, 119-20.

[35] Brend, Public Health and the State, 267.

[36] Ibid., 275.

[37] Piva, The Condition of the Working Class in Toronto, 121.

authorities sought to establish regulations that would require dairy suppliers to maintain clean facilities and regulate the content of their products. This provoked a reaction by milk suppliers, who formed a coalition to resist what they saw as an attack on their liberties. Milk producers with small businesses, in particular, opposed any attempts to increase their costs.[38] In the summer of 1914, health authorities turned 6,000 gallons of unfit milk back to Milwaukee farmers. This measure brought about a milk shortage when producers, hurt by the decision, moved to limit the city milk supply. The onset of the summer months aggravated the situation further, as thirsty citizens increased their demands for milk.[39]

Many businesses made no attempt to embrace pasteurization as a means of ensuring the safe supply of dairy goods to consumers. The process known as pasteurization was developed by Louis Pasteur, whose research between 1857 and 1862 demonstrated the bacterial causes behind the souring of milk and established a method of reducing the multiplication of disease organisms.[40] Although various public health reformers championed the new process, it became the subject of debate within the scientific community. Many physicians argued that pasteurized milk could damage the digestive tracts of infants.[41] In Ontario, local governments were not compelled to enforce pasteurization. The debate over the nutritive value of pasteurized milk, coupled with the expenses incurred in setting up pasteurization plants, served to delay the initiation of a

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[38] Leavitt, The Healthiest City, 161-2.

[39] Ibid., 184-5.

[40] Frazer, A History of English Public Health, 463. See also H. S. Hartzog, Jr., Triumphs of Medicine (New York: Doubleday, 1927), 135-40.

[41] Barbara Gutmann Rosenkrantz, Public Health and the State: Changing Views in Massachusetts, 1842-1936 (Cambridge, MA: Harvard University Press, 1972), 108.

process deemed by many to be a vital tool in disease prevention.[42] In Massachusetts, opposition to pasteurization came from both physicians and dairies, and tended to focus upon uncertainty as to the effectiveness of the procedure.[43] In Toronto, many small dairy businesses opposed the notion of pasteurization altogether.[44] In Massachusetts, many dairy producers saw pasteurization as an "unnecessary and burdensome expense."[45]

Neither was there any attempt by businesses to promote the tuberculin testing of cattle. Bovine tuberculosis had been discovered to be a common cause of death among children between one and five years of age. It also affected children between the ages of five and ten, and was often the cause of child crippling during this period. The eradication of tuberculosis from cattle was thus perceived to be absolutely essential by public health reformers, since an infected purebred bull could contaminate an entire herd of livestock.[46] What is now called old tuberculin was a solution first prepared by Robert Koch in 1890. It was a filtrate of heat-sterilized broth cultures of tubercle bacilli, used to uncover tuberculosis organisms within living bodies.[47] Tuberculin was introduced into British North America in 1894 and applied experimentally to farm herds. Tuberculin tests officially came into use in both the United States and Canada in the following

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[42] Comacchio, "Nations are Built of Babies," 45-6. See also Risa Barkin and Ian Gentles "Death in Victorian Toronto, 1850-1899," 19.

[43] Rosenkrantz, Public Health and the State, 108.

[44] Piva, The Condition of the Working Class in Toronto, 119. In "Death in Victorian Toronto, 1850-1899," 19, Barkin and Gentles state that pasteurization did not become compulsory in Toronto until 1918.

[45] Rosenkrantz, Public Health and the State, 108.

[46] George Jasper Wherrett, The Miracle of Empty Beds: a History of Tuberculosis in Canada (Toronto: University of Toronto Press, 1977), 138-9.

[47] John M. Last, ed., Maxcy-Rosenau Public Health and Preventive Medicine, 12th ed, (Norwalk, CT: Appleton-Century-Crofts, 1986), 226.

year.[48] However, it is likely that many farmers resisted on account of the costs that tuberculin testing would entail, for in 1905 Canadian authorities instituted a supervised herd program, which allowed for the testing of livestock without charge to the owner.[49] In Milwaukee, many dairy businesses rejected the idea of tuberculin testing for the simple reason that such a practice was deemed to be an attack on their liberties.[50]

Despite resistance by businesses, governments in both Britain and North America began to make progress with regard to regulating the sale of food supplies through the late nineteenth and early twentieth centuries. In Britain, inspection of food facilities had brought about a significant decline in mortality by the turn of the twentieth century.[51] In the United States, improved canning and food preparation technology, coupled with more rapid transportation of fruits, vegetables, and dairy products, brought healthy meals increasingly within reach of American families.[52] The city of Toronto made significant advances in regulating food supplies. In 1886, Dr. Canniff, the city medical officer of health, created an annual licensing system of the city's butcher shops and slaughterhouses and instituted increased inspections of dairies, both of which contributed to the sale of healthy food throughout the city.[53] In 1912, Dr. Hastings, Canniff's replacement, instituted the practice of dumping unfit milk into city sewers. This had the effect of forcing producers to send clean milk to retailers (who could not afford to have their milk

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[48] Wherrett, The Miracle of Empty Beds, 144-5.

[49] Ibid., 144.

[50] Leavitt, The Healthiest City, 183-5.

[51] Copp, "Public Health in Montreal," 396.

[52] Cassedy, Medicine in America: a Short History, 104.

[53] MacDougall, "The Genesis of Public Health Reform in Toronto," 6.

products destroyed). In 1914, the city undertook another step in its campaign for pure milk by making the pasteurization of milk and cream compulsory.[54]

In summary, dairy and other food supplies were often sold in an unfit condition during the late nineteenth and early twentieth centuries. Businesses were primarily to blame for this situation, as many food facilities did not provide for the sanitary state of their establishments. In addition, many businesses did not regulate the contents of their products. As a result, citizens in Britain, the United States, and Canada could expect to find adulterated and/or contaminated goods on their tables. Food products of this condition often resulted in outbreaks of disease, particularly among infants. This led health officials to begin seeking regulations that would make businesses accountable for food products they sold to consumers. Maternal education was also deemed important, for the infant feeding practices of mothers were perceived by health authorities to play a central role in the good health of children. These efforts by health authorities, however, often met with resistance, for many businesses opposed any regulation of their undertakings. The limited effectiveness of the courts to mete out punishments, coupled with debates over the legitimacy of pasteurization and tuberculin testing, further served to limit the efforts of health authorities to ensure the dietary health of citizens.

Food Regulation in Fort William

At the turn of the century, food supplies sold in Fort William suffered from various impurities. Contaminated and/or adulterated products often found their way into Fort William homes, thus creating the potential for outbreaks of illness and disease. The unhealthy condition of food supplies had a particularly harmful effect upon infants in the

[54] Piva, The Condition of the Working Class in Toronto, 121.

Coal Docks region, which was usually attributed to the immigrant population's being unschooled in the nutritional care of infants. City health authorities blamed local businesses for the presence of unfit food goods, as the latter neither maintained their facilities in a sanitary way, nor ensured the healthy condition of their products. With the sanitary idea and the germ theory in mind, health officials worked to establish laws that would regulate the conduct of local businesses. These regulations would be enforced through inspections of dairies and other food facilities. Health education was utilized as an additional preventive measure against food and dairy contamination. A health campaign was initiated to instruct families (particularly immigrant families) in proper nutritional care as it applied to infants. City health officials experienced limited success in their desire to purify Fort William's food and dairy supplies, however, as their efforts conflicted with the free enterprise notions of many city businesses.

The sale of unfit food products was to be a common problem facing the Fort William community.[55] In the Coal Docks, milk supplies were especially subject to contamination by dirt and other unhealthy materials. Samples of milk taken around the Coal Docks in 1919 showed traces of dirt, manure, and, in the words of the Daily Times Journal, "all manner of filth." Some of the samples were so caked with dirt that it was difficult to put the milk through the strainer for testing.[56] Fort William dairy goods could also appear "bloody, stringy,...overly thick, [and have] an unnatural appearance."[57] The onset of the summer in Fort William made the situation worse, as the accompanying

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[55] For information relating to dirt and its infection of the Fort William milk supply, look to the Fort William Medical Officer of Health (FWMOH), Annual Report, 1905-1919.

[56] Daily Times Journal (DTJ), 7 March 1919.

[57] DTJ, 20 August 1908.

warm weather brought with it hordes of flies, which could easily land upon open milk containers, and produce more contamination.[58] The community also had to beware of other food products. Fruit and vegetable goods could be sold in a decomposed state, and it was not uncommon for businesses to feed such goods to their livestock (which had the effect of contaminating dairy supplies invariably from the outset).[59] Meat products were equally subject to deterioration.[60]

Contaminated food goods were not the only threat facing the community; adulteration was another problem. City businesses were known to add adulterants to their bread products, or delete important material from them.[61] While performing tests of dairy goods sold in Fort William, local health authorities came across milk samples that had been mixed with water, which reduced the proper amount of butterfat that was required. This did not surprise health officials to any significant degree, for local dairy goods were often skimmed or watered down before being sold to Fort William consumers.[62] Various preservatives of an unhealthy nature also found their way into the city's dairy goods.[63] Health authorities could not place the blame entirely upon local dairies, however, for citizens themselves often mixed milk with other food materials. Editorials were often placed in the Daily Times Journal, which recommended that

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[58] Thomas Kane, Medicine in Thunder Bay (Thunder Bay, 1994), 88.

[59] DTJ, 20 August 1908.

[60] FWMOH, Annual Report, 1905, 1917-1918.

[61] DTJ, 5 July 1910.

[62] Fort William Board of Health (FWBOH), Meeting Minutes, 1 October 1906. See also the DTJ, 23 August 1908.

[63] DTJ, 23 January 1908.

mothers mix milk with such material as water, sugar, and or various food goods, before feeding them to infants.[64]

Perhaps what health authorities feared the most was the prospect of contagious disease finding a home in local food supplies. Local cattle herds were known to carry disease organisms. It was not uncommon to find cows suffering from diseases such as trichina and actinomycosis.[65] In addition, cattle were known to suffer from bovine tuberculosis, which could contaminate the city milk supply. Diseases such as typhoid, scarlet fever, and diphtheria often infected dairy products. In the words of the Daily Times Journal, microbes "that could perish by a lingering death in a cup of tea...would flourish in a glass of milk."[66] During the typhoid epidemic of 1905-6, Dr. Manion recommended that milk be boiled as well as water, so as to counter any further typhoid outbreaks.[67] Other diseases could be brought about through impure milk. Summer diarrhea commonly affected Fort William infants in the early twentieth century.[68]

The condition of Fort William businesses played a central role in the provision of unsafe food supplies. Production facilities operating outside the city were poorly constructed and highly unsanitary. Many had cow barns that were badly paved and deficient in proper lighting and ventilation.[69] The stables used by many businesses

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[64] DTJ, 7 August 1908, 8 August 1908.

[65] FWMOH, Annual Report, 1908, 1918-1919.

[66] DTJ, 23 January 1908.

[67] DTJ, 1 October 1906.

[68] DTJ, 18 July 1910, 7 March 1919.

[69] FWMOH, Annual Report, 1913-1914.

were unsanitary, as well, with their low ceilings, wooden floors, and defective lighting.[70] Within Fort William itself, various persons kept one or two cows on their private lots, in order to make profits from the sale of milk. These lots were often located in congested areas of the city, and were often too small to accommodate the presence of cattle properly. These practices resulted in the emergence of various nuisances on city lots (such as accumulations of manure, which could contaminate the milk supply of these city producers).[71] In addition, many businesses did not check their livestock for diseases and, as has been mentioned previously, often fed decomposed vegetables to their livestock, which could lead to the contamination of milk.[72]

The food-handling practices of local businesses were frequently unsanitary, as well. Some dairies did not cool their milk properly, or bother to keep it cool while being delivered.[73] In various instances, dairy businesses would cool their products in streams or wells, a practice that was considered inadequate by local health officials.[74] While it was especially important to supply ice during the summer months for storage of dairy supplies, local businesses could not always be depended upon to do so for it is likely that businesses did not wish to incur the added expense of having to obtain ice during the summer period.[75] Aside from being improperly cooled, dairy supplies were subject to

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[70] FWMOH, Annual Report, 1915-1916.

[71] FWMOH, Annual Report, 1913-1918.

[72] DTJ, 20 August 1908, 30 November 1909.

[73] DTJ, 18 July 1910.

[74] FWMOH, Annual Report, 1913-1914.

[75] FWMOH, Annual Report, 1915-1916. In 1915, Fort William businesses were persuaded to supply ice during the summer months, a practice that had not been undertaken with any degree of consistency in the past.

contamination through the unsanitary handling practices of employees, who often carried out their duties with unclean hands and clothing.[76] Furthermore, many businesses did not bother cleaning out milk containers with boiled water.[77] Retail facilities were found to be guilty of unsanitary practices as well. In various instances sanitary deficiencies were found at city restaurants, hotels, and meat-vending shops. Many retailers did not sell their milk products in glass bottles, and meat-vending shops were commonly known to expose meat for sale improperly, leaving it open to contamination by dust.[78] While being delivered to retailers, bread and meat often went unwrapped, making them subject to exposure from external contaminants.[79]

In the mind of the local health community, the establishment of regulations requiring businesses to supply healthy dairy goods was essential to the health of Fort William citizens. In the early years of the twentieth century, health officials believed that all milk producers should be licensed, for the Board of Health passed a motion in 1904 that detailed new obligations for dairy producers. Before being able to supply milk within Fort William, one first had to obtain a license from the municipal authorities; this license would have to be renewed yearly. If businesses did not adhere to sanitary practices when producing milk, they could expect to have their licenses revoked.[80] With an eye toward regulating the overall production and sale of dairy products, city health officials embraced the Ontario Board of Health's recommendations put forward in 1908.

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[76] DTJ, 23 August 1908, 20 July 1910.

[77] FWBOH, Meeting Minutes, 1 October 1906.

[78] FWBOH, Meeting Minutes, 2 August 1909, 5 July 1917. See also FWMOH, Annual Report, 1913-1917.

[79] FWBOH, Meeting Minutes, 5 May 1908, 29 March 1910.

[80] FWBOH, Meeting Minutes, 3 May 1904.

The regulations established a strict standard for milk content and regulated the condition of dairy production facilities.[81] In order to force compliance among local dairies, Fort William health officials saw fit to have these regulations posted in every local dairy.[82] There seemed to be no way of enforcing these recommendations, however, for in 1911 Fort William passed a milk by-law making it obligatory for local businesses to supply clean milk and to maintain the sanitary condition of their facilities. But this piece of legislation proved inadequate, leading to the passing of a new milk by-law in 1914.[83] Fort William's new milk by-law was undoubtedly designed to enforce the supply of clean milk to Fort William residents, for Oliver made clear in his annual report that many farmers in the community were upset over the various provisions of the new legislation. Oliver made a point of meeting with the city's dairy producers, in order to alleviate some of their concerns.[84]

The regulation of food supplies was sought by city health authorities, as well. The Board of Health informed meat retailers in 1908 that the selling of diseased meats was prohibited under the Ontario Public Health Act and was subject to prosecution.[85] It instructed meat producers and retailers to have their meat goods properly wrapped (so as to protect them from outside contamination while being sold).[86] With the establishment

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[81] DTJ, 20 August 1908.

[82] FWBOH, Meeting Minutes, 1 August 1910.

[83] FWMOH, Annual Report, 1910-1911. See also DTJ, 18 July 1910, and E. B. Oliver, "Department of Health," Thunder Bay Historical Museum Society: Papers and Records (1914): p. 33. In the July 18 edition of the Daily Times Journal, the proposed by-law is referred to as a "dead letter." It is likely that this was a reference to health authorities' inability to enforce the by-law in its existing state.

[84] FWMOH, Annual Report, 1913-1914.

[85] FWBOH, Meeting Minutes, 25 March 1908.

[86] FWBOH, Meeting Minutes, May 5, 1908.

of a municipal abattoir in 1915, health authorities were able to achieve the routine examination of meat supplies. Farmers came to the abattoir with their livestock, and health officials were able to inspect cattle for diseases, and note the sanitary conditions under which cattle were being slaughtered. According the Dr. Oliver, the city medical officer of health, the development of a municipal abattoir was a significant step forward for the city, and he hoped that it would have the effect of forcing producers to supply healthy meat to retailers.[87] Furthermore, the Board took steps to regulate bread products, advising that all bread supplies be wrapped in bags in order to keep them free from dust and dirt.[88] The Provincial Board of Health's passage of a new bread law in 1910 undoubtedly met with the acceptance of local health officials, as it regulated the weight for bread products, forbade adulteration, and established penalties for non-compliance. Local businesses would also have to use weights and scales, so that bread could be properly weighed before it was sold.[89]

The establishment of regulations was insufficient to force compliance among local food producers; routine inspections were also necessary. Fort William would not see the appointment of a food and dairy inspector until 1913.[90] Until that time, no adequate means of inspection existed.[91] The Board of Health was all too aware of this failing and sought to remedy the situation in 1911 by requesting City Council to appoint a

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[87] For information relating to the municipal abattoir, see FWMOH, Annual Report, 1915-1917. See also FWBOH, Meeting Minutes, 4 March 1915.

[88] FWBOH, Meeting Minutes, 29 March 1910.

[89] DTJ, 5 July 1910.

[90] FWBOH Meeting Minutes, 2 April 1913. See also FWMOH, Annual Report, 1912-1913, and Oliver, "Department of Health," 33.

[91] FWMOH, Annual Report, 1910-1911.

food and dairy inspector as soon as possible.[92] City Council sanctioned the request, but stopped short of actually appointing an inspector. Not being content to let the matter drop, the Board of Health put forward their request again the following year.[93] With the eventual appointment of a food and dairy inspector in 1913, health authorities sought to have every food facility operating in the city inspected. Routine inspections were made of hotels, restaurants, candy kitchens, ice cream parlors, fruit stores, bakeries, butcher stores, and abattoirs. Producers and retailers of dairy supplies were subject to the same measures, with rural dairies being given particular attention because their facilities were commonly found to be unsanitary. Following 1913, inspections were made of every rural producer of milk, and a file was kept detailing the conditions of their facilities.[94]

The bacteriological examination of food goods for content was equally essential. The laboratory came to be regarded as a central means to this end. According to the Daily Times Journal, laboratory analysis of dairy products showed conclusively the level of contamination.[95] Local health officials were clearly in agreement. Being without laboratory facilities, however, health authorities had no choice but to send milk samples to the provincial laboratories in Toronto.[96] The establishment of a local laboratory in 1910, coupled with the appointment of a food and dairy inspector three years later, led to increased examination of local dairy products by city health officers. Like routine

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[92] FWBOH, Meeting Minutes, 22 May 1911. See also FWMOH, Annual Report, 1911-1912.

[93] FWBOH, Meeting Minutes, 1 April 1912.

[94] For information relating to inspections of Fort William food facilities, see FWMOH, Annual Report, 1913-1919.

[95] DTJ, 23 January 1908.

[96] FWMOH, Annual Report, 1908.

inspections, bacteriological examinations were extensive in their scope; dairy goods were tested for dirt, exposure to high temperatures, insufficient levels of butter fat, and the presence of tuberculosis. Health authorities gave considerable attention to the conduct of outside dairies, as it was common for impure milk to be shipped into the city from rural areas. Health officials, when inspecting outside dairies, took samples of milk back with them for testing. Retailers suspected of selling country milk were subject to the inquiries of local health authorities.[97]

The establishment of regulations could not guarantee the health of Fort William citizens, especially when it came to safeguarding the health of infants. Infant mortality was a serious problem for the Fort William community during the early twentieth century. According to Dr. Thomas Kane, the years between 1908 and 1911 were some of the worst years for infant mortality in Fort William. Out of a total of 1,113 deaths in the city, more than half (576) were of infants under the age of five. Bryce M. Stewart's social survey of Fort William in 1913 indicated that infant mortality continued to be a pressing problem for the city. In his estimation, the use of impure milk, especially during the summer months, was a primary contributor to the city's high infant death rate.[98] Immigrant groups experienced significantly higher rates of infant mortality. During 1913 and 1914, the majority of infants suffering from cases of ileo-colitis, gastro-enteritis, and diarrhea came from immigrant families. With this being the case, health officials began to blame immigrant groups for contributing to the high rates of infant death, and

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[97] For information relating to bacteriological examinations, see FWMOH, Annual Report, 1913-1919. The laboratory reports contained within the annual reports make no reference to tests of animal tissue, only to the testing of milk products. It is possible that the Fort William laboratory did not possess such testing facilities. See also Oliver, "Department of Health," 31.

[98] Kane, Medicine in Thunder Bay, 88. See also DTJ, 18 July 1910, 7 March 1919.

concluded that Fort William would have a relatively low death rate "were it not for the foreigner."[99] The Coal Docks region, where a large immigrant population resided, was known to have a terribly high infant mortality rate. Of the twenty-eight deaths occurring in Fort William in 1915, twenty-two occurred around the Coal Docks.[100] Immigrant mothers were believed by health officials to be responsible for this high rate of infant death, as they often fed impure milk to their infants. In 1919, the Daily Times Journal drew a strong correlation between high infant mortality in the Coal Docks area and the use of contaminated milk supplies by immigrant families.[101]

To keep infants from becoming unhealthy through improper feeding, local health authorities stressed the importance of nutritional education. In a Daily Times Journal article entitled, "For the Mothers," a New York writer was quoted as saying:

> One out of every fifteen babies born in this city dies before it is one year old. Sometimes it is the result of ignorance, sometimes the result of carelessness, sometimes a combination of both. Sometimes mothers don't know, occasionally they don't seem to care. In either event the baby dies. Maybe it has been fed watermelon or bananas or cucumbers, or the milk bottle has stood all day without change or cleansing.[102]

With this quotation in its editorial pages, the Daily Times Journal was surely referring to Fort William's own difficulties relating to the care of infants. Local health authorities believed in a strong relationship between a mother's care of her children and the outbreak of infantile diseases. Fort William mothers regularly undertook artificial feeding without

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[99] FWMOH, Annual Report, 1913-1914.

[100] FWMOH, Annual Report, 1915-1916.

[101] DTJ, 7 March 1919.

[102] A New York writer, quoted in DTJ, 8 August 1908.

the approval of a physician. There were even cases of mothers undertaking this practice from the time their infants were born. The practice of bottle-feeding (without the consent of a physician) was frowned upon by health authorities, as such a practice could result in an infant's ill health.[103] In addition, bottles used for the feeding of infants were not always rinsed out properly, leaving them vulnerable to exposure from bacteria.[104] Dr. Wodehouse, upon his appointment to the position of city medical officer of health in 1910, made clear his intention to end the practice of negligent bottle-feeding in Fort William. "Willful wrong feeding," in Wodehouse's opinion, was nothing more than "a slow form of murder."[105] In his desire to educate the general public, Wodehouse cited infant mortality statistics from other countries. He made reference to the United States, where it was said that 84 per cent of all infant deaths were the result of improper bottle-feeding. Wodehouse then turned his attention to Britain, remarking that 94 per cent of all infant deaths occurring there were the result of bottle-feeding.[106] In the minds of Wodehouse and others, it was immigrants who were primarily to blame for the high death rate of infants in Fort William, and many immigrant mothers were believed to be neglecting the nutritional needs of their infants through unsanctioned bottle-feeding.[107]

If infant mortality rates were to be reduced, health education would have to be taken into Fort William homes. In the words of the Daily Times Journal, Fort William

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[103] See FWMOH, Annual Report, 1913-1919. Parents could potentially make their infant children ill through mixing improper materials with dairy goods. In the minds of local health authorities, only a physician was knowledgeable in the practice of bottle-feeding, and whether or not it was necessary.

[104] DTJ, 7 August 1908.

[105] FWMOH, Annual Report, 1910-1911.

[106] DTJ, 18 July 1910.

[107] For information relating to perceptions of the immigrant community in Fort William, see FWMOH, Annual Report, 1913-1917.

mothers "needed educating." It was believed that, if mothers received proper schooling in infant care, they would be able to pass on what they had learned to their daughters.[108] Voluntary organizations did their share to promote maternal education. Fort William Relief Society members often made house calls throughout the late-nineteenth and early twentieth centuries, and it is likely that infant care concerns were one of the many problems they had to deal with.[109] The Metropolitan Life Insurance Company also distributed literature regarding infant feeding methods.[110] Not being content to leave maternal education in the hands of the community, local health authorities undertook their own campaign of maternal education in 1910. Visiting nurses were employed to take maternal education into Fort William homes. Wodehouse had made it clear that he was an ardent advocate of the natural method of feeding babies, and thus nursing visits became geared toward encouraging mothers to undertake the practice of breastfeeding.[111] Public health nurses inspected the home of each newborn infant who had been registered by a physician. If a mother were found bottle-feeding her infants without the consent of a physician, the visiting nurse would encourage her to discontinue the practice. Visiting nurses would return at a later period to see if mothers had listened to their advice. To assist visiting nurses in their duties, a feeding circular was distributed to every mother

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[108] DTJ, 7 August 1908.

[109] Dr. Thomas S. T. Smellie, "The Origin of the Fort William Relief Society," Thunder Bay Historical Museum Society: Papers and Records (1911-12): 19.

[110] FWMOH, Annual Report, 1913-1914.

[111] DTJ, 18 July 1910.

with a newborn child.[112] McKellar Hospital also assisted by setting up infant care clinics in the summer months.[113]

When it came to instructing immigrant mothers, visiting nurses were expected to be particularly aggressive in the promotion of maternal education. In general, nurses were expected to visit only those infants who had been registered by a physician; however, with regard to immigrant families, visiting nurses were expected to go from house to house, investigating not only the infant feeding practices of mothers but also the sanitary conditions of the dwellings in which they lived.[114] Following the publication of Stewart's social survey in 1913 (which cited high infant mortality rates, particularly within immigrant communities) the education of immigrant families was increasingly sought. Nursing visits to immigrant families were increased, with mothers being instructed repeatedly in hygiene and infant care.[115] Seeing the Coal Docks as an area rife with uneducated, immigrant mothers, health authorities undertook to set up classes in the area in the summer of 1915. In these classes, immigrant mothers were schooled in such matters as proper infant feeding and infant diseases. Visiting nurses encountered problems, however, as many immigrant mothers spoke little or no English and could barely understand written instructions. This undoubtedly served to limit the overall influence of the visiting nurse in Fort William, for between 1915 and 1919 the city's

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[112] FWMOH, Annual Report, 1910-1911. The FWMOH Annual Reports from 1903 to 1919 make no reference to the age of infants that were examined by visiting nurses. The FWMOH Annual Report for 1910-1911, states, however, that any infant born within twelve months was visited by a public health nurse. Therefore it is likely that visiting nurses paid specific attention to infants in their first year of life.

[113] Kane, Medicine in Thunder Bay, 88.

[114] FWMOH, Annual Report, 1910-1911.

[115] Kane, Medicine in Thunder Bay, 88.

infant death rate fluctuated, with the years 1916 and 1917 showing a high rate of infant mortality. [116]

Various obstacles emerged to limit the regulation efforts of health authorities. There were difficulties in keeping non-licensed dairymen from selling milk to consumers. Nowhere was this problem more evident than within the city itself, as various persons continued to keep one or two cows on their lots in order to supply milk for themselves and others. These cow owners would distribute milk in such small quantities that it was difficult for health authorities to catch them selling.[117] Moreover, when questioned as to whether or not they were selling dairy goods, cow owners would simply say that the milk was for their own use. Not only did cow owners sell unregulated dairy supplies, but they also allowed "nuisances of various degrees" to accumulate on their lots, often within the congested areas of the city. This undoubtedly concerned health authorities, as such unsanitary conditions could readily contaminate the milk being sold.[118] During 1916 and 1917, a large number of prosecutions were undertaken against cow owners who sold milk illegally.[119] However, one must question the effectiveness of this measure, as the Daily Times Journal in 1919 Still referred to a large number of persons who were continuing to produce unfit milk.[120]

Legitimate dairy businesses often resisted attempts at regulation. Rural milk dealers were slow to improve the sanitary condition of their production facilities, and

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[116] See FWMOH, Annual Report, 1915-1919. See also Kane, Medicine in Thunder Bay, 88.

[117] FWMOH, Annual Report, 1913-1914.

[118] FWMOH, Annual Report, 1915.

[119] FWMOH, Annual Report, 1916-1917.

[120] DTJ, 14 May 1919.

there continued to be cases of dirty milk being sent into the city by rural producers.[121] Pasteurization was not universally implemented by dairies. Health authorities supported of pasteurization, but the majority of local businesses did not. Some local dairies chose to advocate pasteurization in the summer months, but only as a means of making a profit, with health considerations being given little, if any, weight. Furthermore, there is no indication that tuberculin testing of cattle was embraced by local businesses.[122] Lastly, one must question the overall effectiveness of city inspection efforts, as the food inspector was only hired in the summer months.[123]

City businesses could be punished for failing to comply with existing regulations. However, the disciplinary measures available to local health authorities had little, if any, real impact. In addition, health authorities had to be careful not to impose too strict a standard upon food businesses, for fear that shortages might result. To curb illegal production and sales, court actions were the most common tool used by local health officials. The selling of milk that was dirty or low in fat content could lead to the imposition of fines, as could the selling of other food supplies.[124] Yet the imposition of fines did not prove an effective deterrent, for food violations were continually tried before municipal courts throughout the early twentieth century, and actually increased

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[121] For information relating to the conduct of outside dairy producers, see FWMOH, Annual Report, 1913-1917.

[122] See FWMOH, Annual Report, 1915-1917. Local businesses no doubt advocated pasteurization in the summer months for the simple reason that the general public would be concerned regarding summer diarrhea outbreaks, and would purchase pasteurized dairy goods during this period of the year.

[123] Oliver, "Health Department," 33.

[124] FWBOH, Meeting Minutes, 25 November 1905, 2 June 1908, 19 August 1908, 5 July 1917. See also FWMOH, Annual Report, 1910-1919.

during 1918 and 1919.[125] Health authorities could also implement harsher penalties in the form of license cancellations. Between 1915 and 1917, a number of dairy and restaurant licenses were revoked by health authorities. This measure was viewed with trepidation, however, as health officers feared that license revocation could lead to worse problems. Dr. Oliver, the city medical officer of health for 1916, told the Board of Health that it would be a "mistaken policy" to impose too strict a standard upon Fort William dairies. If this were done, according to Oliver, milk shortages could follow.[126] Health authorities were aware of the potential for milk shortages, for such a problem had developed in the past. In 1909, Fort William experienced a milk supply shortage, which was thought to have been brought on by the feeding of unsuitable food materials to dairy cattle. This had the effect of raising milk prices, making it more difficult for families (especially those who were poor) to afford milk purchases.[127]

Local health officials were not without their accomplishments, however. The inspections of food facilities proved helpful. Dairies and cow barns were maintained in an increasingly sanitary way during the early twentieth century. By 1914, particularly good progress had been made in the elimination of unsanitary cow barns, which, in the past, had often contained low ceilings and deficient ventilation.[128] In two years, no such facilities would be in existence.[129] Health authorities made improvements to the

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[125] For information relating to criminal proceedings in Fort William, see FWMOH, Annual Report, 1915-1919.

[126] FWMOH, Annual Report, 1915-1917.

[127] DTJ, 30 November 1909.

[128] FWMOH, Annual Report, 1913-1914.

[129] FWMOH, Annual Report, 1915-1916.

municipal abattoir. Cement floors were constructed, and additional space (for the storage of offal) made available, both of which facilitated the sanitary slaughtering of livestock.[130] City retailers also improved their facilities. By 1919, every store that sold food and dairy supplies was found to be in a sanitary condition.[131]

Aside from instituting sanitary improvements among city producers and retailers, local health authorities managed to improve the content of food supplies. As the twentieth century progressed, routine examinations by health authorities resulted in a marked improvement in the fat content and overall cleanliness of milk products.[132] In certain respects, dairy businesses acted to improve the supply of healthy milk goods. Dairy businesses eventually agreed to make use of ice during the summer months, and instituted improvements in milk transportation.[133] Dairy businesses began to make use of specially designed wagons for the delivery of milk (as opposed to the traditional practice of delivering it via wagon or sled). By the 1920s, an increased number of motor vehicles were being used by businesses for the speedy transportation of dairy goods.[134] Advances were also made in the regulation of the quality of foodstuffs. Bread sold by businesses was found to be of regulatory weight and, with the establishment of a municipal abattoir in 1915, instances of diseased cattle being slaughtered decreased significantly.[135] It seems clear that, although many city businesses resisted efforts to have their practices

[130] FWMOH, Annual Report, 1916-1918.

[131] FWMOH, Annual Report, 1915-1919.

[132] FWMOH, Annual Report, 1913-1919.

[133] FWMOH, Annual Report, 1915-1916.

[134] Wayne Petit and Dave MacLean, "The Evolution of Milk Transportation in the Thunder Bay Area, 1890-1990," Thunder Bay Historical Museum Society: Papers and Records 27 (1999): 41-2.

[135] FWMOH, Annual Report, 1915-1919.

regulated by local health authorities, food regulations were gradually adhered to by these businesses

In conclusion, the quality of food goods was a central concern of local health officials. Fort William citizens could often expect to find food products that were either contaminated with external sources or adulterated in various ways. Disease organisms were often found in these products, which would have an especially harmful effect upon infants. Infants of immigrant families were found to be especially susceptible to outbreaks of gastro-intestinal diseases. The activities of local businesses were considered by the health authorities to be the reason behind the sale of impure food goods, as city businesses neither maintained the sanitary condition of their facilities, nor ensured the healthy content of their products. Health authorities consequently sought the imposition of regulations that would ensure the safe supply of food goods. These regulations would be enforced through routine inspections of food producers and retailers, and through bacteriological examinations of the city's milk supply. Maternal education was also promoted, particularly among immigrant families, in order to lower the city's infant mortality rate. Despite the level of resistance encountered by Fort William health officials in their efforts to improve food supplies, there were growing improvrments. The overall infant mortality rate of residents decreased markedly through the early twentieth century, and local businesses increasingly began to adhere to established food regulations.

Chapter Five:
Strategies for Control of Infectious Disease

Urban centres experienced repeated outbreaks of infectious disease throughout the nineteenth century. Smallpox and tuberculosis took a large number of lives, particularly among the urban poor. Influenza was a serious threat as well, for outbreaks of the disease took place throughout the nineteenth century and caused high rates of mortality. The years 1918 and 1919 would see the outbreak of an especially virulent type of influenza, one that produced an extraordinarily high number of deaths. Outbreaks of diphtheria, measles, whooping cough, and scarlet fever were not uncommon, causing high rates of mortality among infants and children. Health authorities sought to establish prevention strategies that would combat the outbreak of infectious diseases. In order to do this, they found that they had to gear their prevention strategies to combat each disease's unique characteristics. When attempting to do this, health authorities often experienced resistance from the medical community and the general public alike, both of whom tended to perceive the health authorities' prevention efforts as unwanted intrusions into their private affairs.

Infectious Disease Strategies in Britain and North America

Smallpox was an extremely virulent disease, causing high rates of mortality within urban centres throughout the nineteenth century. Persons infected with the disease commonly experienced chills, fever, headache, backache, vomiting, and often convulsion and delirium, with death following soon after.[1] Smallpox was extremely contagious and

[1] Michael Bliss, Plague: a Story of Smallpox in Montreal (Toronto: HarperCollins, 1991), 39-40. See also J. N. Hays, The Burden of Disease (New Brunswick, NJ: Rutgers University Press, 1998), 121.

was spread easily through social contact.[2] It was hardly surprising, therefore, that smallpox found a large number of its victims among the urban poor, who often dwelt in overcrowded regions.[3] In Britain, smallpox was one of the most feared diseases. It was endemic in urban regions and, throughout the nineteenth century, it took an average of 6,000 deaths a year.[4] In Canada, mortality from smallpox was high throughout the nineteenth century, particularly in the city of Montreal. According to Terry Copp, smallpox was especially virulent among the Montreal working-class.[5] The smallpox epidemic of 1885 claimed over 3,000 Montreal lives, with the urban poor being the primary victims of the disease.[6] In the United States, deaths from smallpox continued throughout the nineteenth century, particularly in frontier communities.[7]

The primary strategy employed by British and North American governments was vaccination. In the United States at the turn of the nineteenth century, mortality rates from smallpox began to be reduced through the use of vaccination. Large cities began to offer free public vaccination in the early nineteenth century, and some made the practice

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[2]Ignaz Semmelweis, "The Etiology, Concept, and Prophylaxis of Childbed Fever," in Medicine and Western Civilization, ed. David J. Rothman, Steven Marcus, and Stephanie A. Kiceluk (New Brunswick, NJ: Rutgers University Press, 1995), 245.

[3] Hays, The Burden of Disease, 127.

[4] Ruth Hodgkinson, Introduction to Public Health in the Victorian Age: Debates on the Issue from Nineteenth Century Critical Journals (Westmead, England: Gregg International Publishers, 1973), Volume One, n. pg #.

[5] Terry Copp, "Public Health in Montreal, 1870-1913," in Medicine in Canadian Society: Historical Perspectives, ed. S. E. D. Shortt (Montreal: McGill-Queen's University Press, 1981), 395-6.

[6] Margaret M. Allemang, "Development of Community Health Nursing in Canada," in Community Health Nursing in Canada, ed. Miriam Stewart *et al* (Toronto: Gage Publishing, 1985), 13.

[7] James H. Cassedy, Medicine in America: a Short History (Baltimore, MD: Johns Hopkins University Press, 1991) 46. Cassedy does not explain why frontier communities experienced high rates of mortality from smallpox. One could suggest that a potential lack of medically-trained staff within these emerging communities was a factor.

compulsory in later years.[8] Britain passed vaccination laws, all of which served to make vaccination increasingly compulsory.[9] The Smallpox Act of 1871 made vaccination compulsory for both adults and children. The Act made it obligatory for local boards of health to appoint vaccination officers, and to fine those who refused to have their children vaccinated.[10] The province of Ontario took similar steps to implement vaccination. Michael Bliss writes that "the merest hint" of a smallpox outbreak was enough for Ontario health authorities to carry out widespread vaccination programs within regions affected by the disease.[11] Following the outbreak of smallpox in Montreal in 1885, local boards of health in Ontario were given the authority to enforce compulsory vaccination.[12] Vaccination was used concurrently with other prevention strategies. Following vaccination, smallpox victims were isolated (either in isolation hospitals or their own homes), and their dwellings were disinfected. It was also common to burn an infected person's bedding and clothing.[13]

Resistance often followed attempts to vaccinate. In Britain, the anti-vaccination movement appeared shortly after the passage of the Smallpox Act in 1871. The

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[8]Ibid., 46, 56.

[9]Bliss, Plague: a Story of Smallpox in Montreal, 49.

[10]Anthony S. Wohl, Endangered Lives Public Health in Victorian Britain (London, England: Methuen, 1983), 133.

[11]Bliss, Plague: a Story of Smallpox in Montreal, 199.

[12] J. T. Phair, "Public Health in Ontario," in Public Health in Canada; a Review of the History and Organization of Public Health in the Provinces of Canada, with an Outline of the Present Organization of the National Health Section of the Department of Pensions and National Health, Canada, ed. R. D. Defries (Toronto: Canadian Public Health Association, 1940), 70.

[13]Wohl, Endangered Lives, 134. See also Phair "Public Health in Ontario," 70. Risa Barkin and Ian Gentles' article, "Death in Victorian Toronto, 1850-1899," Urban History Review 19, no. 1 (June 1990): 19, offers additional data relating to methods by which Toronto health authorities dealt with infectious disease corpses and their immediate surroundings.

appointment of vaccination officers throughout the country, and the Privy Council's growing habit of sending out inspectors to check up on vaccination stations, seemed strongly indicative to some people of the suppression of civil liberties. In the words of Anthony S. Wohl, "the underlying fear, for so long evident in the country at large, that government interests in public health might result in dictatorial decrees, had, in the opinion of many, finally been realized." Opposition to vaccination was also based on religious grounds, as many felt that it was sinful to inject impurities into the blood.[14] In Montreal in the late nineteenth century, anti-vaccination protests stemmed from a fear that vaccination brought about harmful side effects. Some Montreal citizens regarded vaccination, like the administration of drugs, as an injection of poison into the body.[15] In the United States, there was resistance to vaccination in many American cities in the 1890s, as health officials attempted to enforce vaccination among the immigrant population.[16] The quarantine measures of health authorities were also resisted, as families often evaded attempts to place them in isolation facilities.[17]

Tuberculosis was perhaps the most feared disease in the nineteenth century, as it caused extremely high rates of mortality, particularly among the urban poor. Generally

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[14]Wohl, Endangered Lives, 134.

[15]Allemang, "Development of Community Health Nursing in Canada," 13. See also Bliss, Plague: a Story of Smallpox in Montreal, 60.

[16] Cassedy, Medicine in America: a Short History, 98. Cassedy does not give any specific reasons for immigrants' opposition to vaccination. It could be that the cultural beliefs of immigrants ran into conflict with established medical procedures. Alan M. Kraut, in Silent Travelers: Germs, Genes, and the "Immigrant Menace" (Baltimore, MD: Johns Hopkins University Press, 1994), 233, states that vaccination programs within schools often resulted in conflict between school authorities and vaccinators, for school authorities expressed concern that immigrant parents might disagree with their children being vaccinated, and subsequently remove them from school.

[17]Allemang, "Development of Community Health Nursing in Canada," 18. Allemang does not discuss any of the reasons why parents and children evaded quarantine, but it is possible that they resented any measure that constrained their movements, especially if it affected their ability to secure income.

known as "phthisis" or "consumption," tuberculosis attacked the lungs and was extremely contagious.[18] Due to the vague and non-specific nature of the disease's symptoms, many persons had tuberculosis for years before they realized they were infected, which undoubtedly resulted in the further spread of the contagion to others.[19] Although tuberculosis affected every class of society, the urban poor were its primary victims, who commonly dwelt in areas that were badly ventilated and overcrowded, where the disease was able to spread quite rapidly.[20] But tuberculosis brought death wherever it was present. In "The Aetiology of Tuberculosis," Dr. Robert Koch wrote:

> If the number of victims which a disease claims is the measure of its significance, then all diseases, particularly the most dreaded diseases, such as bubonic plague, Asiatic cholera, etc., must rank behind tuberculosis. Statistics teach that one seventh of all human beings die of tuberculosis, and that, if one considers only the productive middle-age groups, tuberculosis carries away one third and often more of these.[21]

Both Britain and North America suffered from high tuberculosis mortality rates. Tuberculosis was unquestionably the single largest cause of death in both North America and Britain, with the urban poor suffering the heaviest toll in mortality.[22]

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[18]Ibid., 13. See also Wohl, Endangered Lives, 130.

[19] C. Stuart Houston, R. G. Ferguson: Crusader against Tuberculosis (Toronto: Dundurn Press, 1991), 42.

[20] Wohl, Endangered Lives, 130.

[21]Dr. Robert Koch, "The Aetiology of Tuberculosis," in Medicine and Western Civilization, 319-20.

[22]James Walvin, Victorian Values (London, England: Penguin Group, 1987), 28. See also Cassedy, Medicine in America: a Short History, 47, and Allemang, "Development of Community Health Nursing in Canada," p. 18. There exist numerous other sources that discuss tuberculosis. Pat Sandiford Grygier's A Long Way From Home: the Tuberculosis Epidemic among the Inuit (Montreal: McGill-Queen's University Press, 1994) discusses the effect of tuberculosis on the Native peoples of the North. Katherine Ott's Fevered Lives: Tuberculosis and American Culture since 1870 (Cambridge, MA: Harvard University Press, 1996), and Georgina D. Feldberg's Disease and Class: Tuberculosis and the Shaping of North American Society (New Brunswick, NJ: Rutgers University Press, 1995) discuss tuberculosis and its effect on North America in general.

A number of prevention strategies were used to combat tuberculosis. The disease could be easily spread through saliva, and thus government authorities sought to eradicate the habit of spitting. In the United States, by the late nineteenth century, it was illegal to spit in any public location. In Britain, local authorities sought to control "the promiscuous expectoration" which transmitted tuberculosis. In Oldham, for instance, spitting was forbidden in public rooms, railway carriages, and other public places.[23] The establishment of sanatoria was also essential for the combating of tuberculosis. Sanatorium treatment provided rest, fresh air, and sunshine, hygienic elements thought by public health reformers to be essential to the treatment of tuberculosis.[24] The American prototype of the sanatorium was established by Edward Trudeau, in 1884, at Saranac Lake in New York's Adirondack Mountains. Other sanatoriums would set up in mountainous regions throughout the country in later years.[25] In Canada, the Muskoka Cottage Sanatorium was established in 1897 (with the Trudeau sanatorium as its model), the first of its kind in the Dominion.[26]

Teaching urban residents about the nature of tuberculosis and the way in which it was contracted was also regarded as important by public health reformers. If people were instructed about tuberculosis and how it was transmitted, health authorities believed that deaths from the disease could be reduced. Dr. Peter H. Bryce, at a meeting of Ontario's

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[23] Wohl, Endangered Lives, 131.

[24] Marion Royce, Eunice Dyke: Health Care Pioneer, from Pioneer Public Health Nurse to Advocate for the Aged (Toronto: Dundurn Press, 1983), 19.

[25] Cassedy, Medicine in America: a Short History, 75. American authorities most likely established sanatoriums in mountainous regions to ensure patients access to clean air while, at the same time, isolating them from large urban centres.

[26] Phair, "Public Health in Ontario," 83. See also Allemang, "Development of Community Health Nursing in Canada," 13.

medical officers of health in 1898, stated that the education of the public with regard to tuberculosis prevention was essential.[27] For this purpose, public health nurses came to be used extensively by health authorities.[28] According to Florence Emory, the public health nurse "was the most efficient instrument" with respect to educating the public in tuberculosis prevention, for the central role of the public health nurse was to go into the community and impart health education.[29] Public health nurses explained the exact nature of tuberculosis and how to prevent it. They also stressed the "curative aspects" of sunshine and fresh air, along with the importance of disposing of sputum that contained tuberculosis germs.[30]

However, health officials often experienced resistance to their prevention efforts. If a physician reported tuberculosis in its early stages, treatment in a sanatorium could be effective.[31] However, notification of tuberculosis did not become compulsory in Britain and Canada until early in the twentieth century, and therefore it is quite possible that many physicians chose not to report cases.[32] Furthermore, public health nurses often encountered families that employed their own customs in the treatment of tuberculosis. Poor families often resorted to folk remedies, such as eating live snails and maggots or

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[27]Peter Henderson Bryce, The Duty of the Public in Dealing with Tuberculosis: (Association of Executive Health Officers of Ontario, 27 October 1898), 3.

[28]Royce, Eunice Dyke, 20-1.

[29] Florence H. M. Emory, Public Health Nursing in Canada: Principles and Practice (Toronto: Macmillan, 1953), 22.

[30]Royce, Eunice Dyke, 20-1.

[31]Ibid., 19.

[32] Wohl, Endangered Lives, 130. See also Royce, Eunice Dyke, 29. In Britain, tuberculosis did not become notifiable until 1912. In Canada, the province of Ontario made physicians report cases of tuberculosis in 1911.

breathing air emitted by pigs or horses. Quack medicines were also used extensively by poor families, making the public health nurse's attempts to educate the public that much more difficult.[33]

Influenza outbreaks also caused high mortality. The disease brought about such symptoms as fever and pneumonia, and more often than not, caused rapid death.[34] Outbreaks of influenza reached major epidemic proportions in 1800, 1830, 1843, 1857, 1874, and 1889-90 (the last of which was the most virulent of the nineteenth century, affecting forty per cent of the world's population).[35] An especially virulent outbreak of influenza took place following the end of the First World War. According to James Cassedy, it was a worldwide pandemic that devastated not only the troops that were still in uniform but also civilian populations.[36] This was due to the fact that many returning soldiers carried the disease with them to their native countries.[37] In Canada, influenza attacked one-sixth of the population and killed approximately 30,000 people.[38] Canadian health officials embarked on a series of preventive strategies in order to combat the outbreak. Efforts were undertaken to quarantine those who had been infected with the disease and to enforce the wearing of gauze masks (undoubtedly in an attempt to keep

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[33]Wohl, Endangered Lives, 131-2.

[34] Jacalyn Duffin, History of Medicine: a Scandalously Short Introduction (Toronto, Buffalo, and London: University of Toronto Press, 1999), 160.

[35] Janice P. Dickin McGinnis, "The Impact of Epidemic Influenza: Canada, 1918-1919," in Medicine in Canadian Society: Historical Perspectives, 452.

[36] Cassedy, Medicine in America: a Short History, 121.

[37] Eileen Pettrigrew, The Silent Enemy: Canada and the Deadly Flu of 1918 (Saskatoon, SK: Western Producer Prairie Books, 1983), 3. For information relating influenza and its impact on world populations generally, see also William Ian Beardmore, Influenza: the Last Great Plague: an Unfinished Story of Discovery (New York: Prodist, 1977).

[38] Allemang, "Development of Community Health Nursing in Canada," 18.

influenza germs from spreading through coughing or spitting).[39] In Ontario, local medical officers of health were empowered to close down public places such as schools and theatres and to restrict business hours.[40]

Yet health authorities found it extremely difficult to combat influenza. Firstly, the medical community was seemingly impotent with regard to the prevention of influenza outbreaks. Cassedy writes that the scientific community "confessed themselves to be virtually helpless" when it came to the implementation of prevention strategies for influenza.[41] There was no vaccine that could be used against the disease, for whenever influenza outbreaks took place, they brought about extremely high rates of mortality in a short period of time, making it impossible for medical authorities to undertake extensive clinical experimentation.[42] The wearing of gauze masks was more detrimental than valuable, for damp cotton masks proved to be the perfect environment for the spread of influenza germs. The "grotesque" masks were also widely unpopular and generally were not worn at all.[43] Attempts to quarantine influenza patients met with resistance. McGinnis writes that, during the 1918-1919 influenza epidemic in Canada, some families perceived quarantine to be an "injustice," as they did not believe the diagnosis of

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[39] Eileen Pettigrew, The Silent Enemy, 6. See also McGinnis, "The Impact of Epidemic Influenza," 450-1, 455-6.

[40] McGinnis, "The Impact of Epidemic Influenza," 464.

[41] Cassedy, Medicine in America: a Short History, 121.

[42] McGinnis, "The Impact of Epidemic Influenza," 456-7. It is not clear why medical authorities did not undertake clinical experimentation with influenza during periods when the disease was not prevalent. It is possible that, since outbreaks of the disease tended to occur infrequently (that is, over a period of years), medical authorities did not consider its examination to be absolutely paramount.

[43] Ibid., 456. McGinnis writes that gauze masks were often shared among family members, thus creating the possibility for influenza to spread.

influenza to be correct. In addition, businesses and city councils often resented efforts to close down city shops and other places of business.[44]

Childhood diseases had the capacity to bring about high rates of mortality, particularly within urban centres. Diphtheria had the potential to be extremely virulent. From a sore throat, diphtheria could develop into blood poisoning and lead to heart failure. Diphtheria could also lead to the growth of a membrane across the tonsils, which required a tracheotomy before suffocation occurred.[45] In the United States, diphtheria increased in virulence throughout the nineteenth century.[46] In Canada, diphtheria caused a high rate of death.[47] Montreal children of working-class backgrounds proved to be especially susceptible to the disease.[48] In Britain, there was a rapid increase in deaths of children under fifteen from diphtheria in the last two decades of the nineteenth century.[49] Scarlet fever was also "viewed with dread," for a high degree of mortality existed among those children who contracted the disease.[50] In Canada, high mortality rates accompanied outbreaks of scarlet fever throughout the nineteenth century.[51] In the province of Quebec, epidemics of scarlet fever took place in the years 1889 and 1893, and caused

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[44]McGinnis, "The Impact of Epidemic Influenza," 454, 466.

[45] Wohl, Endangered Lives, 129.

[46] Cassedy, Medicine in America: a Short History, 46.

[47] Allemang, "Development of Community Health Nursing," 13.

[48] Copp, "Public Health in Montreal, 1870-1913," 395.

[49] Wohl, Endangered Lives, 130.

[50] Ibid., 128-9.

[51] Allemang, "Development of Community Health Nursing," 13.

health authorities great concern.[52] In Britain, the disease was a major killer. In 1874, for example, over 26,000 children died from it.[53] Along with diphtheria and scarlet fever, outbreaks of measles and whooping cough did their share in bringing about high rates of mortality among children.[54]

Health officials implemented a number of strategies in the effort to prevent infectious childhood diseases from spreading. In Britain, emphasis was placed upon the importance of notifying public health authorities of the appearance of any infectious disease. The most common diseases spread by social contact were made notifiable in 1889; it became compulsory for physicians to report these diseases by 1899.[55] Under the Ontario Public Health Act of 1884, local boards of health were made responsible for enforcing the early notification of infectious diseases such as scarlet fever.[56] In the United States by the mid-1890s, laboratories began to undertake routine tests to verify suspected cases of diphtheria, scarlet fever, and other common infectious diseases.[57] In Ontario, the prevalence of diphtheria in the late-nineteenth century led to the creation in 1890 of a provincial laboratory based in Toronto.[58] Because such diseases as diphtheria, scarlet fever, measles, and whooping cough were easily spread through social contact,

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[52] Dr. J. J. Heagerty, "Public Health in Canada," in The Development of Public Health in Canada, 7.

[53] Wohl, Endangered Lives, 128-9.

[54] Cynthia R. Comacchio, "Nations are Built of Babies": Saving Ontario's Mothers and Children, 1900-1940 (Montreal, Kingston, London, and Buffalo: McGill-Queen's University Press, 1993), 31-2.

[55] Elizabeth Fee and Dorothy Porter, "Public Health, Preventive Medicine, and Professionalization," in Medicine in Society: Historical Essays, ed. Andrew Wear (Cambridge, England: Cambridge University Press, 1992), 270. See also Comacchio, "Nations are Built of Babies," p. 24.

[56] Phair, "Public Health in Ontario," 69.

[57] Cassedy, Medicine in America: a Short History, 110-11.

[58] Phair, "Public Health in Ontario," 75.

health authorities also undertook the quarantining of infectious disease cases.[59] Health authorities would fumigate quarantined dwellings, as well, in order to eliminate any possibility of contagion.[60]

Public health officials also made use of antitoxin in the treatment of diphtheria. The bacterium for diphtheria was isolated in 1883, and this led to the discovery of an antitoxin in 1894.[61] In the preparation of antitoxin, small amounts of diphtheria exotoxin were injected into horses. Following several injections, diphtheria antitoxin began to appear in the horses' blood. The blood serum, which contained the antitoxin, was then separated from the other blood components, and processed under sterile conditions before being administered to humans via injection.[62] The antitoxin came to be produced extensively by health authorities, as advocates of its use argued that death rates from diphtheria could be substantially reduced.[63] Beginning in the 1890s, various pharmaceutical companies in the United States began to undertake the production of diphtheria antitoxin.[64] Doctors saw the administration of antitoxin as a means by which diphtheria could be prevented and eventually eliminated, and thus they began to administer it to suspected as well as diagnosed cases.[65]

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[59] Comacchio, "Nations are Built of Babies," 31-2.

[60] Royce, Eunice Dyke, 17.

[61] W. F. Bynum, Science and the Practice of Medicine in the Nineteenth Century (Cambridge, England: Cambridge University Press, 1994), 160-1.

[62] Francis S. Cheever, "Diphtheria," in Encyclopedia Americana, 1998 international edition.

[63] Bynum, Science and the Practice of Medicine in the Nineteenth Century, 161.

[64] Cassedy, Medicine in America: a Short History, 111.

[65] Sutherland, "To Create a Strong and Healthy Race," 368.

The general public did not always appreciate measures designed to protect children from infectious disease. The effectiveness of diphtheria antitoxin was often criticized by the general public and, at certain times, by the medical community. The latter often pointed out that production standards for the antitoxin, in the early years, were impossible to standardize, and thus supplies of the material tended to vary in strength from batch to batch. Therefore it was possible that diphtheria antitoxin was not always effective, especially if the case being treated was a particularly serious one. The medical community and the general public were also concerned about the negative effects of the antitoxin, for sudden and unexpected deaths often occurred following its administration. Those who did survive its administration often experienced serum sickness, which brought on fever, rash, and joint pains. The general public also tended to dislike the idea of being administered antibodies that were derived from animals.[66]

Parents often ignored attempts by health authorities to treat infectious childhood disease cases. Many families continued to rely on folk medicines. In East Anglia, Britain, a common remedy for whooping cough was to feed the infected child a fried mouse. At the turn of the twentieth century, one British medical health officer encountered another common folk remedy when he asked a mother why her son, suffering from whooping cough, was allowed to play in the gutter. She responded by saying that the dirt drew out the infection. Parents were also known to seek out owners of donkeys (which were thought to have miraculous powers due to their spiritual association with Christ) and pay to have their children walk seven times around a

[66] Bynum, Science and the Practice of Medicine in the Nineteenth Century, 161. See also Cassedy, Medicine in America: a Short History, 98.

donkey.[67] Many parents did not adhere to the practice of quarantine. Wohl writes that it was not uncommon for mothers in Britain to take their children to houses where infectious disease cases were present. Children were even allowed to move freely from homes (where measles and scarlet fever cases existed) to their respective schools. In addition, many public health authorities found that quarantine was impossible to enforce in the crowded dwellings of the urban poor.[68]

Although there was resistance to health authorities' efforts to treat infectious disease cases, mortality rates from infectious disease decreased throughout the nineteenth and early-to-mid twentieth centuries. In Britain between 1861 and 1891, scarlet fever deaths declined by 81 per cent. It is believed that notification of scarlet fever cases by physicians, coupled with the enforcement of strict isolation procedures, played a central role in this decline. Deaths from smallpox had also declined significantly by the late nineteenth century, and this has been attributed primarily to the practice of vaccination. Although tuberculosis remained the single largest cause of death next to heart disease in Britain, mortality from the disease had been roughly halved by 1910.[69] Similar developments took place in Canada. Smallpox and diphtheria were becoming increasingly preventable by the early twentieth century, and increased knowledge of tuberculosis allowed more control over its "incidence and mortality."[70] In the last quarter of the nineteenth century, tuberculosis mortality rates in Canada declined significantly

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[67] Wohl, Endangered Lives, 18-19.

[68] Ibid., 129.

[69] Ibid., 129-30, 132.

[70] Allemang, "Development of Community Health Nursing in Canada," 18-19.

among non-Aboriginals.[71] In the United States, a significant number of infectious diseases had been virtually eliminated by the mid-twentieth century. Smallpox was one such disease. Significant reductions in mortality from tuberculosis and influenza had also taken place by this period.[72]

In summary, such infectious diseases as smallpox, tuberculosis, and influenza all played their part in causing high rates of mortality within cities throughout the late-nineteenth century. Infectious childhood diseases such as diphtheria and whooping cough also contributed to high levels of mortality, causing large numbers of children to die at a young age. The urban poor were seemingly the primary targets of infectious disease outbreaks, largely as a result of the overcrowded and unventilated conditions in which they lived. Government health authorities sought to implement strategies that would prevent the spread of infectious disease outbreaks, strategies geared toward the treatment of the specific diseases themselves. Not everyone complied with efforts to limit the impact of such outbreaks, however, as both physicians and the general public were often at odds with established prevention initiatives. Yet, despite the presence of resistance to health measures, reductions in mortality from infectious diseases such as smallpox and tuberculosis did occur.

Prevention of Infectious Disease in Fort William

The implementation of strategies geared toward the prevention of infectious disease outbreaks was considered extremely important by local health authorities, as infectious disease was no stranger to the Fort William community in the early twentieth

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[71] Barkin and Gentles, "Death in Victorian Toronto: 1850-1899," 19.

[72] Cassedy, Medicine in America: a Short History, 128-9.

century. Although mortality from smallpox had decreased dramatically, any sign of an outbreak was met with heightened concern by health authorities. Tuberculosis, unlike smallpox, brought about high rates of mortality; during this period, it caused more deaths than any other infectious disease. In 1918, influenza found its way into the city, and took many lives in a short period of time. Infectious childhood diseases posed a serious threat, with diphtheria, measles, whooping cough, and scarlet fever taking a significant number of lives. In the minds of health authorities, the establishment of strategies with which to prevent infectious disease outbreaks became a necessity. As each infectious disease had unique characteristics, health authorities geared their prevention strategies toward the treatment of the specific diseases themselves. In so doing, they often encountered resistance from local politicians, physicians, and the general public, all of whom, at various times, refused to cooperate with the efforts of local health officials.

Smallpox outbreaks always aroused the concerns of local health officials. Two major epidemics would visit Fort William. The first, in 1900, was of a particularly virulent strain, and led to a number of deaths.[73] The second outbreak occurred in 1910, with fifteen cases being reported.[74] In 1900, Dr. Birdsall, Fort William's medical officer of health, implemented a series of strategies to combat the spread of the disease. Compulsory vaccination was instituted, public meetings were banned, and schools and

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[73] Dr. Thomas Kane, Medicine in Thunder Bay (Thunder Bay, 1994), 80. There seems to be some discrepancy as to the exact number of smallpox deaths that occurred in the epidemic of 1900. Unfortunately, Kane does not give a specific number of smallpox deaths that occurred in the period; he only refers to "several deaths." Rob Neff, in his article, "The Good Doctor: the Life of Thomas Stuart Traille Smellie," Thunder Bay Historical Museum Society: Papers and Records 20 (1992): 23, states that only three people died.

[74] Fort William Medical Officer of Health (FWMOH), Annual Report, 1910-1911. In his annual report for 1912-1913, Wodehouse refers to the smallpox outbreak that occurred in 1910 and how it had resulted in fifteen reported cases.

churches were closed. Residents had to possess a certificate of vaccination before being able to travel on the city's street cars, and each street car was fumigated following the end of every shift. Dr. Smellie treated smallpox patients at an isolation hospital, which was located on the outskirts of the city, in order to keep them away from the rest of the city population. Health authorities also encouraged city newspapers to write editorials encouraging the reporting of smallpox cases.[75] To keep infected persons from entering the city, port authorities were instructed to keep a "vigilant watch" on ships arriving from the United States, because smallpox was present in various American communities at the time. Birdsall went further in having C.P.R. and C.N.R. train personnel report any cases of smallpox found on incoming trains, in order that such cases could be promptly removed before entering the city.[76]

Dr. Wodehouse, medical officer of health between 1910 and 1912, instituted strategies consistent with those of Birdsall in response to the smallpox epidemic of 1910. As soon as cases were reported, Wodehouse worked to keep the disease from spreading. A strict quarantine was placed upon those who were directly exposed, and anyone suspected of having come into contact with smallpox cases was subject to compulsory vaccination. Schoolchildren believed to have come from infected areas were also vaccinated. The new isolation hospital, established in 1910, was used to treat a number of smallpox cases.[77] Wodehouse also curtailed any unnecessary movement within the

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[75] Neff, "The Good Doctor: the Life of Thomas Stuart Traille Smellie," 23-4.

[76] Daily Times Journal (DTJ), 10 May 1901, 13 May 1901. The Daily Times Journal does not say where these smallpox cases were taken. One could surmise, however, that such cases were taken to the isolation hospital.

[77] FWMOH, Annual Report, 1910-1911. Medical officers of health undoubtedly had discretion when it came to instituting compulsory vaccination procedures. While Birdsall had initiated a city-wide

city. All places of amusement were closed, and traffic between Port Arthur and Fort William was stopped.[78] Fearing that smallpox was entering the city from other locations, Wodehouse had the occupants of a rural construction yard and a rural school vaccinated. A watch was also kept on the city's ports of entry.[79]

Both Birdsall and Wodehouse encountered resistance to their prevention efforts. During the outbreak of 1900 various infected persons evaded quarantine measures by having themselves treated by a personal physician, who may or may not have instructed them to avoid social contact with others.[80] When Wodehouse closed down various city businesses during the smallpox epidemic of 1910, the business community made it clear that it was not pleased with the decision by defying the measure and reopening their stores. Wodehouse's decision to shut down traffic between the two cities incurred the displeasure of the Fort William mayor, who regarded the measure as excessive. City authorities subsequently overturned the measure.[81] In addition, Wodehouse stated that it was not uncommon for members of the community to decide against vaccination for smallpox.[82] It is therefore highly probable that there was resistance to Wodehouse's vaccination initiatives.

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vaccination program in 1900, Wodehouse saw fit to limit compulsory vaccination to those thought to have come into contact with smallpox cases.

[78] DTJ, 16 March 1910, 17 March 1910, 19 March 1910.

[79] FWMOH, Annual Report, 1910-1911.

[80] Kane, Medicine in Thunder Bay, 120.

[81] DTJ, 17 March 1910, 19 March 1910.

[82] FWMOH, Annual Report, 1911-1912. Wodehouse does not state any reasons why various Fort William citizens decided against vaccination. As mentioned earlier, political, medical, and religious considerations may have played a role.

Tuberculosis was the greatest threat to the Fort William community during the early twentieth century, and led to the implementation of various strategies by health authorities in an attempt to combat it. Called a "deadly and insidious enemy" by the Daily Times Journal, tuberculosis took more lives than any other infectious disease throughout the early twentieth century.[83] According to Kane, the disease was widespread and the leading cause of death among those between the age of fifteen and forty-five. It was common among large families, and within areas where overcrowding was pronounced.[84] Local health authorities embarked upon a series of measures designed to prevent outbreaks of the disease in the community. Immigrants arriving in the city were tested for tuberculosis, and those found to be infected with the disease were deported.[85] By 1912, health officials had put a special order in place that required all tuberculosis cases to be reported and all houses to be fumigated following a tuberculosis patient's removal. There was also an anti-spitting ordinance in existence, undoubtedly designed to limit the spread of the disease in this urban area.[86] In addition, 1912 would see the beginning of school inspections by visiting health nurses, with children being examined for such diseases as tuberculosis.[87]

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[83] DTJ, 18 June 1919. See also FWMOH, Annual Report, 1903-1919, for statistics relating to Tuberculosis deaths.

[84] Kane, Medicine in Thunder Bay, 82. See also Bryce M. Stewart, A Report of a Preliminary and General Social Survey of Fort William March, 1913, Directed by the Department of Temperance, and Moral Reform of the Methodist Church, and the Board of Social Services, and Evangelism of the Presbyterian Church (Fort William, 1913), 27.

[85] Fort William Board of Health Meeting Minutes (FWBOH), 13 April 1914.

[86] Stewart, Report of a Preliminary and General Social Survey of Fort William, 27.

[87] FWMOH, Annual Report, 1912-1913.

The promotion of hygiene education was deemed to be extremely important by health authorities in the fight against tuberculosis. Wodehouse, along with the Board of Health, was pleased to have Dr. Porter, a lecturer on tuberculosis, come to Fort William in 1911. Dr. Porter's role was to lecture on tuberculosis and to assist in setting up an anti-tuberculosis society, a measure that health authorities had greatly wished to see take place.[88] Intent upon educating the Fort William public, Wodehouse undoubtedly saw the anti-tuberculosis society as an organization that could instruct citizens in the nature of tuberculosis and the means by which to combat it. Upon the establishment of an anti-tuberculosis society in Fort William in 1911, the circulation of literature pertaining to tuberculosis and its prevention became a frequent occurrence.[89] In the same year, Wodehouse also requested that the government send a tuberculosis exhibit to Fort William, most likely in an attempt to reinforce the lectures of Dr. Porter.[90] Dr. Oliver, Wodehouse's successor as city medical health officer, expressed his pleasure at the setting up of a tuberculosis exhibit at an agricultural fair in 1915, declaring it to be of "extremely educative value."[91]

However, various problems accompanied these efforts to prevent tuberculosis. Many physicians failed to report cases of tuberculosis. Between 1900 and 1911, the reporting of tuberculosis cases was not mandatory, and many physicians chose not to do so.[92] In 1908, Dr. Manion, Fort William's medical officer of health at the time, stated

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[88] FWBOH Meeting Minutes, 25 September 1911. See also FWMOH, Annual Report, 1910-1911.

[89] Stewart, Report of a Preliminary and General Social Survey of Fort William, 27.

[90] FWMOH, Annual Report, 1910-1911.

[91] FWMOH, Annual Report, 1915.

[92] FWMOH, Annual Report, 1903-1914.

that the reporting of tuberculosis cases was essential. In the following years, health authorities sought to encourage physicians to report cases of tuberculosis but many refused to comply.[93] In his social survey of Fort William in 1913, Stewart indicated that the reporting of infectious disease cases was very poor.[94] The Daily Times Journal stated in 1919 that the Fort William community overall tended to view tuberculosis "with indifference," focusing instead upon the danger posed by smallpox, a disease which (unlike tuberculosis) had brought about no reported deaths since 1900.[95] There was also resistance to the anti-spitting ordinance. Stewart wrote in his social survey that the anti-spitting ordinance was being "poorly observed," as persons often spat in public places and on street cars. Efforts to promote hygienic education were limited in their effect. Stewart's social survey indicated that many people in Fort William's slum were ignorant of proper health measures, which suggests that the anti-tuberculosis society was making little, if any, progress in its attempt to educate the general public.[96] Dr. Oliver attributed the city's continuing problem with tuberculosis to a lack of education, stating that tuberculosis would remain as long as citizens continued to be "careless and ignorant."[97]

Health authorities faced especially strong resistance in their efforts to establish a sanatorium for the city. In his 1909 annual report, Dr. Manion put himself on record as being in support of a sanatorium for Fort William. During this period, tuberculosis patients were usually cared for in private homes which, in Manion's opinion, not only

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[93] FWMOH, Annual Report, 1909, 1913-1914.

[94] Stewart, Report of Preliminary and General Social Survey of Fort William, 27.

[95] DTJ, 18 June 1919.

[96] Stewart, Report of a Preliminary and General Social Survey of Fort William, 27.

[97] FWMOH, Annual Report, 1915-1916.

endangered the lives of the patient's friends, but allowed the disease to spread throughout the city. Manion sought out funding for such an enterprise from private citizens, but his efforts proved futile.[98] In his social survey of Fort William, Stewart wrote that no facility for the specific treatment of tuberculosis had been established. There was no sanatorium, and there were no fresh air camps or day camps. McKellar Hospital had come to bear the responsibility of caring for tuberculosis patients, a development that was no doubt unsatisfactory to health authorities.[99] In 1915, Oliver pressed for the establishment of a sanatorium (perhaps as a result of the increased number of tuberculosis cases appearing during this time). He attempted to obtain the support of surrounding municipalities, in the hope that they would share the financial cost of such a facility with Fort William. If this did not take place, Oliver made it clear that the city would have to fund the project.[100] The Board of Health supported Oliver, and in 1916 it requested information relating to the cost of setting up a sanatorium.[101] City Council did not go forward with the construction of a sanatorium, and ignored the requests of the health authorities.[102]

Like tuberculosis, influenza brought high rates of mortality. Influenza found its way to Canadian shores in September of 1918. Within a month, cases of the diseases were appearing in Fort William. Its victims were employees of the Canada Car Company who had recently arrived from Montreal, where influenza had been prevalent. In the six-

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[98] FWMOH, Annual Report, 1909.

[99] Stewart, Report of a Preliminary and General Social Survey of Fort William, 27.

[100] FWMOH, Annual Report, 1914-1915, and 1915.

[101] FWBOH Meeting Minutes, 9 March 1916.

[102] See FWMOH, Annual Report, 1914-1919, for information relating to City Council and the failure to establish a sanatorium.

month period following their arrival, influenza took the lives of 125 Fort William citizens.[103] From the beginning of the outbreak, city health officials sought to curtail any unnecessary movement within the city and, at a joint meeting of the Fort William and Port Arthur Boards of Health, it was decided to close down certain places of business and prohibit social gatherings of any kind. As the number of cases increased, Oliver went one step further and closed down the city schools.[104] At the joint meeting, both Boards of Health had also decided to make the disease reportable.[105] To treat the existing influenza cases, Oliver set up an emergency hospital in the basement of a city library.[106]

Various obstacles served to limit the effectiveness of these strategies. Oliver implied that both physicians and the general public had been less than supportive when it came to notifying city health authorities of influenza cases. It was Oliver's belief that, for every reported case of influenza, there existed three or four unreported cases. Furthermore, Oliver saw a direct correlation between the spread of the disease and the unsanitary condition of many Fort William dwellings. Many of these dwellings were badly ventilated and had dirt floors. The inhabitants of these dwellings, in Oliver's mind, were just as unsanitary, being content to ignore the importance of personal and household hygiene. Oliver regarded these practices as a violation of nature and, as a result, nature "exacted her toll" through attacks of influenza.[107]

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[103] E. B. Oliver, "The Influenza Epidemic of 1918-19," Thunder Bay Historical Museum Society: Papers and Records (1919): 10.

[104] Ibid., 9.

[105] Ibid., 9-10.

[106] Ibid., 10.

[107] Ibid., 10.

Infectious diseases that mainly affected children, such as diphtheria, were common in Fort William during the early twentieth century. In the words of Oliver, diphtheria was always a "distressing disease," partly because its onset was very sudden.[108] Diphtheria brought about significantly high rates of mortality in 1906 and, in 1916, the city experienced thirty-three cases of the disease, the largest number of cases in the early twentieth century.[109] Local health officials used a number of strategies to combat diphtheria. The municipal laboratory, set up in 1910, allowed for the testing of diphtheria swabs, and an isolation hospital was built to accommodate patients infected with such diseases as diphtheria, measles, and scarlet fever.[110] It was also required that physicians report cases of diphtheria within twenty-four hours.[111]

The administration of antitoxin was the primary tool of local health officials in the treatment of diphtheria. In his 1904 annual report, Birdsall referred to the sale of diphtheria antitoxin by Fort William druggists, and asked that druggists report such sales immediately to local health officials. It is possible that Birdsall saw in this a potential strategy for gauging potential diphtheria outbreaks, for, if druggists were forced to report sales of diphtheria antitoxin, local health authorities would be able to establish whether or not diphtheria cases were on the increase, thus enabling them to move quickly to stamp out potential outbreaks.[112] There was also a concerted attempt to ensure that every level

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[108] FWMOH, Annual Report, 1913-1914. See also Kane, Medicine in Thunder Bay, 81.

[109] For data pertaining to diphtheria rates, see FWMOH, Annual Report, 1902-1919.

[110] E. B. Oliver, "Department of Health," Thunder Bay Historical Museum Society: Papers and Records (1914): 32-3.

[111] Kane, Medicine in Thunder Bay, 84.

[112] FWMOH, Annual Report, 1904. See also FWBOH Meeting Minutes, 23 November 1904.

of Fort William society had access to antitoxin injections. In 1905, the Thunder Bay Medical Society petitioned various municipal governments to supply antitoxin free of charge to the urban poor.[113] In 1914, when the Provincial Board of Health began to produce antitoxin at a lesser cost than commercial pharmaceutical companies, the local Board of Health began to acquire the material from the provincial authorities. This enabled the Board of Health to supply diphtheria antitoxin to those who could not afford it.[114] Although local health authorities were no doubt pleased to have diphtheria anti-toxin made available to every citizen in Fort William, it was not always reliable. Diphtheria patients did not always recover following the administration of anti-toxin, especially if their disease was in an advanced stage.[115]

City health authorities also sought to combat outbreaks of measles and whooping cough. Measles, although usually mild, could often be particularly virulent, especially in children.[116] Both whooping cough and measles cases occurred during the early twentieth century and, in many instances, caused the death of infants between the ages of one and three.[117] In 1916, city health authorities were witness to the largest outbreaks of measles and whooping cough. Oliver wrote in his annual report that 581 cases of measles occurred in 1916, the largest number of cases ever reported in one year. He went on to add that the 193 reported cases of whooping cough were "greater than the total of all

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[113] Kane, Medicine in Thunder Bay, 192. The urban poor would have been unskilled with respect to injection procedures, and thus it is likely that they would have to inquire of the services of a physician or nurse to inject the antitoxin.

[114] FWMOH, Annual Report, 1913-1914.

[115] Kane, Medicine in Thunder Bay, 81.

[116] Kane, Medicine in Thunder Bay, 81.

[117] For data pertaining to measles and whooping cough in Fort William, see FWMOH, Annual Report, 1902-1919.

previous years combined."[118] As both measles and whooping cough were extremely infectious, health officials focused upon keeping such diseases isolated; in order to accomplish this they resorted to quarantine measures. If any homes were found to contain cases of measles or whooping cough, the health authorities placed them under quarantine and affixed a placard to them. During his tenure as medical health officer, Oliver examined all of the placarded dwellings, undoubtedly in an effort to ensure that the quarantine was being maintained.[119]

Both physicians and the general public tended to inhibit the efforts of health officials to keep cases of measles and whooping cough under control. In the case of whooping cough, many physicians chose not to report the disease to local health authorities. Oliver responded by discussing the matter with various city physicians. They explained that the disease was difficult to diagnose in many cases. Oliver did not give significant weight to these explanations, however, as he was in possession of death certificates from physicians that, in many cases, cited whooping cough as the cause of death. Parents had a tendency to allow their children to remain ill several days before taking them to see a physician. Children infected with measles were often ill several days before their parents took them to see a physician for diagnosis. According to Oliver, parents only brought their children to a physician once a rash had begun to appear. Yet measles could be infectious days before the onset of a rash, allowing the disease to spread to others.[120] The general public also violated quarantine measures. In 1908, the Daily

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[118] FWMOH, Annual Report, 1915-1916.

[119] FWBOH Meeting Minutes, 6 December 1917. See also FWMOH, Annual Report, 1902, 1913-1914, and 1917-1918.

[120] FWMOH, Annual Report, 1913-1914. It is likely that Fort William parents allowed their children to mix freely with others during the period of infection, thus allowing measles to spread easily.

Times Journal made reference to various persons infected with measles that had been "moving freely about, attending church and social engagements."[121] In his annual reports, Oliver referred to various incidents in which quarantine had been broken by patients. There were even cases of persons going into placarded dwellings to visit the occupants, which demonstrated either a lack of understanding of the importance of disease isolation, or a complete disregard for the quarantine measures themselves.[122]

Of all the childhood diseases that affected Fort William, scarlet fever seemed to arouse the most concern among health officials. This was perhaps due to the fact that mild cases of the disease could be just as infectious as more serious ones. It was the Daily Times Journal that brought up the prospect of children with mild cases being allowed to socialize with others, thus contributing to the disease's spread to other children.[123] The years 1918 and 1919 would see the worst outbreak of the disease in Fort William, with 722 cases being reported.[124] As with diphtheria and whooping cases, local health authorities turned to quarantine measures in an attempt to keep scarlet fever from spreading throughout the city. Persons found to be infected with scarlet fever were quarantined within their dwellings, and placards were affixed to their homes, with police officers assigned to guard them.[125] The use of police officers in this capacity was undoubtedly representative of health officials' concerns regarding the virulence of scarlet fever, and the propensity for those isolated to flout quarantine regulations.

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[121] DTJ, 27 January 1908.

[122] FWMOH, Annual Report, 1903-1919.

[123] DTJ, 29 October 1919.

[124] FWMOH, Annual Report, 1918-1919.

[125] FWMOH, Annual Report, 1902.

The response of health authorities to the scarlet fever epidemic of 1918-1919 was clearly indicative of the extent to which the disease was feared. Those infected with the disease were quarantined, and the isolation hospital prepared for a potentially large number of scarlet fever cases. The Board of Health also empowered Oliver to hire additional nurses. These nurses were to conduct inspections of Fort William homes in search of mild and unreported cases.[126] In addition, inspections were undertaken at the Fort William schools, with an eye to removing any child found to be infected with the disease. Regarding city schools as places that were conducive to the spread of scarlet fever, the Board of Health sought to ensure their sanitary maintenance. Working in close cooperation with the Board of Education, health authorities made sure to have every classroom fumigated and scrubbed following the removal of a scarlet fever case. Windows were also opened during recess periods and following the dismissal of schoolchildren, in order to allow air to enter the classrooms.[127]

Attempts to eradicate the spread of scarlet fever were not overly successful, as the general public tended to resist quarantine measures. In his 1902 annual report, Birdsall indicated that quarantine guards had great difficult in keeping the general public from entering quarantined dwellings, for many citizens wanted to see for themselves whether or not scarlet fever cases were actually in existence.[128] This would seem to demonstrate that the general public, although concerned regarding potential outbreaks of scarlet fever, were more than willing to ignore established quarantine regulations in an

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[126] FWBOH Meeting Minutes, 18 December 1918.

[127] DTJ, 24 October 1919.

[128] FWMOH, Annual Report, 1902.

attempt to find out the truth for themselves. In 1919, there was concern over the continued occurrence of scarlet fever. Oliver placed the blame for this situation squarely upon the shoulders of parents who, in his opinion, did not report cases of sore throat (a known symptom of scarlet fever) to city health authorities. In Oliver's mind, parents either neglected to report such cases or refused to do so for fear of being quarantined.[129] Even when quarantine was imposed, it was not always adhered to, as there occurred numerous instances of quarantine violation in 1919.[130] It his highly probable that quarantined families resented this obstruction of their personal lives, as the imposition of quarantine would undoubtedly have placed a strain upon both their income and their children's education.

Despite the various levels of resistance that emerged during the early twentieth century, the death rate from infectious disease had decreased markedly by 1919, much to the satisfaction of health officials. Following 1900, there were no reported deaths from smallpox, and cases of the disease declined steadily throughout the early twentieth century. Tuberculosis, the most fatal disease to visit the Fort William community, also began to decline following 1915.[131] This decline could be attributed to the increased cooperation of physicians throughout the early twentieth century, for Oliver stated in 1913 that local physicians were beginning to comply with health authorities' wishes to have tuberculosis cases reported. By 1919, it had become a routine practice of physicians

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[129] DTJ, 10 November 1919.

[130] DTJ, 29 October 1919, 10 November 1919, 18 November 1919.

[131] For information relating to smallpox and tuberculosis statistics, see FWMOH, Annual Report, 1903-1919.

to report such cases to city health authorities.[132] Oliver seems to have been successful in combating the influenza epidemic of 1918. The peak of the epidemic was reached in November of 1918 (with 64 deaths being reported), and in April 1919, only four influenza deaths were reported.[133] Between 1916 and 1919, death rates from infectious childhood diseases began to decline. In 1919, there were no deaths from measles or whopping cough, and there was only one death from scarlet fever and diphtheria. Health authorities undoubtedly regarded their prevention strategies as primarily responsible for these promising developments.[134]

[132] FWMOH, Annual Report, 1913-1919.

[133] Oliver, "The Influenza Epidemic of 1918-19," 10.

[134] FWMOH, Annual Report, 1916-1919.

Conclusion

A city free of infectious disease was a goal that health officials in Fort William sought throughout the late nineteenth and early twentieth century. Measures originating in the sanitary idea and the germ theory of disease provided city health officials with the means to work toward such an objective. The Fort William Board of Health embraced practices that were being instituted by public health reformers throughout the English-speaking world, and sought to utilize them in its campaign to rid the city of infectious disease. Drs. Smellie, Birdsall, Manion, Wodehouse, and Oliver, all of whom served as city medical officers of health at one time or another, aggressively sought the establishment of public health reforms.

But health authorities often had to temper their optimism with regard to the achievement of such reforms, as Fort William citizens did not always cooperate with their efforts. City politicians and businessmen often resisted attempts to initiate health improvements, citing the financial cost that such improvements would entail. Dr. Wodehouse's decision to shut down city businesses during the smallpox outbreak of 1910 aroused the displeasure of both merchants and the mayor. There were numerous times when health officials found themselves at odds with the city medical community, especially when it concerned such matters as notification of infectious disease cases. Even Dr. Manion seemed, at times, to disagree with the Board of Health when it came to establishing whether or not sanitary improvements were a necessity in the Coal Docks area.

The imposition of reforms also led to resistance from the general public. Although social organizations such as the Fort William Relief Society assisted health

authorities in implementing public health reforms, it seems that the majority of the urban community paid little heed to the concerns of local health officials. The population often resorted to the use of outdoor privies (an unwelcome element of urbanization that health officials detested) and more often than not allowed garbage and other unsanitary materials to accumulate in their yards. Many persons who owned cows, especially those who lived in the Coal Docks area, produced milk in their own yards and sold it to passersby, despite attempts by local health authorities to end this practice. Quarantine measures were commonly ignored, as children afflicted with such infectious diseases as scarlet fever and measles were allowed to socialize with others. Even adults tended to ignore quarantine measures. In many cases, attempts to promote public health measures among the city population was limited by language barriers, as many immigrant families (which comprised an overwhelmingly large portion of the Fort William population) understood little or no English.

And yet, by 1919, Fort William's health community undoubtedly looked back with a fair degree of pride upon its various accomplishments. A dependable water supply system had been established, food businesses had been subjected to regulation, and measures designed to educate citizens in public health matters had been put in place. Health authorities had also managed to weather outbreaks of infectious disease, and institute prevention measures that were consistent with those implemented in other municipalities throughout the English-speaking world.

Bibliography

PRIMARY SOURCES

UNPUBLISHED

Thunder Bay Archives:

Annual Report of the Fort William Medical Officer of Health, 1902-1919.

Fort William Board of Health Meeting Minutes, 22 April-6 November, 1919.

Kane, Thomas. Medicine in Thunder Bay. Thunder Bay, 1994.

Thunder Bay Museum:

Stewart, Bryce M. Report of a Preliminary and General Social Survey of Fort William, 1913, Directed by the Department of Temperance, and Moral Reform of the Methodist Church, and the Board of Social Services, and Evangelism of the Presbyterian Church. Fort William, 1913.

Lakehead University:

Bryce, Peter Henderson. Organized Sanitary Work in Dealing with Overcrowding and Pauperism due to Immigration. Ottawa, 1907.

Bryce, Peter Henderson. The Duty of the Public in Dealing with Tuberculosis. A speech before the Association of Executive Health Officers of Ontario, 27 October 1898.

PUBLISHED

Government Documents:

Fifth Census of Canada, 1911: Religious Organizations, Birthplace, Citizenship, Literacy, and Infirmities by Provinces, Districts, and Sub-Districts, Volume II. Ottawa: C. H. Parmelee,1913.

The Canada Yearbook, 1916-1917. Ottawa: J. De. L. Tache, 1917.

Published Collection of Documents

Rothman, David J., Steven Marcus, and Stephanie A. Kiceluk. Medicine and Western Civilization. New Brunswick, NJ: Rutgers University Press, 1995.

Monographs and Articles:

Ames, Herbert Brown. The City Below the Hill; a Sociological Study of a Portion of the City of Montreal, Canada. Toronto and Buffalo: University of Toronto Press, 1972.

Brend, William A. Health and the State. London, England: Constable and Company, 1917.

Oliver, E. B. "Department of Health." Thunder Bay Historical Museum Society: Papers and Records (1914): 29-33.

Oliver, E. B. "The Influenza Epidemic of 1918-1919." Thunder Bay Historical Museum Society: Papers and Records (1919): 9-10.

Smellie, Thomas S. T. "The Origin of the Fort William Relief Society." Thunder Bay Historical Museum Society: Papers and Records (1911-1912): 17-19.

Wells, J. J. "History of Fort William." Thunder Bay Historical Museum Society: Papers and Records (1912-1913): 15-25.

Woodsworth, James Shaver. My Neighbor: a Study of City Conditions, a Plea for Social Service. Toronto: Stephenson, 1911.

Woodsworth, James Shaver. Strangers Within Our Gates: or Coming Canadians. Toronto and Buffalo: University of Toronto Press, 1972.

Newspapers:

Daily Times Journal, January 2, 1900-December 31, 1921.

Morning Herald, April 23, 1907-May 30, 1914.

Weekly Times Journal, January 3, 1903-September 28, 1907.

SECONDARY SOURCES

UNPUBLISHED

Mauro, Joseph M. Thunder Bay, a History: the Golden Gateway to the Great Northwest. Thunder Bay, 1981.

PUBLISHED

Books:

Allen, Richard. The Social Passion: Religion and Social Reform in Canada: 1914-28. Toronto: the University of Toronto Press, 1971.

Beveridge, William Ian Beardmore. Influenza: the Last Great Plague an Unfinished Story of Discovery. New York: Prodist, 1977.

Bliss, Michael. Plague: a Story of Smallpox in Montreal. Toronto: HarperCollins, 1991.

Brieger, Gert H., ed. Medical America in the Nineteenth Century. Baltimore, MD: Johns Hopkins University Press, 1972.

Brockington, C. Fraser. A Short History of Public Health. London, England: Churchill, 1966.

Buhler-Wilkerson, Karen. False Dawn: the Rise and Decline of Public Health Nursing, 1900-1930. New York and London, England: Garland Publishing, 1989.

Burton, Lloyd E., and Smith, Hugh H. Public Health and Community Medicine for the Allied Medical Professions. 2nd ed. Baltimore, MD: Williams and Wilkins Company, 1975.

Bynum, W. F. Science and the Practice of Medicine in the Nineteenth Century. Cambridge, England: Cambridge University Press, 1994.

Cassedy, James H. Medicine in America: a Short History. Baltimore, MD: Johns Hopkins University Press, 1991.

Comacchio, Cynthia R. "Nations are Built of Babies": Saving Ontario's Mothers and Children, 1900-1940. Montreal, Kingston, London, and Buffalo: McGill-Queen's University Press, 1993.

Defries, R. D., ed. The Development of Public Health in Canada; a Review of the History and Organization of Public Health in the Provinces of Canada, with an Outline of the Present Organization of the National Health Section of the Department of Pensions and National Health, Canada. Toronto: Canadian Public Health Association, 1940.

Duffin, Jacalyn. History of Medicine: a Scandalously Short Introduction. Toronto, Buffalo, and London: University of Toronto Press, 1999.

Emory, Florence H. M. Public Health Nursing in Canada: Principles and Practice. Toronto: Macmillan, 1953.

England, Robert. The Central European Immigrant in Canada. Toronto: Macmillan, 1929.

Feldberg, Georgina D. Disease and Class: Tuberculosis and the Shaping of North American Society. New Brunswick, NJ: Rutgers University Press, 1995.

Frazer, W. M. A History of English Public Health, 1834-1939. London, England: Bailliére, Tindall, and Cox, 1950.

Gagan, David. "A Necessity Among Us": the Owen Sound General and Marine Hospital, 1891-1895. Toronto: University of Toronto Press, 1990.

Grygier, Pat Sandiford. A Long Way Home: Tuberculosis among the Inuit. Montreal: McGill-Queen's University Press, 1994.

Hamlin, Christopher. Public Health and Social Injustice in the Age of Chadwick: Britain, 1800-1854. Cambridge, England: Cambridge University Press, 1998.

Hartzog, H. S., Jr. Triumphs of Medicine. New York: Doubleday, 1927.

Hays, J. N. The Burden of Disease. New Brunswick, NJ: Rutgers University Press, 1998.

Henderson, E. Marion. The McKellar Story: McKellar's Pioneers in Lake Superior's Mineral Country, 1839-1929. Thunder Bay, ON: the McKellar Story Publication Committee, 1981.

Houston, C. Stuart. R. G. Ferguson: Crusader Against Tuberculosis. Toronto: Dundurn Press, 1991.

Kraut, Alan M. Silent Travelers: Germs, Genes, and the "Immigrant Menace". Baltimore, MD: Johns Hopkins University Press, 1994.

Last, John M., ed. Maxcy-Rosenau Public Health and Preventive Medicine. 12th edition. Norwalk, CT: Appleton-Century-Crofts, 1986.

Leavitt, Judith Walzer. The Healthiest City: Milwaukee and the Politics of Health Reform. Princeton, NJ: Princeton University Press, 1982.

Leavitt, Judith Walzer. Typhoid Mary: Captive to the Public's Health. Boston: Beacon Press, 1996.

Magner, Lois N. A History of Medicine. New York, Basal, and Hong Kong: Marcel Dekker, 1992,

Mills, Allen. Fool for Christ: the Political Thought of J. S. Woodsworth. Toronto and Buffalo: University of Toronto Press, 1991.

Mitchinson, Wendy, and Janice P. Dickin McGinnis, eds. Essays in the History of Canadian Medicine. Toronto: McClelland and Stewart, 1988.

Ott, Katherine. Fevered Lives: Tuberculosis and American Culture since 1870. Cambridge, MA: Harvard University Press, 1996.

Pettigrew, Eileen. The Silent Enemy: Canada and the Deadly Flu of 1918. Saskatoon, SK: Western Producer Prairie Books, 1983.

Piva, Michael. The Condition of the Working Class in Toronto, 1900-1921. Ottawa: Ottawa University Press, 1979.

Porter, Roy. Disease, Medicine, and Society in England: 1550-1860. Cambridge, England: Cambridge University Press, 1995.

Rosenberg, Charles. Explaining Epidemics and Other Studies in the History of Medicine. Cambridge, England: Cambridge University Press, 1992.

Rosenberg, Charles. No Other Gods: On Science and American Social Thought. Baltimore, MD: Johns Hopkins University Press, 1976.

Rosenkrantz, Barbara Gutmann. Public Health and the State: Changing Views in Massachusetts, 1842-1936. Cambridge, MA: Cambridge University Press, 1972.

Royce, Marion. Eunice Dyke: Health Care Pioneer, from Pioneer Public Health Nurse to Advocate for the Aged. Toronto: Dundurn Press, 1983.

Shortt, S. E. D., ed. Medicine in Canadian Society: Historical Perspectives. Montreal: McGill-Queen's University Press, 1981.

Shyrock, Richard Harrison, ed. Medicine in America: Historical Essays. Baltimore, MD: Johns Hopkins University Press, 1966.

Stewart, Miriam, Jean Innis, Sarah Searl, and Carol Smillie, eds. Community Health Nursing in Canada. Toronto: Gage Educational Publishing Company, 1985.

Thunder Bay Historical Museum Society. Into the Century: Thunder Bay, 1900-1914. Thunder Bay, ON: Thunder Bay Historical Museum Society Publications Committee, 1989.

Trevalyan, G. M. Illustrated English Social History. Volume Four. Harmondsworth, England: Penguin Books, 1964.

Tronrud, Thorold J. Guardians of Progress: Boosters and Boosterisms in Thunder Bay, 1870-1914. Thunder Bay, ON: Thunder Bay Historical Museum Society, 1993.

Tronrud, Thorold J., and A. Ernest Epp, eds. Thunder Bay: from Rivalry to Unity. Thunder Bay, ON: Thunder Bay Historical Museum Society, 1995.

Valverde, Mariana. The Age of Light, Soap, and Water: Moral Reform in English Canada, 1885-1925. Toronto: McClelland and Stewart, 1991.

Van Avery, Peter, ed. "Public health." The Reference Shelf. New York: H. W. Wilson Company, 1959.

Walvin, James. Victorian Values. London, England: Penguin Group, 1987.

Warner, John Harley. The Therapeutic Perspective: Medical Practice, Knowledge, and Identity in America, 1820-1885. Princeton: Princeton University Press, 1997.

Wear, Andrew, ed. Medicine in Society: Historical Essays. Cambridge, England: Cambridge University Press, 1992.

Wherrett, George Jasper. The Miracle of Empty Beds: a History of Tuberculosis in Canada. Toronto: University of Toronto Press, 1977.

Wohl, Anthony S. Endangered Lives: Public Health in Victorian Britain. London, England: Methuen, 1983.

Articles:

Anderson, A.A. "The Development of the Harbours of Port Arthur and Fort William." Thunder Bay Historical Museum Society: Papers and Records 11 (1983) 42-8.

Beasley, Thomas F. "The Freight Handlers' Coal Strike: Col. Sam Steele Searches Strikers for Guns." Thunder Bay Historical Museum Society: Papers and Records 17 (1989): 18-24.

Barkin, Risa and Gentles, Ian. "Death in Victorian Toronto, 1850-1899." Urban History Review 19, no. 1 (June 1990): 14-29.

Barr, Elinor. "A Hundred Years of Health Care: McKellar General Hospital." Thunder Bay Historical Museum Society: Papers and Records 28 (2000): 70-80.

Greer, W. L. C. "The Fort William Water Supply, 1905-9." Thunder Bay Historical Museum Society: Papers and Records 2 (1974): 1-3.

High, Steven. "Responding to White Encroachment: the Robinson-Superior Ojibwa and the Capitalist Labour Economy, 1884-1914." Thunder Bay Historical Museum Society: Papers and Records 22 (1994): 23-39.

MacDougall, Heather A. "The Genesis of Public Health Reform in Toronto, 1869-1890." Urban History Review 10, no. 3 (February 1982): 1-10.

MacLean, Mary R. "Colonel Elizabeth Smellie, CBE." Thunder Bay Historical Museum Society: Papers and Records 3 (1975): 16-18.

Morrison, Jean. "Labour in Fort William and Port Arthur, 1903-1913." Thunder Bay Historical Museum Society: Papers and Records 1 (1973): 23-30.

Neff, Rob. "The Good Doctor: the Life of Thomas Stuart Traille Smellie." Thunder Bay Historical Museum Society: Papers and Records 22 (1992): 14-29.

Noble, Gerri, ed. "The Loch Lomond Tunnel and the Letters Edged in Black." Thunder Bay Historical Museum Society: Papers and Records 10 (1982): 4-15.

Petit, Wayne, and Dave MacLean. "The Evolution of Milk Transportation in the Thunder Bay Area, 1890-1990." Thunder Bay Historical Museum Society: Papers and Records 27 (1999): 40-7.

Pucci, Antonio. "Community in the Making: the Case of a Benevolent Society in Fort William's "Little Italy." Thunder Bay Historical Museum Society: Papers and Records 6(1978): 16-27.

Schultz, Stanley K. and McShane, Clay. "To Engineer the Metropolis: Sewers, Sanitation, and City Planning in Late-Nineteenth Century America." The Journal of American History 65, no. 1 (June 1978): 389-411.

Scollie, F. Brent. "How the Fort William Plot became Fort William." Thunder Bay Historical Museum Society: Papers and Records 16 (1988): 29-31.

Scollie, F. Brent. "The Population of Thunder Bay, 1884-1901." Thunder Bay Historical Museum Society: Papers and Records 7 (1979): 21-9.