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Before ‘The San’: Tuberculosis in Hamilton at the Turn of the Twentieth Century

D. Ann Herring, editor

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Contents

FIGURES AND TABLES	vii
1	
Introduction	1
<i>D. Ann Herring</i>	
2	
What is Tuberculosis?	5
<i>Johanna Kelly</i>	
3	
Who Was at Risk? Tuberculosis-related Deaths in Hamilton	15
<i>Sarah Stroud and Daniel Noftall</i>	
4	
Foreign Undesirables: Hamilton's Immigrant Population and Tuberculosis	21
<i>Sarah C. West</i>	
5	
Children and Tuberculosis in Hamilton	31
<i>Tara Jenkins</i>	
6	
The Geography of Tuberculosis Mortality in Hamilton	39
<i>Nadia Densmore and Andrea Simon</i>	

7	If the Walls Could Talk: Tuberculosis and Hamilton's Built Environment	45
	<i>Kinga Iwanski</i>	
8	"Consumption is Contagious": Germ Theory, Media and Changing Perceptions of Tuberculosis in Hamilton	55
	<i>Elizabeth Walker</i>	
9	Cultural Constructions of Tuberculosis in Hamilton	65
	<i>Cynthia Thomson</i>	
10	Treating Tuberculosis at Home: Remedies, Effectiveness and Prevention	73
	<i>Logan Benz and Naoko Kiuchi</i>	
11	Cough Won't Go Away? Medical Diagnosis and Treatment of Tuberculosis	83
	<i>Alicia E. Donis</i>	
12	Nowhere to Go: Hospitals in Hamilton Before 'The San'	93
	<i>Virginia Knott</i>	
13	The Sanatorium Movement	101
	<i>Erika Kastner</i>	

14	
The Political Economy of Tuberculosis: Funding the Sanatorium	111
<i>Sloane Bernard</i>	
15	
The Community of the Sick: Reactions to Quarantine and Isolation	121
<i>Tanya M. Jacob</i>	
16	
Tuberculosis and the Law	129
<i>Jessica J. Campbell</i>	
17	
Every Breath Counts: Tuberculosis in Hamilton Today and Yesterday	137
<i>Alexandra Pearcey and Alissa Johnston</i>	
GLOSSARY	149
REFERENCES CITED	155
INDEX	177

Figures and tables

FIGURES

Figure 2.1: Mycobacterium tuberculosis	6
Figure 2.2: Chest X-Ray of a Patient with Pulmonary Tuberculosis	7
Figure 2.3: Robert Koch	8
Figure 3.1: Population at Risk in Hamilton by Sex and Age	16
Figure 3.2: Age-Specific Tuberculosis Mortality Rates per 1000 in Hamilton and Ontario	17
Figure 3.3: Age-Specific Tuberculosis Mortality Rates per 10,000 in Ontario and Canada	18
Figure 3.4: Canadian National, Provincial, and Territorial Boundaries in 1905	18
Figure 4.1: “Scum of Europe Unloaded in US by Immigration Frauds”	23
Figure 4.2: Canada’s Five Largest Cities, 1901	
Figure 5.1: Children in the Early 1900s in Hamilton	33
Figure 5.2: Old King Edward School in the Early 1900’s in Hamilton	34
Figure 5.3: Father Feeding Milk to His Baby in the Early 1900s	35
Figure 6.1: Geographical Imaging Map of Tuberculosis Deaths in Hamilton Division, by Ward, and Barton Asylum	41
Figure 7.1: The Otis Fenson Company October 17, 1906	48
Figure 8.1: Robert Koch	58
Figure 8.2: Ad for Catarrhozone	62
Figure 9.1: Deaths from Contagious and Infectious Diseases in 1905	66
Figure 9.2: Percentage of Deaths from Tuberculosis in Hamilton from 1896 to 1905	71
Figure 10.1: Formo Advertisement	74
Figure 10.2: Trip to Colorado Advertisement	75
Figure 10.3: Vin Mariani Advertisement	77
Figure 11.1: Laënnec Examining a Patient	85

Figure 11.2: Article on an Exposition in New York Informing the Public About Air as a “Sure Cure” for TB	87
Figure 11.3: Pneumothorax Machine	89
Figure 11.4: Advertisement for a Phthisis Remedy in a Canadian Medical Journal	90
Figure 12.1: St. Joseph’s Hospital, Hamilton circa 1920	94
Figure 12.2: The Hamilton General Hospital (The City Hospital) circa 1888	96
Figure 13.1: Sanatorium Cartoon Depicting San Life	102
Figure 14.1: Imperial Order Daughters of the Empire (IODE)	
Figure 14.2: Request for Additional Funds, Hamilton Health Association	115
Figure 14.3: Mayor Biggar	117
Figure 15.1: Opening Day of the Mountain Sanatorium, May 28, 1906	124
Figure 15.2: Hamilton Market	126
Figure 15.3: A Tuberculous Mother at the Sanatorium Visiting Her Family Without Leaving Her Bed	127
Figure 16.1: Machine for Milk Pasteurization	131
Figure 16.2: Sign for the Anti-Spitting Campaign in Chicago	133
Figure 17.1: Tuberculosis Rates per 100,000. Hamilton, 2000-2004	139
Figure 17.2: Tuberculosis Rates per 100,000. Canada, Ontario (less Toronto), and Toronto	140
Figure 17.3: Percentage of Deaths from Tuberculosis in Hamilton, 1896-1905	143

TABLES

Table 2.1: Past and Present Terms Relating to Tuberculosis	11
Table 4.1: Comparison of Origin by Percentages of Total Immigrant Population	27
Table 4.2: Comparison of Immigrant TB Deaths and Immigrant Population in Hamilton, 1903-05	28
Table 6.1: Tuberculosis Death by Division. Wentworth County, 1903-05	40

Table 6.2: Tuberculosis Deaths Rates per 1000 by Ward for 1903, 1904, and 1905	42
Table 6.3: Pooled Tuberculosis Death Rates per 1000, North and South Wards in Hamilton, for 1903-1905	43
Table 7.1: Residence of Death from the Dwyer Funeral Records from January 1904 to April 1905	51
Table 7.2: Residence of Death from the Blachford and Wray Funeral Records from January 1903 to December 1905	51
Table 13.1: First Sanatoria in Canada and Patients Served	103
Table 14.1: Breakdown of Subscription Lists to Canvassers	118
Table 17.1: Rates of Tuberculosis in the Top Ten Countries of Immigration for Hamilton	141

1

Introduction

D. Ann Herring

The year 2006 marks the 100th anniversary of the Hamilton Mountain Sanatorium, which eventually became Chedoke Hospital. Its history has been beautifully documented in a handsomely illustrated book, *Chedoke: More than a Sanatorium* (Wilson 2006). As anthropology students studying infectious disease at McMaster University, it seemed appropriate to honour the anniversary by asking questions about the social circumstances at the turn of the 20th century that both allowed tuberculosis to flourish and created the perceived need for a sanatorium to contain it. We wanted to explore the understandings and experience of tuberculosis of ordinary people in Hamilton, many of whom suffered from it but were never treated at ‘The San’.

This book focuses on 1904 and 1905, the two years prior to the opening of the Hamilton Mountain Sanatorium. Our book begins with Johanna Kelly’s discussion of what was known about tuberculosis in the early 20th century and the language used by experts to diagnose and discuss it. Terms common in the early 1900s, such as phthisis, consumption and scrofula, have passed out of use, but offer a window onto how the disease was understood a century ago. Daniel Noftall and Sarah Stroud analyse tuberculosis deaths registered in the 1903-05 Ontario Death Records for the division of Hamilton (Government of Ontario 1903-05) to determine age- and sex-specific mortality rates within the city, and to compare Hamilton’s tuberculosis mortality rate to provincial and national levels at the time. Sarah West explores the relationship between heavy immigration to Hamilton and concerns that immigrants harboured tuberculosis and constituted a threat to the health of other citizens. She explores popular depictions of immigrants as undesirable disease carriers and shows that despite this view, the tuberculosis mortality rate among immigrants hardly differed from that of native-

born Canadians living in Hamilton. Tara Jenkins pieces together fragments of information about children who suffered from tuberculosis in Hamilton and wonders why so little attention has been paid to the effects of the disease on them. Using GIS techniques, Nadia Densmore and Andrea Simon map the distribution of tuberculosis deaths in Wentworth County, with special attention to the social geography of tuberculosis deaths in Hamilton. Expecting to find pockets of the disease, they show that tuberculosis was widespread and literally touched everyone. Kinga Iwanski examines Hamilton's built environment, asking to what extent housing and factory conditions helped maintain and spread the disease.

Hamilton's medical landscape was in flux in the early 20th century. Elizabeth Walker addresses how the understanding of tuberculosis was changing in concert with a shift in medical paradigms away from a humoral to a biomedical explanatory model. Through an analysis of articles and advertisements in *The Hamilton Spectator*, she shows that fear of infectious disease was prevalent in Hamilton and that humoral ways of understanding tuberculosis prevailed in popular representations of it. Cynthia Thomson mines these themes further. Drawing on Hamilton newspapers and health reports, she contends that the people of Hamilton drew direct links between tuberculosis and the health of the society in which they lived.

Many local people who suffered from tuberculosis were never treated at the Hamilton Mountain Sanatorium. Logan Benz and Naoko Kiuchi examine how ordinary citizens tried to keep tubercular illness at bay by using readily available popular remedies and preventives, many of which were advertised in local Hamilton newspapers. Alicia Donis discusses how the practise of medicine in Hamilton was transformed by the changing model of disease causation through which new technology, surgery, and injections of tuberculin were added to medical methods, such as percussion and auscultation. Virginia Knott comments on the state of Hamilton hospitals, concluding that they were both unwilling and incapable of treating citizens suffering from tuberculosis.

The Sanatorium movement offered hope for sufferers and their families at a time when medical treatment was failing to cure tuberculosis. Erika Kastner considers how the principles of the Sanatorium movement led to the construction of the Mountain Sanatorium and how the institution, in turn, became an emblem of Hamilton's modernity. Sloane Bernard examines the donors and key players who made possible the building and management of the Mountain Sanatorium, noting that the lack of funding to transport tubercular patients to the Muskoka

Free Hospital from the Grand Trunk Railway was an important impetus for Hamilton to demand its own treatment centre nearby. Tanya Jacob asks whether the Hamilton Mountain Sanatorium was medically necessary, or whether its construction was geared toward assuaging fear and social unrest within the city.

City of Hamilton officials used other means to try to control the spread of tuberculosis. Jessica Campbell delves into tuberculosis-specific legislation and considers initiatives such as the anti-spitting by-law and milk pasteurisation laws as part of a larger public health project that extended beyond the city to the province as a whole. Lastly, Alexandra Pearcey and Alissa Johnston draw comparisons between rates of tuberculosis in Hamilton today and at the turn of the 20th century. In exploring the factors that contribute to rising rates of tuberculosis, then and now, they conclude that poverty and substandard living conditions allow the disease to flourish.

We tried to capture the flavour of the early 20th century with photographs of Hamilton, newspaper excerpts, and brief anecdotes that put the people of Hamilton into the story of tuberculosis. We wish to thank the many people who made it possible to complete this project. We are grateful for support from Dr. Aubrey Cannon, Chair of the Department of Anthropology. Funds to buy microfilm from the Ontario Genealogical Society and to print the book were provided by Dean Susan Elliott, Associate Dean Susan Watt, Ruthanne Talbot, Sue Vajoczki, and the Experiential Education Governing Council in the Faculty of Social Sciences. Many librarians and archivists helped us pull together the primary sources: Margaret Houghton and the staff at the Hamilton Archives; John Aikman and the staff at The Educational Archives and Heritage Centre of Hamilton-Wentworth; Cathy Moulder, the ever-patient librarian and GIS expert at the Lloyd Reeds Map Collection, Marilyn Thorne at the Reserve Desk and Wade Wyckoff, Cataloguing Policy Librarian at Mills Memorial Library; Tom Flemming, Head of Public Services and Anne McKeage, Archivist/History of Health and Medicine Librarian at McMaster University Health Sciences Library. Jasmin Jeschke designed our book cover and Jake Donis took the wonderful photograph of the authors on the back cover. Jessica Campbell and Virginia Knott edited the chapters to make sure they conformed to a consistent format. Kinga Iwanski prepared the Index. Allegra Press made sure that everything got printed out properly. We could not have done this without you. Thank you!

2

What is Tuberculosis?

Johanna Kelly

Highly contagious, essentially incurable, capable of causing mortal illness decades after infection, tuberculosis was all too often a death sentence (Hall 1993:1)

It is estimated that one third of the world's population is infected with the tuberculosis bacterium (Ryan 1992:19). In order to appreciate how medical professionals and the people of Hamilton understood tuberculosis at the turn of the 20th century, it is important to be familiar with medical terminology, beliefs about disease causation, and available treatments, all of which were a direct result of the state of knowledge about the disease at that time. In this chapter I discuss contemporary knowledge of tuberculosis (TB) as well as how it was understood a century ago. I begin by describing the basic features of the disease and its causative agent, *Mycobacterium tuberculosis*, then turn to consider what was known about the diagnosis, anatomy, symptoms and etiology of tuberculosis in 1904-05.

Pathology

Tuberculosis is a highly contagious disease caused by bacteria belonging to the family *Mycobacterium*. This family of bacteria can be found everywhere, from tap water to mud, even in oil deposits (Nikiforuk 1991:130). Bacteria associated with tuberculosis belong to the *Mycobacterium tuberculosis complex*. The two most common types that affect humans are *Mycobacterium tuberculosis*, which

affects humans exclusively (Figure 2.1), and *Mycobacterium bovis*, which infects animals, mostly cattle, but may also infect humans if ingested (Hays 1998:154).

These bacteria enter the body either through inhalation or ingestion (Enarson, Chiang and Murray 2004:16; Ryan 1992:19). It is also possible to become infected through inoculation but this is relatively infrequent, and usually occurs

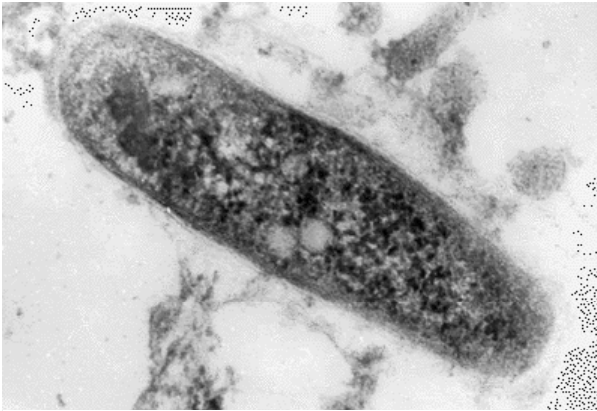


Figure 2.1: *Mycobacterium tuberculosis*
(Wadsworth Center, New York State Department of Health 2006)

through a cut in the skin when handling infected meat. Inhalation, the most common means of infection, occurs when bacteria exist within droplets in the air or dried dust on the floor and enter the body through the air passages. This results in pulmonary tuberculosis, the most common form of the disease (hereafter this discussion refers to the pulmonary form, unless otherwise stated). Ingestion of the bacteria usually occurs when an individual consumes the milk products of a cow infected with

M. bovis. This form of transmission is rare today because the production and pasteurization of milk products is heavily controlled (Ryan 1992:19), but it was a pressing problem at the turn of the 20th century (see chapter 16).

Once the bacteria have established a primary infection, most often in the lungs, the body responds in one of two ways; it either fights and contains the infection, or fails, allowing the bacteria to reproduce and spread. Tubercle bacilli tend to enter the body with minimal opposition; the immune system only resists once it recognizes that an infection has taken place. It then releases white blood cells that ‘wall off’ the affected area in the lung by creating a tough fibrous shell around the place where tuberculosis bacteria have begun to develop a lesion or abscess. It is important to note that bacteria remain viable within this shell and that white blood cells do not completely rid the body of infection. The white blood cells also absorb the bacteria and attempt to digest and destroy them. This is difficult because the tuberculosis bacterium has an indigestible waxy coat that allows it to survive, multiply within, and ultimately destroy the white blood cell. In other

words, even though the body attempts to contain the infection, once infected, an individual is never cured and either is prone to developing clinical symptoms later in life or (if the disease is chronic) relapsing, which often occurs during periods of low physical or mental health (Ryan 1992:19-20).

In most cases, the body is able to contain the disease and does not move past the primary stage of infection, which may be visible merely as a spot on the lungs. Figure 2.2 shows an x-ray of a patient suffering from pulmonary tuberculosis, evidenced by cloudy spots on the lung. While the patient in this figure would have clinical symptoms and be aware of the infection, the disease often remains contained as just a spot on the lungs. Infected individuals may never develop clinical symptoms and will only learn of their infection if they are tested for tuberculosis (Hays 1998:161; Ryan 1992:20).

If the body fails to contain the infection, the bacteria will multiply rapidly and spread through the body via any channel they can reach, most often the blood stream, or via swallowed sputum, which is coughed up phlegm that has accumulated in the lungs (Ryan 1992:19). Tuberculosis permeates and marks the body slowly, usually taking years to finally kill. Although not always the case, the disease can spread from the lungs to other parts of the body, and can infect every organ and tissue from the eyeballs to the bone (Ryan 1992:23). Possible outcomes and symptoms of tuberculosis include persistent cough, bloody sputum (caused by abscesses in the lungs eroding into arteries), exhaustion, fever, loss of appetite and breathlessness (Cox and McLeod 1912:32; Ryan 1992:22). These well known symptoms usually appear in advanced stages of the disease; early stages of tuberculosis are often mistaken for the common cold (Walters 1909:8). This is one of the reasons why early stage tuberculosis was often misdiagnosed, which is unfortunate because this is when the chances for recovery are highest.

In some cases death arrives quickly when a lung abscess eats into a major artery, causing the victim literally to drown in their own blood (Ryan 1992:22). In other cases the abscess may erode into a smaller artery, leaking pus (from tubercles) into the bloodstream, allowing it to be carried to the rest of the



Figure 2.2: Chest X-ray of a Patient with Pulmonary Tuberculosis (Staff writers 2006).

body. While death is inevitable in such instances, it is often not quick. Other complications can arise when bacteria cause abscesses or sores in the soft tissues, inflammation of internal organs and destruction of bone marrow (Ryan 1992:23). Frank Ryan suggests that tuberculosis is not a single disease with a single outcome (Ryan 1992:308). Because it manifests itself in numerous areas of the body, there are many terms to identify each disease, and specialists in every field to combat them. Doctors have battled the disease for centuries; without effective treatment most patients were “dead within five years, bodies wasted to skeletons with their minds fully aware” (Ryan 1992:24).

Knowledge

Doctors at the turn of the century were well aware of the etiology of tuberculosis. Hundreds of years earlier, Robert Hooke and Antoni van Leeuwenhoek had proven the existence of microorganisms. Louis Pasteur’s work led to the development of the germ theory of disease, namely, the idea that microorganisms,



Figure 2.3: Robert Koch
(Carl Zeiss MicroImaging
2006).

known as ‘germs’, cause most infectious diseases. In 1882 Robert Koch (Figure 2.3) presented a paper to the Physiological Society of Berlin demonstrating that he had “isolated, cultivated outside the body, described, and differentiated the infective organism of tuberculosis” (Newsholme 1910:41). Koch demonstrated the potential virulence of bacteria that had been outside of the body for weeks (Dubos and Dubos 1952:101; Newsholme 1910:41). Soon after, he developed tuberculin, a protein derived from *M. tuberculosis*. Originally intended to be a cure, it was soon realized that tuberculin was not an effective cure but rather a valuable diagnostic tool for determining if mycobacteria were present in the body (Hays 1998:174; Dubos and Dubos 1952:106). Newly developed x-ray technology was also useful for

early diagnosis because it made the disease visible on the lungs (Spink 1978:224). In 1901 Koch suggested that because cattle seemed to be resistant to *M. tuberculosis*, humans were similarly resistant to *M. bovis*, leaving infected bovine

products available for sale and consumption. This sparked research that soon established that this was not true, prompting campaigns to pasteurize milk and screen meat (Dubos and Dubos 1952:109-110).

Once the microorganisms that cause human and bovine tuberculosis had been identified, it was vital to understand how they spread. Jean and Rene Dubos claim that the “progressive discovery of facts, and the unfolding of doctrines bearing on the causation of tuberculosis, constitute some of the most brilliant chapters in the history of medical science” (Dubos and Dubos 1952:70). By correlating lesions found in various parts of the body to symptoms manifested during life, doctors were able to begin to distinguish the various manifestations of tuberculosis, once thought to be separate maladies, and classify them based on clinical and pathological observations (Dubos and Dubos 1952:76). It also became clear that *M. bovis* in milk accounted for much of the disease seen in infants and early childhood (Walters 1909:7). This led to the creation of many laws and regulations pertaining to food quality (see chapter 16).

The spread of *M. tuberculosis* was more difficult to prevent. The source of infection lay in individuals with open pulmonary lesions, who dispersed millions of bacteria into the air with each cough. Once this was recognized it led to the belief that people with open lesions should be isolated to prevent the spread of the disease. It became important to gather statistics at the local, state and national levels because this information would help garner the necessary political, monetary, and voluntary support to combat the disease (Spink 1978:224).

In sum, the medical literature from the early 20th century shows that much was known about the anatomy, symptoms and etiology of tuberculosis (cf. Newsholme 1910, Walters 1909, Cox and McLeod 1912). Doctors recognized that individuals could be infected and never know it, and that others might suffer chronically. They believed that the disease was curable; today we know that if it is not treated in the early stages, TB can become incurable (WHO 2002:7).

Language

The tuberculosis bacteria we know today, the general perception of the disease, and the terms used to refer to it have changed since the early 1900s and even as recently as the 1950s (Ott 1996:9). In order to understand how the disease was conceived at the time of our study we must understand the language of tuberculosis used in the early 20th century. This proved to be especially

important for identifying deaths from tuberculosis listed in the Ontario Death Records for the Division of Hamilton (Government of Ontario 1903-05) as well as searching for references to the disease in newspapers and literature. The general trend through time is away from broad and inclusive toward more specific nomenclature.

In the 17th and 18th centuries, ‘phthisis’ and ‘wasting disease’ were the most common terms applied to tuberculosis while in the 19th century the term ‘consumption’ referred to the devouring quality of the disease (Ott 1996:159). The term phthisis is rarely, if ever, used today but can be found within the term ‘myelophthisis’, which refers to the appearance of bone marrow in tuberculosis patients, and to other diseases that permeate, replace and permanently damage the tissue (Kiple 1997:136). Consumption can be defined as a “progressive emaciation or wasting away” (Ott 1996:13). It referred to a number of wasting diseases, all of which involved weight loss, fever and often coughing. The term ‘consumption’ can be broken down even further by symptoms, such as phthisis, tubercles, catarrh (inflammation of a mucous membrane) and empyema (the presence of pus in a body cavity), to name a few (Ott 1996:9).

Some terms describe the various forms tuberculosis took, suggesting that each manifestation was actually a separate disease. A generalized tuberculosis infection, occurring when the bacteria are leaked into the bloodstream, is known as ‘miliary tuberculosis’ and results in certain death. ‘Scrofula’ describes an inflammation of the lymph nodes of the neck and the flesh of the face. ‘Tabes mesenterica’ is a similar inflammation but it affects the abdomen and is most often seen in children and infants. ‘Lupus’ is an infection of the skin while ‘tubercular meningitis’ develops in the brain. ‘Hydrocephalus’, or swelling of the brain, can be caused by the tuberculosis bacterium or a complication of the disease; either way, it is fatal in almost all cases (Smith 1988:298; Dubos and Dubos 1952:72). Wesley Spink notes a connection between scrofula and meningitis; however, this is rarely seen today because of early detection (Spink 1988:298).

Table 2.1 outlines common terms for tuberculosis in the early 20th century gleaned from Hamilton newspapers, death records and publications in the history of medicine (Smith 1988; Ryan 1992; Hamilton Evening Times 1903-05; The Hamilton Spectator 1903-05; Government of Ontario 1903-05; Spink 1978; Ott 1996; Newsholme 1910; Walters 1909; Dubos and Dubos 1952; Cox and McLeod 1912). Many of these terms appear in a number of languages, for example,

‘*consomption*’ in old French (the derivation of the English term), *consumptio* and *tabes* in Latin (both refer to general wasting), *phthisis* in ancient Greek (derived from *phthoe*, which refers to shriveling under intense heat) and *tabey diq* in Urdu (Dubos and Dubos 1952:70-71; Ryan 1992:21).

Table 2.1 Past and Present Terms Relating To Tuberculosis

EARLY 20 TH CENTURY		EARLY 21 ST CENTURY	
<i>Tuberculosis</i>	Cases where TB attacks many parts of the body simultaneously	<i>Miliary tuberculosis</i>	Widespread tuberculosis
<i>Miliary tuberculosis</i>	TB of the lungs	<i>Primary tuberculosis pneumonia</i>	TB affecting the lungs
<i>Phthisis</i>		<i>Tuberculosis pleurisy</i>	
<i>Pulmonary tuberculosis</i>		<i>Cavitary tuberculosis</i>	
<i>Consumption (galloping or acute)/wasting disease</i>		<i>Miliary tuberculosis (sometimes used referring only to the lungs)</i>	
<i>Bronchitis</i>		<i>Laryngeal tuberculosis</i>	TB of the larynx
<i>Inflammation of the lungs</i>		<i>Tuberculosis pericarditis</i>	TB of the membrane surrounding the heart (pericardium)
<i>Tabes (Tabes mesenterica)</i>	TB of the abdominal lymphatic glands	<i>Tuberculosis peritonitis</i>	TB of the peritoneum
<i>Tuberculous meningitis</i>	TB of the membranes surrounding the brain	<i>Tubercular meningitis</i>	TB of the membranes surrounding the brain
<i>Hydrocephalus</i>		<i>Renal tuberculosis</i>	TB of kidneys/bladder
<i>Brain fever</i>		<i>Adrenal tuberculosis</i>	TB of adrenal glands
<i>Lupus</i>	TB of the skin	<i>Lupus vulgaris</i>	TB of the skin
<i>Caries</i>	TB of the bone	<i>Myelophthisis</i>	TB of the bone
<i>Scrofula</i>	TB of the lymphatic glands in the neck	<i>Osteal tuberculosis</i>	
<i>Catarrh</i>	Symptoms or theorized causes of TB	<i>Potts disease</i>	TB affecting the spine
<i>Emphyema</i>			
<i>Marasmus</i>			

Until the late 19th century, the symptoms of *M. tuberculosis* observed in other parts of the body were often thought to have a separate etiology; the term ‘tuberculosis’ was only used in cases where lung tissue was coughed up (Smith 1988:3). By the 1900s, however, ‘tuberculosis’ was emerging as the most common term for the disease. Robert Koch had developed the tuberculin skin test and ‘tuberculosis’ was considered to be a more appropriate referent to this technological development than ‘consumption’ (Ott 1996:159). In early 20th century Hamilton, ‘tuberculosis’ was used primarily by medical specialists; newspaper articles generally use the term ‘consumption’, exemplified by an ad from the Hamilton Times, entitled “Consumption is Infectious” (Hamilton Times April 7, 1903:2). ‘Tuberculosis’ only appeared in articles referring to health policies, such as “Health report shows no decrease in Tuberculosis” (Hamilton Times November 7, 1905:5).

Causes

Speculations about the causes of tuberculosis reach as far back as the first accounts of the disease. Some believed consumption was caused by a series of colds (Walters 1909:4). Such ‘colds’ were most likely the early symptoms of tuberculosis, not a separate disease. Tuberculosis was frequently associated with insanity and there were claims that alcoholism predisposes individuals to tuberculosis (Newsholme 1910:178-181). Such explanations may have served to justify why many individuals died of tuberculosis while institutionalized or at the Asylum for the Inebriates (Government of Ontario 1903-05).

For much of its known history, tuberculosis has been understood to be communicable. Claudius Galen, living in the 2nd century A.D., remarked that it “is dangerous to pass a single day in the company of a consumptive” (Newsholme 1910:55). The high prevalence of tuberculosis among caregivers to consumptives was noted by a physician, Ballonius, in 15th century Paris (Newsholme 1910:35). By the late 1700s it was generally accepted that consumption was transmitted from person to person, although the exact mode was unknown. Despite this knowledge, the disease was thought by many to be heritable, passed on through the generations (Newsholme 1910:184; Walters 1909:3). This idea stemmed from the high incidence of tuberculosis cases observed among family members. The family heredity explanation lost popularity as the germ theory of disease came into vogue at the turn of the 20th century (Walters 1909: 3; Newsholme

1910:184). It became increasingly clear that bacteria thrive in unhealthy, overcrowded conditions that allow them to spread easily from one individual to the next. Dark, poorly ventilated areas are optimal for *M. tuberculosis* as the bacilli die more quickly in sunlight and open air (Walters 1909:6). This became one of the rationales for open-air sanitariums (see chapter 13).

Individuals are more susceptible to developing tuberculosis if they are malnourished, injured, underdeveloped or already ill with another disease; in all of these cases the immune system is suppressed or weakened, allowing the bacteria an unobstructed path into the body (Cox and McLeod 1912:26; Newsholme 1910:178; Ryan 1992:20; Enarson, Chiang and Murray 2004:17). A number of diseases prevalent in the early 20th century were thought to contribute to the development of tuberculosis: “[c]ertain acute infectious diseases, especially influenza, whooping-cough, measles, and to a less extent scarlet fever and enteric fever, undoubtedly favour the occurrence of tuberculosis”(Newsholme 1910:1978). These diseases irritate mucous membranes and cause swelling of lymphatic glands, creating a path for tubercle bacilli. If the individual were already infected with *M. tuberculosis*, co-infections helped the bacteria to spread throughout the body (Newsholme 1910:178)

Susceptibility

Tuberculosis can affect everyone. Today it is seen primarily among impoverished people with inadequate living conditions. People in close contact with an infectious case are the most susceptible to acquiring infection themselves. It has been said that “if a tiny colony on a culture plate contains in excess of a billion tuberculosis germs, consider the number of germs flung into the air by the single cough of an infected patient” (Ryan 1992:17). It is still unclear, however, why the infection progresses to clinical disease in some people but not others. Chance, timing, circumstance, age at exposure, natural resistance, duration and severity of exposure have all been put forth to explain this phenomenon (Ryan 1992:21). It is certain, however, that if an individual is undernourished or in poor health, and therefore already likely to have a suppressed immune system, he or she will be much more susceptible to tuberculosis (Ryan 1992:22).

There seems to be a rise and fall in tuberculosis mortality rates during the life cycle. Mortality is high in infants under the age of one then drops to relatively low levels in children aged five to sixteen years (see chapter 3). Potential

explanations for this include the idea that individuals infected early in childhood or adolescence have an inactive version of tuberculosis but retain the potential for activation later in life (Ryan 1992:20; Spink 1978:223).

In the early 20th century, tuberculosis was commonly thought to be a ‘racial disease’. Residents of Hamilton resented the influx of immigrants to the city and viewed them as a source of the disease. Immigrants to Hamilton were, in fact, dying at about the same rate as locally born individuals (see chapter 4), so the influence of racial thinking distorted perceptions.

Social and Historical Context

When studying infectious diseases it is important to examine the broader historical and social contexts within which they exist. When tuberculosis was recorded as the official cause of a person’s death, a number of other possible diagnoses often existed. Doctors frequently diagnosed tuberculosis incorrectly or subjectively because many had poor training in the use of new technology such as microscopes and stethoscopes (Ott 1996:2). Clinical tuberculosis can resemble a number of other diseases, such as asthma, bronchitis and pleurisy, any of which are potentially fatal (Ott 1996:2). Also, assigning a single cause of death ignores the existence of multiple causes, where diseases and injuries were interrelated. Many consumptives died without an attending physician; consequently, their deaths were either not reported or incorrectly reported by an undertaker or midwife (Ott 1996:2). Compassionate physicians often purposely recorded tuberculosis as a less stigmatized disease; white women were sometimes diagnosed as ‘neurasthenic’, a condition associated with mental and physical exhaustion (Ott 1996:2). When a large number of cases are not reported, for whatever reason, it is difficult to assess the tuberculosis death rate for a population, or for groups within a population.

Just as Robert Hooke, Antoni van Leeuwenhoek and Louis Pasteur’s theories provided a base for Robert Koch’s research on the tubercle bacillus, knowledge of the etiology, language and ideas about causation are necessary in order to build an understanding of how tuberculosis was culturally constructed, treated, and stigmatized in the early 20th century.

Who was at Risk? Tuberculosis-related Deaths in Hamilton

Daniel Nofall and Sarah Stroud

That this appalling sacrifice of life is in large part unnecessary, that it can be diminished, that there is hope even for the poor consumptive – this represents a revulsion of feeling from an attitude of oriental fatalism which is a triumph of modern medicine. (Board of Health of the City of Hamilton 1904-05)

A great deal of attention is paid to the causes of epidemic diseases, yet demographic perspectives are often overlooked. Knowing who was at risk of contracting a disease and who actually died from it yields valuable insight into its distribution within society. In this chapter we examine age- and sex-specific patterns of mortality from tuberculosis in early 20th century Hamilton with a view to understanding which segments of society, if any, were most and least vulnerable to the disease. We also compare the patterns for Hamilton to those for Ontario and Canada as a whole.

Death and Census Records

Information on tuberculosis deaths in Hamilton for a three-year period, 1903 to 1905, was derived from Ontario Death Records for the Division of Hamilton (Government of Ontario 1903-05). To determine the population at risk of dying from tuberculosis, we extracted age- and sex- information for Hamilton from the 1901 Census of Canada. Tuberculosis mortality rates for the Province of Ontario and for Canada were also obtained from the Canadian census (Census of Canada

1901, Volumes I and IV). It was necessary to rely on information for 1901 because census data are compiled by decade and this is the closest date to our study period.

The Ontario Death Records for the Division of Hamilton were entered into a Microsoft Excel© database by a task force of students in our course. When the data were complete, we used Microsoft Excel© to organize and manipulate the database and to develop a profile of tuberculosis mortality in Hamilton from 1903-05.

Hamilton's Population and Tuberculosis Mortality

Figure 3.1 shows the population structure of Hamilton at the turn of the 20th century. The bulk of the population falls between the ages of 15 and 34 and females comprise a slightly larger portion of each age group except for children under the age of 10.

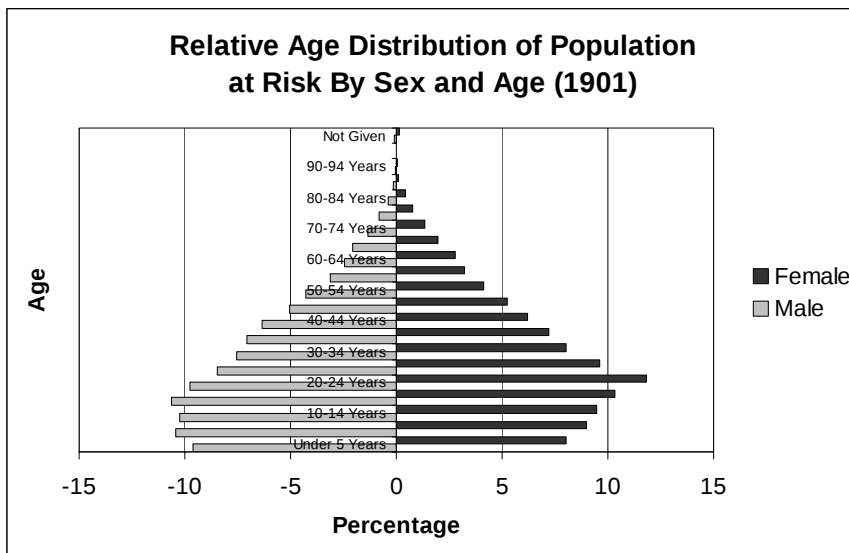


Figure 3.1: Population at Risk in Hamilton by Sex and Age (Census of Canada 1901).

The overall tuberculosis mortality rate for Hamilton was 1.1 per 1000, slightly less than the rate of 1.6 per 1000 for Ontario. Figure 3.2 compares the age-

specific tuberculosis mortality rates per 1000 for Hamilton and Ontario. Mortality is relatively high in children under the age of 5, falls among children under the age of 15, rises to peak among adults between the ages of 25 to 44, and then declines slightly thereafter. In Hamilton, tuberculosis mortality rates range from about .3 per 1000 in children aged 5 to 14 to 1.6 per 1000 in adults aged 35 to 44. The pattern for Ontario is similar, ranging from .4 per 1000 in children aged 5 to 14 to 2.6 per 1000 in adults aged 25 to 34. Although the Ontario rates appear to be higher in most age groups, except under the age of 5 and over age 75, this is an artifact of the scale of the graph. The differences are quite insubstantial, with the largest gap of about 2.6 per 1000 in the 25 to 34 age group.

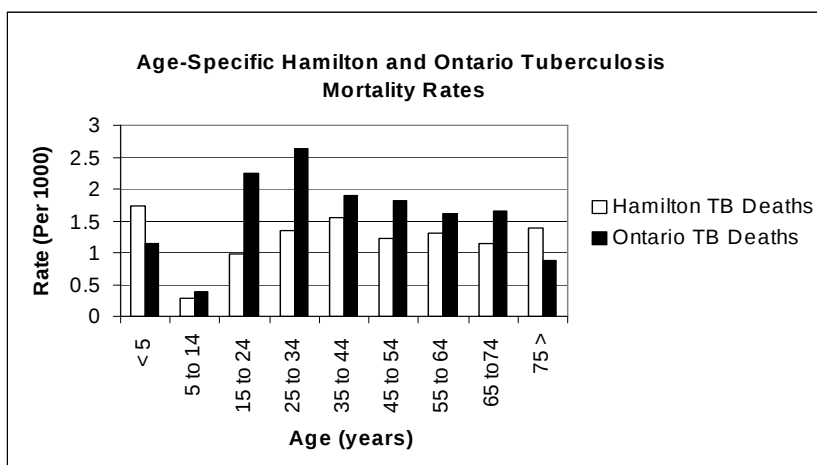


Figure 3.2: Age-specific Tuberculosis Mortality Rates per 1000 in Hamilton and Ontario (Census of Canada 1901; Government of Ontario 1903-05).

Figure 3.3 compares tuberculosis mortality rates per 10,000 in Ontario and Canada in 1901. The overall tuberculosis mortality rate for Canada in 1901 was 16.3 per 10,000 (Census of Canada, 1901; Government of Ontario 1903-1905). Again, the age-specific patterns of mortality are similar to what was observed for Hamilton. However, the rates for Ontario are lower in all age groups than those for Canada as a whole. Again, the scale of the graph creates the impression that these differences are substantial when in fact they are small; the largest differential is about 7 per 10,000 among children under 5 years of age.

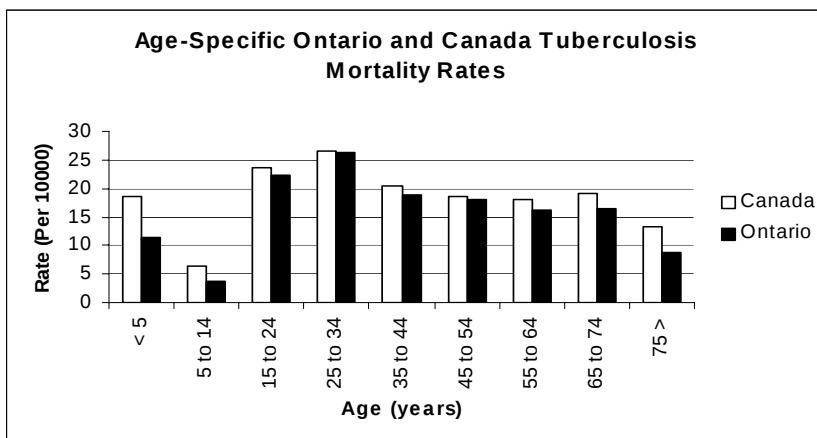


Figure 3.3: Age-specific Tuberculosis Mortality Rates per 1000 in Ontario and Canada (Census of Canada, 1901; Government of Ontario 1903-1905)

Note that when the census was taken in 1901 the borders of Ontario and Canada were considerably smaller than they are today (Figure 3.4).



Figure 3.4: Canadian National, Provincial, and Territorial Boundaries in 1905 (Library and Archives Canada 2006)

Conclusions

It is important to recognize that no single segment of Hamilton's population was exempt from dying from tuberculosis at the turn of the 20th century. Not only was the disease a cause of death in every age group in Hamilton, but its mortality patterns are similar to those found in Ontario and Canada. In all three, tuberculosis mortality rates were highest in the 15 to 44 age groups, the prime reproductive years. There is no striking spike in any age group that sets the Hamilton rates apart from the other two comparison populations, though slightly higher tuberculosis death rates per 1000 were found in children under the age of 5 (for more details on children, see chapter 5). The consistency of the picture at municipal, provincial and national levels leads us to ask why there was such a strong perceived need to build the Hamilton Mountain Sanatorium.

We believe that several factors that contributed to this perception. While TB mortality rates were on the decline since 1896 (see chapter 9), building 'the San' may have been an effort to safeguard against future outbreaks in Hamilton. Additionally, building a local tuberculosis treatment facility may have served a psychological need to combat a seemingly un-combatable disease. Moreover, the institution may also have served as a monument to medical modernity and as a symbol of the continued fight against tuberculosis (see chapters 8 and 15). Tuberculosis was highly stigmatized and also perceived to be a disease rooted in social decay; building a sanatorium offered a solution for dealing with the moral degeneracy believed to underlie tubercular infection (see chapters 9, 14, and 15). This moralistic conceptualization of tuberculosis also contributed to the strong support for the sanatorium by the upper classes of Hamilton, as well as their influence on its construction (see chapter 13).

Foreign Undesirables: Hamilton's Immigrant Population and Tuberculosis

Sarah C. West

The immediate necessity was for father to find a job. For days he walked the streets only to find that Englishmen were not wanted. Always it was the same; placards at every plant, saying: "No English Need Apply." All save one. There, a gentleman by the name of Stanley Mills gave father a job. (Johnson May 28, 1966)

In the early 1900s, vast numbers of immigrant populations filed into the Dominion of Canada. An immigrant is defined as someone born outside Canada who enters the country from another with the intent to live within the Dominion of Canada (Library and Archives Canada 2005). As one of the largest cities in Canada in the early 20th century, Hamilton received a substantial portion of these immigrants. Immigrants were thought to be the carriers of disease and were stigmatized in Hamilton and elsewhere; their presence was undesirable. Canadian citizens and government officials alike connected the influx of immigrants into the nation with concerns about the spread of tuberculosis. How were diseased immigrants, and immigrants in general, treated by Canadian-born populations and authorities? Was there a difference in rates of tuberculosis among foreign- and native-born populations in Hamilton? I address these questions in this chapter using data on tuberculosis deaths recorded in the Ontario Death Records for the Division of Hamilton (Government of Ontario 1903-05) and population counts from the 1901 census of Hamilton (1901 Census of Canada). Through this analysis, I show that the 'diseased immigrant' label was inaccurate and that there

was no empirical basis for popular attitudes that immigrants to Hamilton were more dangerous sources of tuberculosis than native-born Canadians.

Problems with Immigration Statistics

Immigration statistics are difficult to obtain for the early 20th century and where they do exist, there is considerable variation between sources. Library and Archives Canada (2005) claims that passenger lists constitute the official records for immigration, not applications or files. Pickett bemoans the fact that “insufficient attention was paid in Canada... to the problems of keeping accurate and comprehensive records of migration” (Pickett 1965:499). Though we can get a rough count of how many individuals were coming to Canada, there is no way to determine how many actually stayed; many were destined for the United States and may have emigrated immediately after landing (Godfrey 1920:12). Pickett doubts migration statistics because of the lack of internal consistency with data on emigration (1965:499). An accurate estimation of population totals is therefore unlikely to be available (Davidson 1901:596; Pickett 1965:507). Census data on immigration may also be distorted, as some immigrant families may not have been counted due to poor English language skills or the lack of a permanent residence. As a result, we must remain skeptical of immigration statistics for Canada in the early 1900s, though inferences can be drawn from general trends.

Foreign Undesirables: Perspectives on Immigrants

In the early 20th century there was a general fear of immigrants in Canada as a whole, and in Hamilton in particular, as well as worry about diseases they might bring with them. Immigrants were viewed as a threat to public health, and as potential burdens on society should they become public charges (Bilson 1984). A public charge is someone who, because of health or economic circumstances, depends on the state to ensure his or her survival or well being.

A review of *The Hamilton Times* in 1905 reveals the negative attitudes that were held about immigrants and their potential to deplete city coffers: Too Many Refugees (January 7, 1905:3); Rush of Immigrants (March 23, 1905:1; March 1, 1905:1); Seven families of emigrants on city’s hands (April 5, 1905:8); Tens of thousands of immigrants coming (April 12, 1905:1); Rush of Immigration (April 15, 1905:8); Fifty Thousand US People will settle in Canada this year (March 1,

1905:1); More Immigrants (May 5, 1905:12; May 8, 1905:8); Four families of immigrants from London dumped into the city (May 6, 1905:8). More subtle was the worry that this ‘onslaught’ of immigrants would bring diseases into the community: Diseased Immigrants (May 19, 1905:8); March of the Plague (September 16, 1905:4).

Stigmas and character flaws were attached to some immigrant groups while others were viewed more positively. Canada was seeking immigrants who would contribute to the long-term development of the country; accordingly, strong and healthy boys and girls who intended to work on farms were considered ideal (Bilson 1984:398,404). British settlers of this sort were welcomed and not considered to be the “bum variety” of undesirable immigrant (Hamilton Times February 15, 1905:4; Hamilton Times June 12, 1905:1); “sturdy chaps” from the UK were greeted with relief (Hamilton Times April 15, 1905:8). Superior to “undesirables,” they were less likely to be seen as sources of infection (Bilson 1984:407). Newcomers were labeled “not a good class of immigrant” when “the majority of them preferred to stay around the city rather than to accept work on the farms” (Hamilton Times May 8, 1905:8). Immigrants settling in urban, industrializing Hamilton would have faced discrimination because they were seeking factory work, not farm work.

Sixty years after emigrating as a child from England, Melville Johnson, now a Hamiltonian businessman, recalled in *The Hamilton Spectator* (May 28, 1966) his family’s tiring and uncomfortable journey to Hamilton in 1906. His father, anxious for a job, searched continuously, forever haunted by the “No English Need Apply” signs, whose cold welcome were apparently a common sight for foreign workers (Hamilton Magazine 1982:11). Through one man’s kindness, he finally received a less-than-appealing job. Most of the immigrants streaming into Hamilton at this time were British who may have encountered less blatant discrimination as other foreigners whose looks, speech, and actions were considered alien. Countless newspaper articles confirm that the Johnson family’s



Figure 4.1: “Scum of Europe Unloaded in US by Immigration Frauds” (Hamilton Times June 2, 1905:7).

rejection was not unique and was in fact typical of the experiences of immigrant families in Hamilton. Citizens feared that immigrants would bring poverty and disease into their communities. An article in the *Hamilton Times*, *Scum of Europe Unloaded in US by Immigration Frauds* (*Hamilton Times* June 2, 1905:7), laments the “hoards of undesirable immigrants that Europe is pouring upon our shores,” making it “one of the most serious problems now confronting the American people”. The gravest dangers from immigration were believed to be transmission of diseases unknown in the U.S, and the dumping of undesirables who could become public charges. The article implies that there was a conspiracy among European nations to encourage paupers and criminals to migrate to American soil. This increased American resolve to limit undesirable immigrants by creating stiffer laws. Canadians expressed the same suspicion that the U.K. and Europe were unloading their infirm and unwanted to reduce their poor populations (Bilson 1984:399-400).

Structural Prejudice

The rising fear of the immigrant threat heightened attention to policies aimed at reducing the dangers of immigration. For instance, a large, front page article by the Salvation Army of Britain asserts that revising immigration laws would allow countries to get the “cream of Europe, the yeomanry, the healthy, sturdy stock, and not the scum, the ne’er-do-wells” (*Hamilton Times* April 12, 1905:1). Hamiltonians prided themselves that Canada was more particular than the U.S. about who was admitted, and the steps taken to “keep out” people with infectious diseases (*Hamilton Times* June 6, 1905:1).

Government officials took action to control the flow of immigrants by continually revising the Immigration Act of 1869. In 1872, the Act was revised to establish quarantine stations. A medical superintendent examined all immigrant passengers onboard ships. Sick immigrants were quarantined until they recovered, then allowed into Canada. A collector of customs could take a bond of \$300 from a master of a vessel for passengers who could become public charges, unless they were returned to their country of origin. The revised Act in 1902 explicitly barred from landing any immigrants who suffered from dangerous or infectious diseases; they could land for treatment only if they could be cured promptly. Consumptives gained relatively easy admission because TB was not a quarantinable disease; however, as of 1904 advanced consumptives were barred

admission to Canada. When the Act was revised again in 1906, more exclusions were added. Those who became public charges within two years of immigrating could be deported (see Bilson 1984:399-406 for a detailed discussion).

Specific efforts were made to repel diseased and “broken” immigrants from entering society. In Montreal, for instance, a ship full of diseased immigrants was not allowed to dock. Fifty “hopeless cases”, “apparently of the very worse class”, were ordered back aboard for deportation while those who could be treated were allowed to stay. Montreal City officials ensured that the “health authorities are looking to it that they do not get ashore” (Hamilton Times May 19, 1905:8). There were campaigns in Hamilton to “Stop dumping of broken immigrants” (The Hamilton Spectator June 27, 1907:1). Two citizens asked the mayor to petition the federal government to stop the Dominion’s practice of “dumping immigrants into Hamilton” (The Hamilton Spectator June 27, 1907:1). These “unfortunates” brought no money with them to the city. Town officials claimed that all local charities were nearly exhausted, and it was up to the charities or the city to look after them. The petition asked the federal government to stop immigration or look after destitute newcomers.

In Hamilton, prejudice against immigrants was expressed in other ways. The Hamilton Times reported on a sarcastic and demeaning conversation between a truancy officer and a magistrate during a court case concerning a foreigner’s failure to ensure that his son attended school regularly: “‘Some of these people think that I should take their children to school,’ spoke up the truancy officer. ‘Yes, they will soon want you to wash and dress them and take them to school in a cab,’ said his worship” (Hamilton Times March 31, 1905:6). City officials dismissed the appalling living conditions experienced by immigrants, concluding that they were usually *content* to live in terrible environments. After investigating the living environment of immigrant workers at the steel plant, the Health Board concluded, “The Board, while fully sensible to the fact that these are the usual conditions under which this class of foreigners are contented to exist, felt that here was plenty of latitude for improvement” (Hamilton Times October 18, 1905:8). Efforts to improve the standard of living in this instance did not stem from concern for the immigrants, but rather were intended to minimize the “danger to the general public of contagious and infectious disease” (Hamilton Times October 18, 1905:8).

Consumption was feared as much as cholera and yellow fever (Kraut 1995:155). Though immigrants can carry harmful diseases, public stereotypes

and discrimination towards the ‘dirty immigrant’ often overshadowed the amount of disease actually present among them. Public hysteria creates a “false linkage between illness and specific immigrant groups” (Kraut 1995:9). The notion of the ‘diseased immigrant’ was rarely challenged by precise, statistical evidence (Bilson 1984:401). Public prejudice tended to overlook the fact that many of the diseases from which immigrants suffered were not inherent to them; rather, their susceptibility to disease was often influenced by detrimental socio-political circumstances.

Immigration within Canada, Ontario, and Hamilton, 1850-1905

From 1850-96 more people emigrated from, than immigrated to, Canada (Beaujot and Matthews 2000), contributing slow population growth (Flux 1906:434). From 1901-11, however, the Canadian population increased by 34 percent, mostly due to soaring immigration (Donald 1913:299; McDougall 1961; Godfrey 1920). About 44 percent of this growth came from net migration (Beaujot 1998; Boyd and Vickers 2000:2).

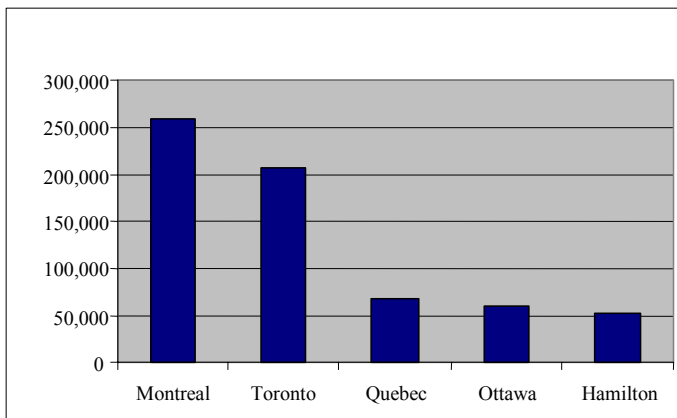


Figure 4.2: Canada’s Five Largest Cities, 1901 (Donald 1913:311).

From 1900-11, about 24 percent of all immigrants to Canada settled in Ontario, more than any other province (Donald 1913; Boyd and Vickers 2000:8), attracted by Ontario’s rapidly developing industries and urban growth (Donald 1913:300; Boyd and Vickers 2000; Green et al. 2002). Urban population growth boomed (Donald 1913; Flux 1906:435; Godfrey 1920:11) and highly industrialized Hamilton was no exception (Wingfield 1946:34). It was the fifth largest city in Canada in 1901 (Figure 4.2), and the third largest city in Ontario (Donald 1913:311). Immigrants came to Hamilton for a variety of reasons, lured

by opportunity in a new land (Wilson 2006:12). Many were unskilled labourers seeking a better life working in the iron and steel industries (Hamilton Folk Art Council 1978), such as Hamilton’s newly formed International Harvester Company (Wilson 2006:13). As such, Hamilton was at the forefront of dealing with issues involved with immigration from 1900-05. Where were these immigrants coming from, and did this influx of foreigners actually have an impact the prevalence of tuberculosis in Hamilton?

Countries of Origin

We are as yet a small city. Until quite recently we have had a very small foreign population, but the number is on the increase. (Roberts 1905:18)

In 1901, approximately 12.7 percent of Canada’s population was foreign born (Boyd and Vickers 2000:2; Flux 1906:435; Pickett 1965; Donald 1913; Godfrey 1920). From 1900-05, newcomers came primarily from the United Kingdom, the United States, and Europe (or “other”) (McDougall 1961; Godfrey 1920; Hamilton Times February 15, 1905:4; Boyd and Vickers 2000; Green et al. 2002; Flux 1906). As shown in Table 4.1, Hamilton had a significantly higher British population than the rest of Canada (Census of Canada 1901).

The people of Hamilton were well aware of the large number of British immigrants in the city. Comments were often made in The Hamilton Times (April 5, 1905:8; April 12, 1905:1; April 15, 1905:8) and in 1905, nine articles lamented the flood of immigrants from the United Kingdom. Ironically,

Breakdown of Immigrant Population	UK %	United States %	Other %	Source
<i>In Canada</i>				
1901-1905	45.5	26.3	27.9	McDougall 1961:168
	35.9	35.0	29.2	Godfrey 1920:13
	52.0	20.0	23.0	Boyd & Vickers 2000
1903-04	38.6	34.7	26.7	The Hamilton Times Feb 15, 1905:4
1903	33.0	38.0	29.0	Godfrey 1920:13
1904	38.0	35.0	27.0	Godfrey 1920:13
<i>In Hamilton</i>				
1901	76.7	14.4	9.0	Census of Canada (1901:427).

Table 4.1: Comparison of Origin by Percentages of Total Immigrant Population.

approximately 90 percent of Hamilton’s population in 1901 was composed of British subjects or people of British origin (Canada and U.K. born) (Census of Canada 1901:427; Weaver 1982:93; Hamilton Folk Art Council 1978).

Who was dying from Tuberculosis in Hamilton?

To determine the extent of tuberculosis among Hamilton’s immigrant population in the early 20th century, I analyzed Hamilton’s death records from 1903 to 1905 (Government of Ontario 1903-05). Using the database created for this project, I compiled 325 deaths recorded for all forms of tuberculosis in the Hamilton area (Ancaster, Beverly, Dundas, E. Flamborough, W. Flamborough, Glanford, Waterdown, Binbrook, and Saltfleet). These were classified by country of origin. Only 71 (21.9 percent) of the registered TB deaths were ascribed to immigrants.

To compare TB death rates between immigrant and native-born Canadians, it was necessary to determine their respective population sizes (Table 4.2). I used the 1901 Census for this purpose because it is the closest census point to the death record data (1903-05). The 1911 Census is inappropriate for this task because total population sizes and immigration rates increased appreciably between 1901 and 1911 (Census of Canada 1901:427; Parmelee 1913:447). Between 1901 and 1906, however, Hamilton’s population only increased from 52,634 to 54,956 (Weaver 1982:196).

	United Kingdom		United States		Other		% Immigrant Pop.	Total Hamilton Pop.
	% Imm. Pop.	% Total Pop.	% Imm. Pop.	% Total Pop.	% Imm. Pop.	% Total Pop.		
TB Deaths 1903-05	76.1	16.6	16.9	3.7	7.0	1.5	21.9	325
Hamilton Area Pop., 1901	76.7	19.6	14.4	3.7	9.0	2.3	25.6	52,634
TB death rate per 1000/year								Total Pop. 2.1
	1.7		2.1		1.4		1.8	Non-Imm. 2.2

Table 4.2: Comparison of Immigrant TB Deaths and Immigrant Population in Hamilton, 1903-05 (Government of Ontario 1903-05; Census of Canada 1901).

Table 4.2 shows that while 21.9 percent of the TB deaths in the Hamilton area occurred among immigrants, they comprised 25.6 percent of its total population. Most of the foreign-born deaths were concentrated in Hamilton Township (56 out of 71 foreign-born deaths), bringing the proportion of foreign-born TB deaths in Hamilton to 24.6 percent (228) of the total. The table shows that the proportion of TB deaths among immigrants (21.9 percent) is slightly less than the proportion of foreign-born residents (25.6 percent). Translated into mortality rates, immigrants in Hamilton are estimated to have died from TB at a rate of 1.8 deaths per 1000 per year, which is slightly less than the native-born TB death rate of 2.2 deaths per 1000 per year. These estimates should be viewed with caution in light of the statistical inaccuracies discussed earlier in this chapter.

Based on these results, it appears that foreign-born residents of Hamilton were dying from tuberculosis at about the same rate as Canadian-born residents. Persaud and Venus (2006:35) also found minor differences in the proportion of deaths among foreign- and native-born Hamiltonians during the fall wave of the 1918 pandemic. Kraut observes, “Regardless of ethnic group, TB seemed to flourish most readily in the crowded, unhealthy conditions of the poorest sections of urban enclaves” (1995:158).

Spreading and Contracting Tuberculosis

As discussed earlier, there was a common perception that immigrants to Hamilton were a source of tuberculosis and other infectious disease. This question is difficult to address from the available information for the early 20th century. Scholars studying the phenomenon today suggest that immigrants do indeed increase *cases* of TB in an area and within the foreign populations themselves, but they do not necessarily *spread* it to local populations (Long et al. 1999; Wobeser et al. 2000). It is also evident that immigrants from countries of origin with high TB rates are more likely to contract the disease (Enarson et al. 1979; Creatore et al. 2005; Kraut 1995:262). Enarson et al. (1979) conclude that the “rates were generally parallel to those reported in the countries of birth...immigrants from high-incidence countries constitute a high-risk group.”

It is also impossible to determine if immigrants who died from tuberculosis in Hamilton between 1903 and 1905 brought the disease with them. Nevertheless, the harsh living conditions that faced immigrants could have propelled them into advanced stages of consumption and full-blown TB. The Hamilton Times is full

of stories about unemployed and destitute immigrants; they “[we]re without means and ha[d] no place to go” (January 7, 1905:2; March 28, 1905:8; April 5, 1905:8). Health insurance was virtually non-existent, so people had to rely on charity if they were poor (Wilson 2006:12). Foreigners who worked at the steel plant were subjected to atrocious living conditions, “shanties, constructed of rough boards, small and unhygienic, with the interior many times less inviting than the outside... in other instances a single room answers for kitchen, living room and bedroom” (Hamilton Times October 18, 1905:8). Destitution and poverty – which meant cramped substandard housing, little if any access to medical treatment, hazardous occupations, and poor nutrition – would have enhanced susceptibility to tuberculosis (Kraut 1995:262).

Conclusions

This chapter considers the negative stereotype of the ‘diseased immigrant’ that imbued the perceptions of the citizens of Hamilton at the turn of the 20th century. From this analysis, it appears that from 1903 to 1905 immigrants to Hamilton were dying at about the same or at an even slightly lower rate than Canadian-born residents of the city. The popular perception that immigrants were increasing the rates and risk of tuberculosis in the city was, in fact, incorrect.

The irrational fear of an invasion of diseased immigrants is not confined to the early 20th century. The health status of immigrants continues to be a grave concern for Hamiltonians and Canadians to this day (see chapter 17). Oblivious to the real state of affairs, people often fuel irrational fears of the foreign ‘other’ by labeling immigrants with incorrect and prejudiced stereotypes. Immigration is an undeniable and constant reality for Canada. It is essential to examine and critique the labels ascribed to immigrant groups if we are to co-exist successfully within this diverse, multicultural nation.

Children and Tuberculosis in Hamilton

Tara Jenkins

In the early years of this century the clinic waiting room at the Hospital for Sick Children, Toronto, was always crowded with tired and anxious mothers with their babies and young children. They and their children had been exposed to a member of the family who suffered from tuberculosis. (Brink 1966:41)

In populations where tuberculosis is prevalent, anywhere from one-third to one-half of all adults are infected with the bacillus (Gittings et al. 1922:3). It was a common sight in Hamilton and elsewhere to see mothers, worried about their children who had been exposed to tuberculosis, seeking treatment in hospital clinics. Surprisingly, there is little discussion of tuberculosis among children. The purpose of this chapter is to explore medical writings, archival records, and other fragmentary evidence to gain a better understanding of how tuberculosis affected children in Hamilton at the turn of the 20th century.

Tuberculosis in Children

Prior to the 20th century, it was believed that tuberculosis was a disease that bypassed children and only began to take a toll on individuals who had just entered maturity (Caldwell 1988:65). This opinion changed after 1903 when discoveries by German scientist, Emil Adolf Von Behring, showed that tuberculosis infection could occur during infancy and remain latent until the child's resistance was lowered. The idea that tuberculosis in adulthood originated in childhood infection eventually gained acceptance (Gittings et al. 1922:10).

Recognizing Childhood Tuberculosis

According to the National Tuberculosis Association, childhood tuberculosis involves lesions in the lungs and tracheobronchial lymph nodes. The lesions result from a first infection of the pulmonary tissue by tubercle bacilli (Opie et al. 1931:5). Children's symptoms are subtle and easily mistaken for common childhood illnesses. Common symptoms include fatigue, complaints of digestive problems, lethargy, or a slight cold (Gittings et al. 1922:52; Opie et al. 1931:8). Temperature is a poor indicator of tuberculosis because a healthy child's temperature fluctuates throughout the day, even without the presence of illness (Opie et al. 1931:8). Night sweats, commonly associated with adult tuberculosis, are not recognized as a symptom in children; neither are the presence of cough and sputum (Lincoln and Sewell 1963:77). Even progressive lesions are difficult if not impossible to recognize by physical examination alone (Opie et al. 1931:9), and were not diagnosable until the invention of the x-ray and tuberculin test (Gittings et al. 1922:54). In Hamilton in 1904-05, children suffering from tuberculosis were likely misdiagnosed because doctors were unable to recognize their symptoms.

In 1905, doctors made the important observation that tuberculosis quite often resembled pneumonia (Lincoln and Sewell 1963:77). The link between pneumonia and tuberculosis is evident from the burial records from Dwyer Funeral Home in Hamilton from January 1888 to April 1906. About 24 percent of the children buried in 1904-05 were reported as having died from pneumonia. The majority of these deaths occurred at home, rather than in a hospital, and diseases like pneumonia that resembled childhood tuberculosis might have masked its presence (Opie et al. 1931:10).

Many parents in the early 20th century were unfamiliar with the symptoms and seriousness of childhood tuberculosis; no one expected a threat of epidemic proportions. An article in the *Hamilton Spectator* (September 5, 1905:9), for example, recounts how a father brought his child to a sanatorium (likely Gravenhurst), and explained to the doctor that she was constipated, had a stomach illness, and had bad teeth. The doctor examined the child and simply said that her breakfast foods were inadequate. Yet a child with tuberculosis can suffer from constipation because of spinal tuberculosis (Gittings et al 1922:256), raising the possibility that this child's illness was misdiagnosed.

How Children Contract Tuberculosis

One must consider the child's environment to understand how he or she contracts tuberculosis. The most frequent source of infection is direct contact with a person with active tuberculosis (Lincoln and Sewell 1963:14). In populations where



Figure 5.1: Children in the Early 1900s in Hamilton (Courtesy of the Educational Archives and Heritage Centre).

tuberculosis is present, up to 70 percent of children are infected before adulthood (Gittings et al. 1922:13). The rate of infection might have been this high among children in Hamilton in 1904-05 when we consider that children were becoming ill or dying at an alarming rate, especially in infancy. Many children might not have exhibited the diagnostic symptoms of tuberculosis because of their ability to develop a high level of resistance, but they could have become infected or carriers of the disease (Ferguson 1955:12). Death and funeral records

would therefore underestimate the true prevalence of the disease among children.

Having suggested that TB among children in Hamilton was probably quite common in the early 20th century, it is important to explore the conditions that made children susceptible to infection. Children became infected in two primarily locations: the first was at home and the second was at school.

Dr. Gittings and colleagues (1922:36) state that there are numerous opportunities for children to contract tuberculosis in the home. To explore this claim, I examined the death records for the City of Hamilton between 1903 and 1905 (Government of Ontario 1903-05). A total of 304 adults died from tuberculosis during this period. Some 25 percent of the TB deaths occurred among housewives, or women with home-related occupations. This is not to say that all of these women were mothers, but a child's opportunity to contract the disease is high if family or visitors are infected. Furthermore, if a pregnant woman is infected with TB, her baby is likely to be malnourished at birth, and the loss of blood during delivery could stimulate the disease within the mother. Without proper precautions TB will spread to her baby. Even the family dog can

carry tubercle bacilli and spread tuberculosis to the children (Gittings et al. 1922:232). Grandparents can also serve as a source of the disease because infection in seniors can go undetected and be diagnosed as chronic cough. Crowded homes and poor air circulation provide excellent conditions for the tubercle bacilli to spread (Lincoln and Sewell 1963:14-17). The Hamilton Spectator (June 29, 1904) and the Children's Aid Society scrapbook (1894 to 1961) record a suggestion by Father Brady that Hamilton homes were overcrowded and that there were 213 homeless children. Floor dust and fresh sputum were considered to be dangerous sources of infection because children constantly put their fingers in their mouths (Gittings et al. 1922:22).

Children also faced high risks of infection at school if they were in close contact with teachers, school personnel, or students with severe cases of pulmonary tuberculosis (Lincoln and Sewell 1963:13). An examination of the City of Hamilton death records for 1903 to 1905 revealed that three teachers died from tuberculosis during this period alone (Government of Ontario 1903-05).

There were no nurses in Hamilton schools until 1907 (Toth 2001:72) and therefore no qualified individual to recognize children's health problems. The Board of Education Annual Minutes for 1904 and 1905 indicate that student absenteeism was high and that only about 75 percent of registered students actually attended school (Minutes of the Proceeding of the Board of Education for the City of Hamilton 1905:17, 1906:16). The Board also tracked the number of sick children, the number of sick in the home, and the number of children who died each month. In the combined districts of Hamilton for the month of January 1904, 191 children were sick, 105 came from houses where others were sick, and 2 children died (Minutes of the Proceeding of the Board of Education for the City of Hamilton 1905:12). It is not unreasonable to suggest that some of this illness was tuberculosis-related.



Figure 5.2: Old King Edward School in the Early 1900's in Hamilton (Courtesy of the Educational Archives and Heritage Centre)

Overcrowding and poor ventilation in Hamilton schools offered a perfect environment for tubercle bacilli and increased the chances of childhood infection. Overcrowding in the schools was addressed in the Board's Minutes in 1904 (1905:66) and in an article in the Hamilton Spectator on September 5, 1905 (1906:1). King Edward School was singled out as having especially poor ventilation (Minutes of the Proceeding of the Board of Education for the City of Hamilton 1905:41). The Hamilton Times (August 7, 1905:4) called for the medical inspection of Hamilton school and urged Canada to stop neglecting this issue. After 1905 there was strong support for the construction of open-air schools in Hamilton.

Milk as a Source of Tuberculosis



Figure 5.3 Father Feeding Milk to His Baby in the Early 1900s (Courtesy of the Glenbow Museum, Calgary, Alberta)

In 1914, Dr. John Fraser discovered that children often acquired tuberculosis by consuming unpasteurized milk infected with *M. bovis* (see chapter 2). The dangers of unpasteurized milk were highlighted in a study in New York from 1906 to 1909 that found that 75 percent of cowherds were infected with *M. bovis* and that an estimated 15 percent of milk carried bovine tuberculosis (Straus 1977:29). Most cases of abdominal tuberculosis were caused by *M. bovis* and there was a greater incidence of bovine tuberculosis in children under the age of five compared to older children.

About five percent of childhood deaths under the age of five were attributed to

bovine tuberculosis (Gittings et al. 1922:10), as was a large proportion of infant deaths (Opie et al. 1931:7).

Milk was not pasteurized in Hamilton at the turn of the 20th century (see chapter 16). The connection between bovine tuberculosis and contaminated milk was particularly disturbing because milk was a staple in children's diets until the age of 12 (Fraser 1914:49). It is therefore likely that many infant and child deaths in early 20th-century Hamilton, attributed to other causes, were actually the result of bovine tuberculosis.

Children as Spreaders of Tuberculosis

There has been some debate about whether children with active cases of tuberculosis are able to transmit the disease. Dr. Gittings and colleagues (1922:14) showed that one-fifth of infected children died of tuberculosis in childhood and that the remainder carried the disease into adolescence. Approximately one-half of all cases identified in adulthood were preceded by childhood infection (Opie et al. 1931:11).

A child's ability to resist infection is related to the frequency and duration of exposure to tubercle bacilli (Opie et al. 1931:11). A child in close contact with tuberculosis at home or school was likely to contract a primary infection. Most lesions caused by primary infections heal and rarely progress (Dormandy 2000:209). But children with other health problems had a reduced capacity to control the infection. When a child's infection became extensive, it was most often combined with meningitis or tubercular pneumonia (Opie et al. 1931:11).

Even though children have the potential to spread tuberculosis, it actually occurs infrequently because children have little sputum (Lincoln and Sewell 1963:77). Because childhood forms of tuberculosis are rarely contagious (Opie et al. 1931:15), we can assume that in 1904 and 1905, children in Hamilton were infected but not the primary spreaders of the disease.

Treatment and Prevention

In 1913 it was recognized that preventing and eradicating tuberculosis starts with children (Toth 2001:13). There is little information about the treatments for children in Hamilton before 'The San' was built. This is understandable because the symptoms of childhood tuberculosis were poorly understood, nearly all

children died at home, and there is no evidence that autopsies were being performed on them. Most likely, treatment of undiagnosed cases focused on relieving symptoms that resembled other conditions, such as the common cold. The recommended treatments for adults with tuberculosis were rest, fresh air, good food, and sunlight (Gittings et al 1922). Presumably, children diagnosed with tuberculosis were treated in a similar manner.

Eventually, treatment and prevention became synonymous as doctors struggled to give advice to concerned parents. Tubercular mothers were discouraged from kissing their babies. They were advised to dispose of their sputum, keep their home well aired, and scald all the towels (Gittings et al. 1922:232). It was recommended that tubercular children over the age of ten be isolated in a sanatorium, but children less than ten be treated at home because separation from the parents would be devastating to the child. Nutrition was considered to be the first line of defense against tuberculosis, with priority placed on providing human or cow's milk to babies (Gittings et al. 1922:235). To kill *M. bovis*, milk was to be boiled at 150°F for twenty to thirty minutes (Gittings et al. 1922:43). Cereals and broths were recommended for children aged eight to nine months and fatty foods, such as butter and cod-liver oil, were recommended for older children.

Cleanliness and fresh air were also considered to be essential for preventing and treating childhood tuberculosis. It was recommended that children play outside, sleep with more than one window open, wear a night cap, and have the covers pinned to the bed (Gittings et al. 1922:235). The child should remain at home for a minimum of one year with games, rest and at least ten hours of sleep per day (Gittings et al. 1922:246). Drs. Lincoln and Sewell (1963:5) advised against exercise or competitive games. If the family had the means to do so, they were advised to move to the country (Gittings et al. 1922:244). Some doctors suggested that children attend school because most cases were not severe (Opie et al. 1931:11). Children with advanced cases were encouraged to attend open-air schools (not in operation until at least 1910) and severe cases were sent to a sanatorium. These treatments must have been very trying for the parents and child, especially if the illness became severe despite their best efforts.

The Hamilton Spectator advertised *Malta-Vita* wheat as a product to keep children healthy (September 5, 1905). The ad blamed parents for not taking proper care of their children. This says much about public perceptions about contagious diseases at the time. Despite physicians' recommendations that attention and resources be focused on preventing tuberculosis in early life, it is

evident that it took some time for this perspective to have an impact in Hamilton, especially in terms of taking appropriate public health measures to pasteurize milk, improve sanitary conditions, and reduce overcrowding.

The Geography of Tuberculosis Mortality in Hamilton

Nadia Densmore and Andrea Simon

This chapter examines the spatial and temporal distribution of tuberculosis deaths in Wentworth County from 1903-05, and pays particular attention to deaths in the City of Hamilton. The purpose of this research is to determine if certain wards within the City of Hamilton suffered from higher tuberculosis death rates than others. In addition, the temporal distribution of tuberculosis-related deaths in the City of Hamilton is considered in relation to the opening of the Hamilton Mountain Sanatorium on May 28, 1906 (Wilson 2006:26), to determine if there was an increase in tuberculosis deaths beforehand. The socio-economic factors that may have increased the death rates in certain areas of the city are discussed.

Mapping Tuberculosis Mortality

Several primary sources were used to examine the spatial distribution of tuberculosis deaths. The most important resource is the Wentworth County death register (Government of Ontario 1903-05), which subsumed the divisions of Ancaster, Barton, Beverly, Binbrook, East Flamborough, West Flamborough, Glanbrook, Hamilton, Dundas, Saltfleet and Waterdown. We collected addresses from Hamilton city directories (Hamilton City Directory 1901-03) and used GIS and Arcview 3.2 mapping software to plot the distribution of tuberculosis deaths (ArcView© 3.2, 1992-99).

A number of terms were used to refer to tuberculosis in the early 20th century, including phthisis, tuberculosis, tabes mesenterica, scrofula, consumption, tubercular meningitis, tuberculosis pulmonalis and phthisis pulmonalis (see chapter 2). All deaths ascribed to these causes were considered to be tuberculosis

deaths and identified as such in our Microsoft Excel© database. Our data entry team transcribed additional information for each of the deceased, including name, sex, age, date of death, residence, occupation, marital status, place of birth, cause of death, attending physician, religious denomination, the informant who made the return, and the date of the return.

The seven political wards of Hamilton were chosen as broad boundaries for comparing tuberculosis rates within the City of Hamilton. In cases where an individual's death record did not include address information we cross-referenced the name of the deceased with city directories (Hamilton City Directory 1901-03). We located streets that no longer exist using an historical map of Hamilton (Library and Archives Canada 2005, Hamilton Electoral District 1891).

The Spatial Distribution of Tuberculosis Deaths in Wentworth County

The raw counts of tuberculosis deaths for which a home address was available are arrayed in Table 6.1. Because the Barton and Hamilton Divisions have the highest proportion of tuberculosis deaths in 1903-05 (12 and 71 percent respectively), they were selected for more detailed spatial and temporal analysis.

Division	Number of Recorded Tuberculosis Deaths	Percent of Recorded Tuberculosis Deaths
Hamilton	229	70.68
Ancaster	5	1.54
Barton	39	12.04
Beverly	6	1.85
Binbrook	2	0.62
Dundas	16	4.94
E.Flamborough	4	1.23
Glanford	4	1.23
Saltfleet	3	0.93
Waterdown	5	1.54
W.Flamborough	11	3.40
Total	324	100.00

Table 6.1: Tuberculosis Deaths By Division. Wentworth County, 1903-05. (Government of Ontario, 1903-05).

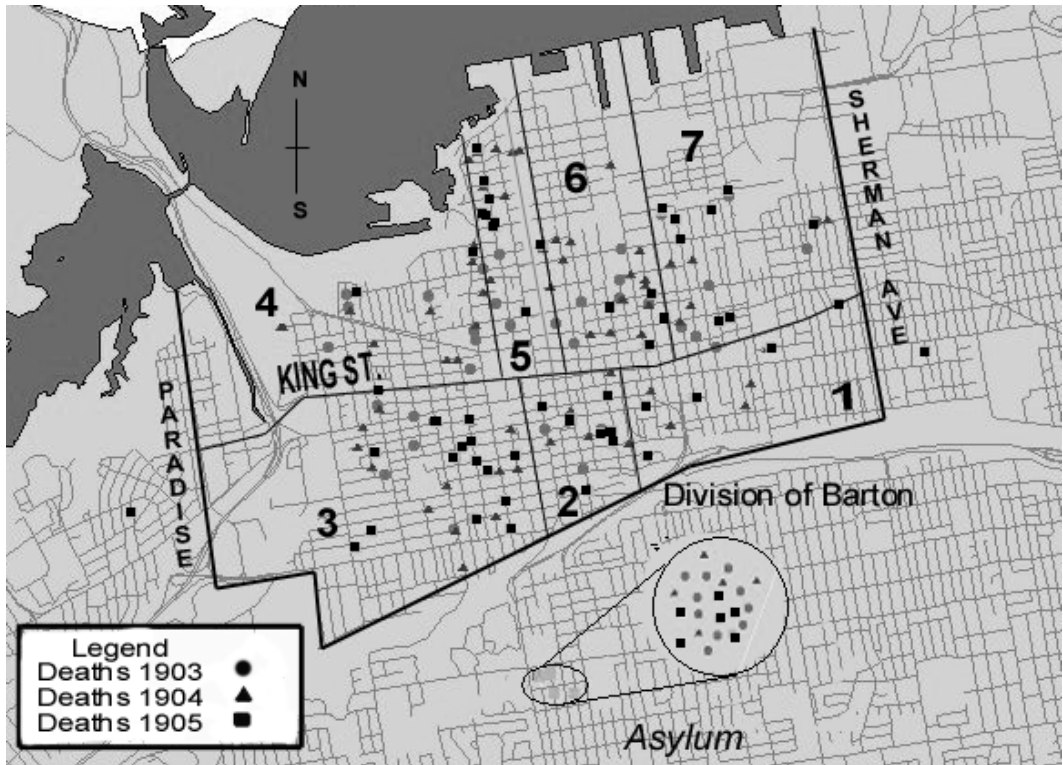


Figure 6.1: Geographical Imaging Map of Tuberculosis Deaths in Hamilton Division, by Ward, and the Barton Asylum (Government of Ontario 1903-05).

Table 6.1 shows the home addresses of individuals who died from tuberculosis in the Division of Hamilton for 1903-05. The map is not complete because 65 of the 229 tuberculosis deaths lack addresses. Even though only 71.6 percent of the recorded tuberculosis deaths could be mapped, Figure 6.1 shows that they occurred throughout the city. No ward in Hamilton was free from mortality from tuberculosis.

Table 6.2 presents estimates of the tuberculosis death rate per 1000 by ward for 1903, 1904 and 1905. The population at risk for each ward was derived from the 1901 census (Census of Canada, 1901).

Wards	1903	1904	1905
1	-	100	80
2	50	80	110
3	60	140	160
4	100	130	40
5	60	100	100
6	60	140	40
7	80	50	90

Table 6.2: Tuberculosis Death Rates per 1000 by Ward for 1903, 1904, and 1905 (Government of Ontario 1903-05).

As Hamilton grew in area and population, a significant socioeconomic divide developed in the city, which forced individuals with lower incomes to settle in the industrial, northern half of Hamilton (Gagan 1981:162-3). Table 6.3 provides pooled estimates of tuberculosis mortality per 1000 for wards in the North and South Ends of the city, derived from the information in Table 6.2. Although this has not been evaluated statistically, the estimates suggest that tuberculosis mortality rates in the North and South were similar, and the 3-year average shows a slightly higher tuberculosis mortality rate in the more affluent South End (116.7 per 1000) compared to the North End (103.3 per 1000).

	1903	1904	1905	3-Year Average
North End	80	140	90	103.3
South End	60	130	160	116.7

Table 6.3: Pooled Tuberculosis Death Rates Per 1000, North and South Wards in Hamilton (Government of Ontario 1903-05).

It should be recalled, however, that it was not always possible to pinpoint exactly where a death occurred (and therefore in which ward) because many streets run through more than one ward and there are no residence numbers attached to the streets. Under reporting of tuberculosis deaths is another factor that may be distorting the findings. Under reporting of tuberculosis was likely higher among impoverished people who were unable to afford medical treatment. Furthermore, individuals who died in institutions, such as the Asylum for the Inebriates in Barton, would not have been linkable to the ward in which their home was located. Significantly, 53.8 percent of the tuberculosis deaths recorded for Barton from 1903-05 occurred at the Asylum for the Inebriates. This high

concentration of tuberculosis mortality at the Asylum for the Inebriates raises questions as to the conditions that existed there, as well as about who was confined there.

Conclusions

During the 20th century, as Hamilton grew into an industrial centre, the socioeconomic gap increased between the Northern and Southern ends of Hamilton, with the division running along King Street (Doucet 1976:99-101; Gagan 1981:162-163). Yet, as is evident from Table 6.3, tuberculosis deaths occurred throughout the city and occurred at relatively similar rates in the North and South. This seems to be consistent with the observation that socioeconomic groups were not localized in particular wards, despite the growing north/south divide in Hamilton during the early part of the 20th century (Sager 1998:10). Even at the sub-district level, the spatial segregation of social classes was not marked (Sager 1998:10). This may help explain the apparent lack of spatial segregation in tuberculosis mortality identified in our analysis. It must also be recalled that only about 70 percent of the tuberculosis deaths recorded between 1903 and 1905. It is conceivable that if it were possible to map the full set of tuberculosis deaths, clustering would become more evident.

The most interesting observation that emerged from this analysis is the possibility that tuberculosis death rates may have been higher in the southern, more affluent sections of Hamilton. The difference in rates between the North and South ends has not been subjected to statistical analysis and may be strongly influenced by under-reporting. Ellen Korol's (2005) study of the spatial distribution of influenza deaths during the fall wave of the 1918 pandemic suggests that the Spanish Flu was a socially neutral infection distributed throughout Hamilton. Our study suggests that tuberculosis was also widespread in Hamilton in the early 20th century and not restricted to the poorer sections of the city. High rates of tuberculosis in the wealthier parts of the city may have impelled people in this area to push for the construction of the Hamilton Mountain Sanatorium.

If The Walls Could Talk: Tuberculosis and Hamilton's Built Environment

Kinga Iwanski

The houses are a disgrace to the twentieth century civilization, if indeed they can be called houses: rather should they be denominated as hovels. They are not connected with sewers, and from the outbuildings there arises a stench that breeds fever and all manner of diseases (The Hamilton Spectator July 8, 1905:4).

The built environment, with its houses, factories, streets, and sidewalks provides significant information about the present structural form of a city. The physical form of a city also reveals valuable information about its past, its people, and its connection to broader social contexts. This chapter focuses on Hamilton's built environment as a possible source of infection, medium of transmission, and cause of tuberculosis deaths. Furthermore, it specifically addresses conditions in Hamilton, and in its housing and factories, as well as the city's response to these conditions at the turn of the 20th century. The information presented in this chapter is derived from the death records (Government of Ontario 1903-05) and census records for Hamilton (Census of Canada 1901), Blachford and Wray Funeral Records, Dwyer Funeral Records, Hamilton Times, and The Hamilton Spectator.

The Urban History of Hamilton

By the beginning of the 20th century, Hamilton had become a thriving industrial city. The urban form of the city was expanding and changing drastically because

of industrial construction and real-estate booms in the 1900s (Weaver 1982:79). Because of its advantageous location, extensive acreage, and proximity to the railway and water, enormous factories established themselves in Hamilton's East End (Weaver 1982:82); housing stock nearly tripled from 1901-21 (Weaver 1982:99). For instance, in each successive month of 1905, more building permits were granted to individuals wishing to build a home (Hamilton Times March 11, 1905:8). By March of 1905, there were six times more building permits than the previous year, reaching a record high (Hamilton Times April 1, 1905:8). This economic boom made it necessary to expand the city's boundaries; in 1903, Hamilton increased its eastern border by annexing Barton Township (Weaver 1982:93). This newly area became known as the "annex" (Roberts 1904-1905:15). Although smaller than it is today, Hamilton (specifically the Division of Hamilton) was divided into seven wards in 1901 and expanded into eight by 1910 (Weaver 1982:103). In 1905, the city of Hamilton was bound by the harbour to the north, the escarpment to the south, Paradise Road to the west, and the annexed territory of Barton Township to the east (Weaver 1982:102).

Conditions in the City

Sanitary conditions in Hamilton were cause for concern. Public health officials attributed the spread of tuberculosis and other infectious diseases to the city's poor living and working conditions (Roberts 1904-05:12). More specifically, the impurities in the air were believed to predispose people to tuberculosis (The Hamilton Spectator January 4, 1904:5). Public services, such as the sewer system, were rudimentary or not available in parts of Hamilton, such as the 'annex' (Roberts, 1904-05:15). Dr. W.F. Langrill, the Medical Health Officer from 1901-05, acknowledged that the poor conditions in Hamilton contributed to an increase in infectious disease (Hamilton Times March 23, 1905:8). He voiced his concerns about drainage problems in the northeast end of Hamilton in the Hamilton Times (Hamilton Times February 25, 1905:8), recommending that every street in the city be provided with a sewer line (Hamilton Times March 23, 1905:8). The Sewers Committee of Hamilton also stressed the importance of drainage in the 'annex' because it was estimated that there would be approximately 4,000 workmen in the district in the near future (Hamilton Times November 7, 1905:5). Although the garbage collection system was fairly satisfactory, there was room for improvement (Roberts 1904-05:16). In the hot

summer months, masses of maggots bred in barrels filled with garbage (The Hamilton Spectator July 11, 1905:4), underlining the need for proper sanitation in order to prevent the spread of disease.

Unrecognizable Homes

Several houses in Hamilton were in a state of complete deterioration and exhibited unsanitary conditions. Dr. James Roberts, who was elected Medical Health Officer after Dr. W.F. Langrill, investigated two houses after a complaint was made about their deplorable sanitary conditions (The Hamilton Spectator September 27, 1905:10). The roof of the first house at 13 Park Street North was practically gone and the upper storey was uninhabitable (The Hamilton Spectator September 27, 1905:10). The house “was a damp and musty place and close in the rear was a shed filled with the merchandise of a rag, bone and bottle merchant. No better spot could be found for the breeding of disease” (The Hamilton Spectator September 27, 1905:10). The second house investigated by Dr. Roberts, located at 112 King Street West, was more dreadful than the first:

Everything about the place, including the inmates, was dirty and filth covered. With the old couple was a dog, chained to the wall. He moved around with a sense of proprietorship and it was not difficult to imagine that he had occupied the place before the humans came there to share his squalor. [The Hamilton Spectator September 27, 1905:10]

Similar housing conditions were found at dwellings occupied by immigrants:

These for the most part are of an extremely unpretentious character, being shanties, constructed of rough boards, small and unhygienic, with the interior many times less inviting than the outside. In some cases the sleeping apartments are separate, but in other instances a single room answers for kitchen, living room and bedroom. [Hamilton Times October 18, 1905:8]

Factory Conditions

Working conditions in factories and in other places of employment were seen to be important determinants of the spread of tuberculosis. Hamilton's health officials stressed the importance of clean air as insufficient ventilation in crowded workshops and factories was related to the increased spread of infectious diseases, such as tuberculosis (The Hamilton Spectator January 14, 1904:5). Poor working conditions were common in factories in Canada. In the 1860s, "the work in sweat shops in the province of Quebec, across the line, in mills and polishing and grinding shops was the cause of the dread disease, tuberculosis" (The Hamilton Spectator April 6, 1904:4). As the housing industry boomed in Hamilton, so did factories and industries in Hamilton's east end. By 1905, several new factories were ready for business (Hamilton Times September 21, 1905:8). During this boom, older factories were renovated and some expanded, such as Canada Meter Co., the Union Drawn Steel Co., the Otis Fenson Co., and Canadian Westinghouse Co. (Hamilton Times September 21, 1905:8). Inspections by the board of health showed that sanitary conditions improved in many offices, workrooms, and lavatories in manufacturing institutions in Hamilton's east end (Hamilton Times October 18, 1905:8).

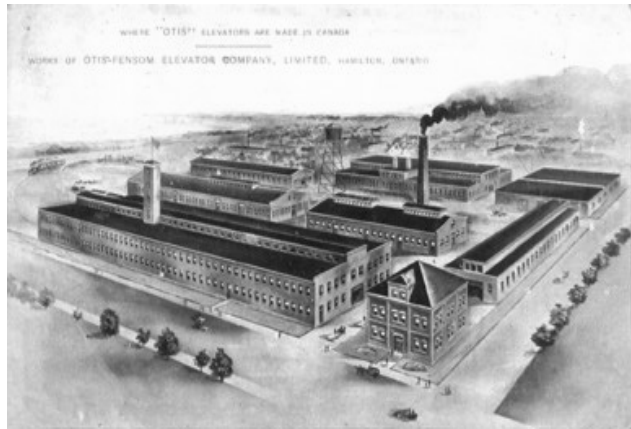


Figure 7.1: The Otis Fenson Company October 17, 1906
(Vintage Postcards of Hamilton 2006)

Overcrowding

Although the housing industry boomed at the beginning of the 1900s, overcrowding became a problem in Hamilton. In 1903, Dr. Mazyck P. Ravenel wrote, "tuberculosis is essentially a disease spread by overcrowding, and, like all

communicable diseases, the more dense the population the greater necessity for preventative measures” (Ravenel 1903:213).

To explore whether overcrowding was prominent in the Division of Hamilton, I made a literal count of the “family or households” category in the 1901 Census of Canada from the Library and Archives of Canada (2005). The count reveals that, on average, there were 4.7 people per household in the 10,861 households in Hamilton that year (excluding hospitals, schools, prisons, and asylums).

To examine the relationship between overcrowding and tuberculosis deaths, individuals listed as having died from tuberculosis in the Ontario Death Records for the Division of Hamilton in 1903-05 were cross-referenced by name to households listed for the Division of Hamilton in the 1901 Canada Census. Of the 228 tuberculosis deaths recorded from the 1903-05 Ontario Death Records for the Division of Hamilton, only 97, or 42.5 percent of the total, could be located in the 1901 Canada Census (Government of Ontario 1903-05:n.pag.). The small sample of linkable deaths likely reflects residential mobility between the time the census was taken and the year the individual’s death was recorded in the Ontario Death Records, under-enumeration during census taking, as well as possible transcription errors. It is interesting to note, however, that the average number of people per household was 6.0 for individuals who died from tuberculosis. This is slightly higher than the average of 4.7 people per household for Hamilton, though this has not been tested for statistical significance.

With the rapid increase in population from immigration and migration, the need for housing surpassed the supply of houses in Hamilton. This housing shortage led to overcrowding. An article from the *Hamilton Spectator* in May 1904 observes that the demand for apartments was so great that people were “compelled to double up two and sometimes three families in single houses” (*The Hamilton Spectator* May 16, 1904:10). In east Hamilton, a family of five was living in a small attic in a partly furnished two-storey building (*The Hamilton Spectator* May 16, 1904:10). In 1905, moreover, “there still is a dearth of houses in the city and many families are living in shacks, attics and doubling up with other families in places almost too small for the comfortable accommodation of one household” (*The Hamilton Spectator* September 19, 1905:10).

The direct relationship between the prevalence of consumption and population density could not be disputed (Brandt 1903:67). Because tuberculosis spreads through the air by infected droplets, overcrowded housing conditions increase the probability of exposure and transmission. As noted above, the average household

size for Hamilton was approximately 4.7 while households in which people died from tuberculosis averaged 6.0 people per household. With the growing number of people living in confined houses, the possibility of contracting tuberculosis in Hamilton also increased.

Strangers in the House

This large number of individuals per household can be partly attributed to an increasing number of lodgers and boarders that resided with families at the beginning of the 20th century. Of the 10,861 households counted from the 1901 Canada Census for Hamilton, 1,410 households took, on average, 2.2 lodgers or boarders. This accounts for about 13 percent of all the households, meaning that approximately 1 in 7.7 households had a lodger or a boarder. Of the 97 people who died from tuberculosis (cross-checked and located in the 1901 Census of Canada), 23 had either a lodger or boarder in their household. Many families took on lodgers because lodging supplemented low and uncertain incomes, providing a buffer against difficult times (Harris 1996:119). In the east end, 40 boarders working in the factories shared one home (The Hamilton Spectator May 16, 1904:10). Twenty of the boarders occupied the home by day while the other 20 did so by night (The Hamilton Spectator May 16, 1904:10).

Home as a Place of Death

The home played an important role in tuberculosis deaths. In the Hamilton Annual Health Report of 1904-05, medical officer James Roberts quoted Professor William Osler:

In its most important aspects the problem of tuberculosis is a home problem. In an immense proportion of all cases the scene of the drama is the home. On its stages the acts are played whether to the happy issue of a recovery or to the dark ending of a tragedy so commonplace as to have dulled our appreciation of its magnitude. In more than four hundred homes of this country there are lamentations and woe to night; husbands for their wives, wives for their husbands, parents for their children, children for their parents. [Roberts 1904-05:14]

Table 7.1 shows the significance of the home as a place of death. The Dwyer Funeral Records contain information on the deceased and their place of residence at the time of death. Of the 35 people who died from consumption in 1904, 28 of the total (representing 80 percent) died in a home as opposed to a hospital or another institution.

	Jan. – Dec. 1904		Jan. – April 1905	
	Number	Percent (%)	Number	Percent (%)
<i>Residence of Death</i>				
Home	28	80	5	83.3
City Hospital	4	11.4	-	-
St. Joseph's Hospital	2	5.7	-	-
Asylum	1	2.9	-	-
Other	-	-	1	16.7
<i>Total</i>	35	100	6	100

Table 7.1: Residence of Death from the Dwyer Funeral Records, January 1904 to April 1905 (Dwyer Funeral Records 1904-05:n.pag.).

The Blachford and Wray Funeral Records show that most people who died from tuberculosis did so at home (Table 7.2). From 1903-05, 80 percent, 95.8 percent, and 90.5 percent of the individuals afflicted with tuberculosis died at home, respectively. Why?

	June – Dec. 1903		Jan. – Dec. 1904		Jan. – Dec. 1905	
	Number	Percent (%)	Number	Percent (%)	Number	Percent (%)
<i>Residence of Death</i>						
Home	4	80	23	95.8	19	90.5
City Hospital	1	20	-	-	1	4.8
St. Joseph's Hospital	-	-	-	-	-	-
Asylum	-	-	-	-	1	4.8
Other	-	-	1	4.2	-	-
<i>Total</i>	5	100	24	100	21	100

Table 7.2: Residence of Death from the Blachford and Wray Funeral Records, January 1903 to December 1905 (Blachford and Wray Funeral Records 1903-05:n.pag.).

The duration of illness varied from person to person; some died quickly while others were bed-ridden for an extended period of time. According to the death records for Hamilton from 1903-05, some people suffered with tuberculosis for as long as three years (Government of Ontario 1903-05:n.pag.). Because tuberculosis afflicted an individual for a long period of time, the social and economic costs of staying in hospital for many months would have been overwhelming. Furthermore, hospitals often refused to take in people suffering from tuberculosis. Reverend Mr. Parker considered it scandalous that Toronto hospitals took in consumptives only under protest (The Hamilton Spectator March 16, 1904:6). The Gravenhurst Sanitarium, which took in consumptive patients without charge, rejected incurables (Hamilton Times September 30, 1905:4). Hamilton's City Hospital also turned down consumptive incurables (The Hamilton Spectator January 22, 1937:n.pag.). Individuals with advanced tuberculosis had no choice but to expose other members of their household to infection.

Hamilton's Response to the Built Environment and Tuberculosis

At the beginning of the 20th century, doctors and health officials agreed that there was a correlation between tuberculosis and poor sanitary conditions in the home and in factories: "It was not outside that the greatest danger was...it was in offices or homes that the disease spread most rapidly" (The Hamilton Spectator March 16, 1904:6). Tuberculosis was "distinctly a social problem" (Brandt 1903:65). Dr. Bruce Smith, Provincial Hospital Inspector, stated, "consumption is a house disease; the house or workshop is its fostering place" (Hamilton Times October 16, 1905:8). Tuberculosis was "distinctly a social problem" (Brandt 1903:65). Many cities, including Hamilton, advised the public of the dangers of infection. Hamilton's health board officials warned:

Confinement in crowded workshops and factories, uncleanly homes with insufficient air space and poor ventilation are matters to be guarded against and the good work continued until every case is reported and means adopted to destroy all possible sources of infection. [Roberts 1904-05:12]

Various measures were instituted to improve sanitation and reduce the risks of infection. Dr. W.F. Langrill, Dr. James Roberts and the Sewer Committee, for example, worked to connect all houses in Hamilton with a sewer line to prevent infection, especially in the newly built “annex” portion of Hamilton (Roberts 1904-1905:15). It was also recommended that cases of tuberculosis be reported to health officials in order to ensure that houses occupied by consumptive patients were disinfected properly (Roberts 1904-05:12).

Conclusions

At the turn of the 20th century, Hamilton was a booming industrial city. Tuberculosis affected both the rich and the poor (Wilson 2006). Although conditions were improving in factories and there was a housing boom, unsanitary and overcrowded conditions facilitated the spread of infection. Increased density in factories and in homes, through lodgers and boarders, also may have increased the possibility and risk of transmitting tuberculosis. The home was a significant place for individuals afflicted with tuberculosis, as a place of hopeful recovery and tragic death.

“Consumption is Contagious”: Germ Theory, Media and Changing Perceptions of Tuberculosis in Hamilton

Elizabeth Walker

Like a thief in the night, unheralded and unsought, the disease germ steals into the system under cover of the air we breathe, or our food and drink. If this germ finds a weak stomach and digestive system he at once sets up housekeeping, with the result that his landlord has a serious illness. On the other hand, if the stomach...is strong and healthy through the use of Mi-o-na the injurious effect of the disease germ is at once neutralized or the germ itself is driven out of the system... (The Hamilton Spectator June 13, 1905:7)

This article focuses on the shift in historical perceptions of tuberculosis from the humoural model to the biomedical or ‘germ theory of disease’ model in Hamilton at the turn of the 20th century. More specifically, I examine how consumption was understood within the humoural model until the late 19th and early 20th century, when Robert Koch’s identification of the tuberculosis bacillus began to alter long held beliefs about the nature and spread of tuberculosis. Within the humoural tradition, consumption was believed to be a hereditary condition related to individual disposition (i.e. overly sensitive, weak, sad or repressed) and was often romanticized. Conversely, the germ theory of disease initiated a wave of new TB treatments and preventions in Europe and North America, including more strict sanitation practices and public health campaigns. The annual reports of the Board of Health in Hamilton reveal the public health measures enacted to stop the spread of tuberculosis. In order to understand public perceptions of tuberculosis in Hamilton, I analyzed newspaper articles and advertisements in The Hamilton Spectator for six months in 1905. From this analysis, I suggest that even though

germ theory was gaining acceptance as an explanatory model, the roles of heredity, the environment and germs remained conflated in popular perceptions of tuberculosis.

Newspaper ads in *The Hamilton Spectator* also reveal that the fear of infectious diseases permeated life in Hamilton at the turn of the 20th century. Whether concern centered on personal hygiene, maintaining standards of household cleanliness, or finding an effective cure for the common cold, the need to protect oneself and one's family from the threat of serious infectious diseases like tuberculosis constantly loomed overhead.

Consumption and Humouralism

The humoral tradition dates back to Hippocrates (460-377 BC), an ancient Greek physician who proposed that there are four liquids or humours in the human body (blood, phlegm, black bile, and yellow bile). When all four humours are in balance, an individual is healthy; disease is the result of an imbalance between internal humours and external forces, such as one's lifestyle, diet, personality, and environment (Waller 2002:16). Each humour was associated with two characteristics, hot or cold and moist or dry, corresponding to the symptoms of a particular illness or disease. Once the symptoms were identified, the corresponding humour would require removal or replacement. Common treatments included purging, bleeding, vomiting, and starvation.

In humouralism, individual disposition and external influences are considered important indicators of how a disease will affect an individual. As a result, there was no concept of specific diseases or disease causing agents (i.e. *Mycobacterium tuberculosis*), because a similar condition could manifest itself differently, producing different symptoms, depending on the individual (Waller 2002:12). This posed particular problems for physicians attempting to diagnose and treat consumption, because tuberculosis can manifest itself in a variety of different ways (see chapter 2). Consumption was not considered a contagious disease because it appeared to target only certain individuals who were believed to be at greater risk because they possessed internal, hereditary qualities, such as passion or aggression, believed to be expressions of a tubercular character type (Sontag 1978:38-39).

During the late 19th and early 20th century, the view was widespread among the middle and upper classes that consumption was a hereditary, romantic disease.

Romanticism was an intellectual and artistic movement in Europe during the late eighteenth and early to mid-19th century. The movement arose in reaction against the Enlightenment, a philosophical, scientific, and intellectual movement of the 17th and 18th centuries. Enlightenment scientists valued objectivity, logic, reason, and rationality, while the Romantics celebrated the beauty of nature and folk traditions and valued individuality, imagination, emotional feeling, and creativity (Hays 1998:156). Many romantic artists and intellectuals moreover were preoccupied with death, darkness, and melancholy atmospheres. Furthermore, many famous writers and artists died from consumption at an early age during the Romantic period, including the Brontë sisters (English writers), John Keats (English poet), and Frederic Chopin (Polish composer) (Hays 1998:158). Many Romantics believed that consumption was a favourable diagnosis because it set them apart from mainstream society, thereby increasing their creativity, sensitivity, passion, and intelligence (Sontag 1978:36-37). Consumptives were encouraged to seek out fresh air and moderate exercise, so many Romantics traveled abroad, seeking out solitude and picturesque landscapes where they could write or paint in quiet reflection (Sontag 1978:33).

In reality, the romantic myth surrounding consumption successfully masked a disease from which sufferers died an often slow and painful death. It was not until later in the 19th century, when consumption mortality rates were beginning to decline, that the disease began to be more widely recognized as a social problem (Hays 1998:160). Yet tuberculosis was a disease that disproportionately affected the lower classes. This posed a problem for the middle and upper classes during the Romantic era, because they were also dying of consumption.

Throughout history, epidemic diseases among the poor have been blamed on their lack of morality and attributed to their willingness to live in poverty and in filthy, overcrowded tenements. The more affluent members of society believed that their habits of cleanliness and moral virtue provided protection against disease. Placing blame for epidemic disease is a common strategy for establishing boundaries between the healthy and the ill, and to find ways to control outbreaks (Nelkin and Gilman 1991:40-41). But because consumption affected everyone, it was necessary to find an alternative explanation for its apparent ability to affect people of all classes (Waller 2002:135-36). By attaching positive associations to the disease – the ‘idealized’ consumptive was a thin, pale, delicate individual, which conformed to contemporary standards of beauty – consumption was

transformed into a tragic, romantic disease until it began to decline around the turn of the 20th century.

Germ Theory and the Tuberculosis Debate

The germ theory holds that microorganisms inside the body cause infectious diseases (see chapter 2). An early awareness of this concept dates back to the 17th century, but the key period for the development of germ theory occurred between 1870 and 1885 (Hays 1998:232). First, the experimental work of Louis Pasteur (1822-1895) was crucial for the advancement of germ theory. His studies of fermentation established that a microorganism was responsible for this process



Figure 8.1 - Robert Koch (Guilt By Association: A Celebration of Medical History, Francis A. Countway Library of Medicine 2003:2).

(Hays 1998:233). His research also influenced the German scientist, Robert Koch (1843-1910), who applied germ theory to the isolation and identification of disease causing agents. In 1876, Koch isolated anthrax bacteria, cultivating and then successfully infecting healthy animals with it (Hays 1998:150). It was not until 1882, however, that Koch made his most important discovery: identifying the tubercle bacillus (*Mycobacterium tuberculosis*).

Despite his great scientific achievements, Koch was unable to produce a definitive cure or vaccine for tuberculosis, nor to introduce improved methods of treatment or prevention (Hays 1998:237; Feldberg 1995:49). As a result, germ theory faced considerable resistance, particularly from advocates of humoral concepts of health and disease. The view that health was best understood as a

continuum from healthy to sick, shaped by both internal and external influences, was now at odds with the belief that specific germs (external forces) ‘attack’ or ‘invade’ the body, causing different diseases and illnesses (Hays 1998:238).

During the late 19th century, germ theory slowly became more widely accepted and understood, but physicians, public health officials, and the general public tried to accommodate both perspectives. Accordingly, it was believed that

one or both of two components were required for tuberculosis to manifest itself in an individual. The first prerequisite was a ‘tubercular constitution’ (metaphorically, the ‘soil’), expressed either as a hereditary susceptibility to infection or to poor health in general. The second prerequisite was the presence of the tuberculosis bacillus (metaphorically, the ‘seed’), which caused irritation or inflammation of the lungs (Worboys 2001:92). This led to an increase in the use of antiseptics in the form of inhalants and in over-the-counter remedies (Worboys 2001:95), trends evident in Hamilton at the turn of the 20th century (see chapter 10). Not surprisingly, two approaches to treatment and prevention also developed in an attempt to accommodate germ theory. According to germ theory, the bacillus had to be destroyed or diseased tissue removed surgically; on the other hand, building up individual strength and resistance (i.e. strengthening the soil) also became popular methods of treatment (Worboys 2001:95; Feldberg 1995:51). Treatments at sanatoria, for example, more closely resembled the humoral tradition with a focus on changing individual behaviour, such as control over coughing and sputum, and modifying lifestyles, such as getting plenty of fresh air, sun, exercise, and nutritious food (Feldberg 1995:80).

By focusing attention on the microbe, Koch’s findings also influenced the sanitation movement, which focused on eliminating germs. If germs were not targeted first, then all the other issues of concern to sanitationists, including the control of dirt, hygiene, foul smells/air, and overcrowding would be ineffective (Hays 1998:238). The result was the spread of mass health education initiatives targeted at improving personal hygiene practices. Emerging social reform movements in Europe and North America increasingly drew attention to the effects of poverty, malnutrition, and cramped, unsanitary living conditions among the urban poor. These social circumstances put the urban poor at a far greater risk of contracting tuberculosis or developing an active case, instead of remaining in the latent stage.

As there was no effective cure for tubercular patients in the first half of the 20th century, public health officials concentrated on education and prevention in order to curb tuberculosis infection rates. Lectures, exhibits, films, posters, and pamphlets were distributed as part of the effort to educate the public (Tomes 1997). Regulating spitting and coughing, reducing the sharing of eating and drinking utensils, and getting plenty of clean, fresh air were among some of the prescribed methods of preventing infection, transmission and/or activation of tuberculosis. Public health officials also began to link positive, responsible social

and moral values with tuberculosis prevention and attributed negative, irresponsible disregard for public health and safety to those engaged in “TB spreading behaviours” (Tomes 1997:272-273). Health officials began referring to ‘careless consumptives’ who either willfully chose to disregard anti-spitting laws and failed to maintain a proper standard of hygiene, or were unaware of their infectious status or lacked the knowledge of how to control the spread of tuberculosis (Feldberg 1995:87).

In addition, there was great concern about controlling discharges from the nose and mouth, including saliva, sputum, and the droplets released by coughing and sneezing, all of which were now feared by the public. Another key message, evident in Hamilton in 1905, was the importance of taking care of oneself, staying healthy, and building up resistance in order to avoid becoming a threat to friends and neighbours. It was the individual’s responsibility to protect him/herself and others from the threat of tuberculosis and other contagious diseases (Tomes 1997:283). There was also heightened concern about maintaining cleanliness in the home to prevent the risk of contaminating milk and food by carelessly sweeping dust or dirt containing the tuberculosis bacillus into the air, or allowing the germs to attach themselves to inanimate objects, such as women’s skirt hems and floor carpeting (Tomes 1997:280).

The Hamilton Board of Health introduced several public health measures, documented in the annual report for 1904-05. The measures included an anti-spitting law, distribution of anti-tuberculosis literature aimed at stopping the spread of disease, attempts to maintain cleanliness in public areas, and educating families about how to treat and contain tuberculosis (Roberts 1905:11). Although the Board endorsed the establishment of a sanatorium on the mountain, public health officials cautioned that the Board of Health must continue to improve ventilation in homes, workshops, and factories, as well as increase cleanliness and prevent overcrowding (Roberts 1905:13-14).

It is clear from this that public health officials in Hamilton actively supported the introduction of mass education programs that emphasized personal responsibility to increase public awareness about how to prevent and control tuberculosis. In the report for 1905-06, the Board recommended that public health officials remain vigilant and continue to improve hygienic measures because the recently opened sanatorium would not be sufficient to control the spread of tuberculosis (Roberts 1906:17-19). The report also mentions several new policies under consideration, including the disinfection of the homes of tubercular

patients, developing housing for the poor, regulating the number of people allowed to live in a single dwelling, controlling garbage in the streets, and maintaining public cleanliness (Roberts 1906:20).

Tuberculosis in the Hamilton Media

Public perceptions about tuberculosis in Hamilton, including how the disease was spread and could be prevented, cured, or treated, can be understood by analyzing newspaper advertisements and articles (Clarke and Everest 2006:2592). For the purposes of this chapter, I studied ads that promoted products with health benefits specifically related to colds, consumption, and various lung infections. Ads for products that promised cosmetic care or relief from back pain or arthritis, for example, were discarded. I read the daily editions of *The Hamilton Spectator* for a period of six months between January and June 1905. I identified relevant ads and articles, noting the content, headlines, use of language, and line of reasoning aimed at convincing Hamiltonians to buy a particular product. I used social representation theory to interpret the findings. This theory involves elucidating common beliefs represented in newspapers or other popular media that help construct and reflect these common beliefs (Washer 2004:2561-2562).

Three important trends are discernible in *The Hamilton Spectator* advertisements and articles. Many ads encouraged Hamiltonians to build up their resistance to illness and disease. The use of fear is also frequently employed to encourage Hamiltonians to get rid of their coughs and colds as quickly as possible. Finally, many of the ads use metaphors related to germ theory, stating that germs and microbes spread tuberculosis and must be eliminated.

Hamiltonians were encouraged to prevent tuberculosis by strengthening their immune systems and building up resistance to disease and infection. An ad for Dr. William's Pink Pills entitled "Consumption curable – good blood makes the lungs strong and expels diseases" (*The Hamilton Spectator* May 13, 1905:10) informs the reader, "Consumption prey's [sic] upon weakness. Strength is the only measure of safety. Do not let the blood become thin and watery. That is an open invitation to disease to take possession of your system" (*The Hamilton Spectator* May 13, 1905:10). The ad emphasizes the importance of building up resistance to overcome an infection: "...taken when the symptoms of consumption develop it builds up, strengthens and invigorates the patient to a point where the disease disappears" (*The Hamilton Spectator* May 13, 1905:10).

However, no mention is made of the tuberculosis bacillus, let alone the need to eliminate it in order for patients to recover. The ad does suggest, however, that the current state of one's overall health (i.e. the soil) plays a key role in the ability to fight a tuberculosis infection (the seed).

A similar perspective on disease causation is evident in The Hamilton Spectator ad," How to get consumption":

Ninety percent of 'lungers' contract consumption by allowing [their] power of resistance to fall so low that a favourable condition for the development of the bacilli is provided. In a healthy system consumption can't take root. But where there is weakness and debility, there you find tuberculosis. [The Hamilton Spectator June 10, 1905:19]

Although the ad alludes to a disease-causing agent (*Mycobacterium tuberculosis*), it stresses prevention achieved by building up individual resistance to infection. An ad for Angier's Emulsion (The Hamilton Spectator January 19, 1905:3) emphasizes the importance of maintaining health (nutrition, specifically) and the need to eliminate the germ that causes tuberculosis: "It fortifies disease-resisting powers by perfecting nutrition and suppressing the growth of disease germs. It is invaluable for the treatment and cure of consumption and wasting disease generally" (The Hamilton Spectator January 19, 1905:3).

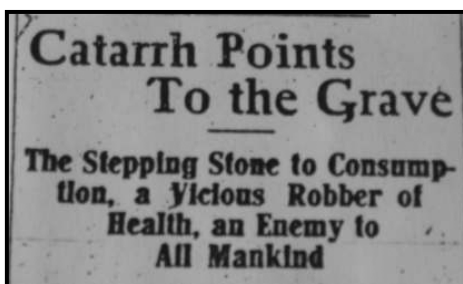


Figure 8.2: Ad for Catarrhozone (The Hamilton Spectator March 16, 1905:5)

Fear is commonly used in ads related to the prevention and cure of consumption, colds, and other lung diseases. The headlines are generally grim, describing catarrh (inflammation of a mucous membrane) as "a disguised enemy" (The Hamilton Spectator January 17, 1905:3) and proclaiming "Catarrh points to the grave – the stepping stone to consumption, a vicious robber of health, an enemy to all Mankind" (The Hamilton Spectator March 16, 1905:5).

The ads also stress that everyone is at risk and that action must be taken quickly: "Few are protected from tuberculosis – Thousands are dying if tired, languid or run down, get protection before too late" (The Hamilton Spectator

May 3, 1905:9). This same ad for Ferrozone goes on to warn, “No child, man or woman is safe from consumption unless their blood is pure, rich and nourishing...” (The Hamilton Spectator May 3, 1905:9). Other ads imply that death could be just around the corner, so caution and vigilance were an absolute necessity - “A cough that hangs-on is one to be afraid of – there is danger in it...” (The Hamilton Spectator February 11, 1905:5) and “Catarrh: what many consider a cold is in reality catarrh – soon it becomes consumption and death” (The Hamilton Spectator March 14, 1905:5).

Metaphors related to germ theory figure prominently in ads for cures for consumption and other related conditions. In the article “Cure for Tuberculosis – Physician declares results of new treatment have been gratifying” (The Hamilton Spectator April 18, 1905:3), a potential cure for tuberculosis is described as “...a germicide...proven to kill tuberculosis bacilli in lung tissues”. Another product, Catarrozone, “with incredible swiftness...kills the germs and heals the inflamed membranes” (The Hamilton Spectator March 14, 1905:5). Another article entitled “Cold caused by microbe...Popular notion that it is caused by exposure a fallacy” (The Hamilton Spectator February 25, 1905:15) states “...Scientists say that colds are caused by a hostile microbe, which gains a foothold when vitality is lowered by exposure” (The Hamilton Spectator February 25, 1905:15). Overall, these ads reveal that Hamiltonians understood that the tuberculosis bacillus caused the disease and that recovery depended on its elimination from the patient’s body.

On the other hand, there are ads in The Hamilton Spectator, such as Hood’s Sarsaparilla, that appeal to the belief tuberculosis infection is an inherited disposition:

Scrofula is very often acquired, though generally inherited. Bad hygiene, foul air, impure water, are among its causes. It is called ‘the soil for tubercles’, and where it is allowed to remain tuberculosis or consumption is pretty sure to take root. [The Hamilton Spectator April 6, 1905:7]

The manifestation of tuberculosis is also linked in this ad to environmental influences such as “foul air”, a hallmark of humoral theories of disease causation. It is clear that both germ theory and humoral explanations for tuberculosis were represented in newspaper ads in Hamilton in 1905.

Conclusions

In the early 20th century, the public's understanding of tuberculosis and other infectious diseases shifted, broadly speaking, from humoralism to the germ theory. In the 19th century, tuberculosis was romanticized and considered to be primarily hereditary, influenced by individual disposition and the external environment. After Koch isolated *Mycobacterium tuberculosis* in 1882, it slowly came to be interpreted within the germ theory of disease. Improvements in sanitation and personal hygiene, public health education campaigns, and the sanatorium movement became the preferred methods of prevention and treatment. However, tuberculosis was still conceptualized among physicians, public health officials, and the general public, within both explanatory models of disease. In Hamilton (1904-05), it is evident that the public was concerned about building up individual resistance to prevent tuberculosis infection and eliminating the tuberculosis bacillus in order to cure a pre-existing infection. The fear of contracting an infectious disease, especially tuberculosis, is palpable in newspaper articles and advertisements for over-the-counter remedies. The threat of emerging and re-emerging infectious diseases in the 21st century underscores the fact that human populations have been living with illness and disease throughout human history, and societies will continue to make sense of infectious diseases like tuberculosis within larger frameworks of meaning.

Cultural Constructions of Tuberculosis in Hamilton

Cynthia Thomson

Poverty is the greatest cause of tuberculosis, and ignorance, alcohol and tuberculosis are the greatest causes of poverty, so neither can a tuberculosis association disregard these factors, nor can associations for the suppression of any one of these evils withhold their support from antituberculosis work. (Toth 2001:22)

At the beginning of the 20th century, tuberculosis was a confusing issue for the residents of Hamilton. The disease was a constant aspect of life and, by then, had touched almost every family (Wilson 2006). The purpose of this paper is to discuss what tuberculosis meant to the people of Hamilton one hundred years ago.

In order to understand popular beliefs and conceptions of tuberculosis in the early 20th century, I examined the limited supply of locally written sources available for the period. The local Hamilton newspapers are a key element in my study. Printed on a daily basis and available to the public on microfilm, The Hamilton Spectator and Hamilton Times provide invaluable material for this study. They contain international and national information as well as opinions on issues of local importance, offering a glimpse of ideas and attitudes that prevailed in Hamilton at the time. The City Health Reports present important statistical information and commentary about tuberculosis. Unfortunately, only the health reports from 1904-1905 and 1905-1906 are available. This limited my ability to accurately assess whether the relative importance of tuberculosis, compared to other diseases, changed over time. In this chapter, I discuss social themes that can be found in popular ideas about tuberculosis. I suggest that the people of Hamilton believed that tuberculosis was directly linked to the 'health of society'

and that the day-to-day actions of the populace were considered to be important determinants of the outcome of disease.

Tuberculosis in Hamilton

Tuberculosis is an extremely old disease that predates the writings of the ancient Greek physician, Hippocrates (460-377 B.C.). Until the late 1800s, many authorities believed it was a hereditary condition and thus unpreventable, an idea that persisted in the general public for some time after its contagious nature was discovered (McCuaig 1999:3-4).

This view is reflected in health and newspaper reports for Hamilton from 1904 and 1905, which barely discuss tuberculosis as a contagious disease, focusing attention on infections such as cholera, smallpox, measles, scarlet fever and typhoid fever. The weekly health reports in the Hamilton Times during 1905 list cases of diphtheria, scarlet fever, typhoid fever, chicken pox, mumps, measles, and whooping cough, but make no mention of cases of tuberculosis (Hamilton Times January 28, 1905:8). The annual health report of Hamilton, however, shows that in 1905 59.5% of all deaths from contagious disease were caused by tuberculosis, exceeding the next highest contagious cause of death, diphtheria, by 41.3% (Figure 9.1).

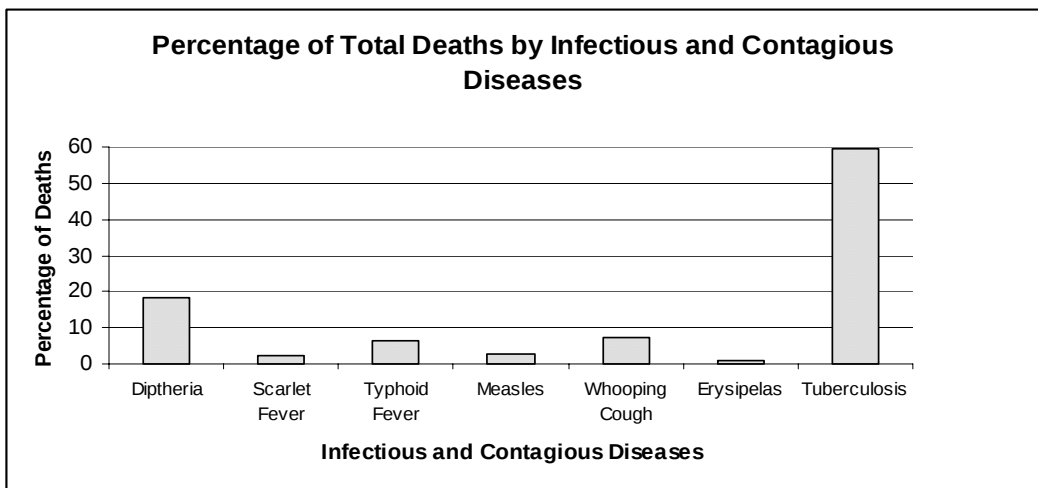


Figure 9.1: Deaths From Contagious and Infectious Diseases in 1905 (Roberts 1905:21).

Despite its leading position in the contagious disease profile for Hamilton, efforts to control and cure infection, such as the establishment of isolation hospitals, were not applied to tuberculosis. This is because tuberculosis had become a normal and accepted aspect of life. In the wake of Robert Koch's discovery in 1882 of the infectious agent that causes tuberculosis, physicians shifted their approach to "observation and experimentation to control nature and to intervene to correct the ailments that seemed to cut life short" (Samson 1999:3), and began increasingly to include tuberculosis in this proactive strategy. In keeping with this new approach, the Ontario Provincial Board of Health began to include tuberculosis among the other contagious diseases, ushering in a new focus on education and prevention in the province (Brink 1965:18).

Throughout the early 1900s, Hamilton was developing into a major industrial centre with factories springing up throughout the city. The rapid industrialization of the city led to population growth, urban poverty, overcrowding, inadequate sewers, inadequate food and water supply, sanitation problems, labour disputes, an influx of immigrants and the arrival of new information and ideas from all over the world (McCuaig 1999:6). These changes affected every aspect of life. As the industrialization process changed the structure of the city, Hamilton society was continually redefined, as was the public's understanding and conceptions of tuberculosis.

These social processes are reflected in concepts of disease that prevailed at the time. Disease is "an imposition of human meanings on naturally occurring processes" (Joralemon 1998:3). The people of Hamilton imposed their own understanding and values on tuberculosis in order to explain it. These understandings and values were directly linked to the circumstances and environment around them because "[t]he influence of sociocultural values on...disease concept[s] is irrefutable" (Joralemon 1998:3). From my analysis of locally written newspapers and medical reports from Hamilton in the early 1900s, I suggest that popular ideas about tuberculosis manifested themselves in terms of three main themes: foreign invasion, the victim's fault, and social decline.

Tuberculosis as Foreign Invasion

At the turn of the 20th century, tuberculosis was often depicted as a foreign invader. Several factors contributed to this image, not the least of which related to wars and struggles that were taking place in the world at that time. Hamilton's

local newspapers provided daily reports on the 1904-05 Russo-Japanese War and the Russian Revolution of 1905. With the discovery that tuberculosis was caused by a specific agent, the idea of foreign invasion became a way of understanding how infection could enter the body. Such an understanding also suggested ways to prevent and treat the disease, including the possibility of eradicating it (Feldberg 1995:81).

Infection as a foreign invader appears in Hamilton newspaper accounts. The Hamilton Spectator in 1905 reported, “scientists say that colds are caused by a hostile microbe, which gains a foothold when vitality is lowered” (The Hamilton Spectator February 25, 1905:15). This idea became linked, in turn, to the high volume of immigration experienced by Hamilton in the early 20th century. People believed that immigrants were bringing in tuberculosis and spreading it to the people of Hamilton (see chapter 7). In order to prevent and treat tuberculosis, the citizens banded together to establish ‘battlegrounds’ against the disease. Various organizations began campaigns to open a Hamilton sanatorium and expected all local people and businesses to support the cause and donate money (The Hamilton Spectator October 16, 1905:10). The opening of the Hamilton Sanatorium in 1906 can be seen as an expression of the battle against the foreign invasion of tuberculosis, and as a solution to containing it (see chapter 13).

Tuberculosis and Victim Blaming

Newspaper and medical health reports for turn-of-the-century Hamilton show that there was a widespread idea that people with tuberculosis were responsible for contracting the disease. Working hard, eating properly and avoiding alcohol were viewed as ways to stay healthy. The Hamilton Evening Times reports,

Ninety percent of the ‘lungers’ contract consumption by allowing power of resistance to fall so low that a favourable condition for the development of the bacilli is provided. In a healthy system consumption can’t take root. But where there is weakness and debility, there you find tuberculosis. [Hamilton Evening Times July 22, 1905:10]

Individuals became infected with tuberculosis because they allowed “resistance to fall” by not caring for their bodies. Hamilton was considered to be a “land of

plenty” and therefore there was no excuse for its citizens to have weak bodies unable to resist germs, and therefore susceptible to consumption (The Hamilton Spectator July 12, 1905:3). Individuals were expected to control their own fate in relation to tuberculosis. In the pre-antibiotic era, proper nutrition and exercise were important treatments used in sanatoria. Through such programs, it was believed that individuals took responsibility for their health and improved their bodies so that they could survive the disease.

Tuberculosis and Morality

The people of Hamilton recognized that the poor and working classes were most affected by tuberculosis (Wilson 2006:12). They also understood that an urban poor had developed in the city and that tuberculosis would diminish if social and economic standards of living were improved. Anita Toth notes, “numerous volunteer organizations were established with the goal of reducing tuberculosis while creating massive societal and/or behaviour change” (Toth 2001:22). Such organizations believed that to cure tuberculosis, they first had to cure society (McCuaig 1999:7-8).

Citizens were concerned about a decline in the mental health of Hamilton residents. As home to an asylum, Hamilton experienced first hand the effects of mental instability. In July of 1905 The Hamilton Spectator released a report showing that in the previous year “the number of lunatics admitted was 876 and of idiots 82 a total of 958”. The total of 958 persons admitted was a marked increase from the typical average reported admittance “of 803 each year” (The Hamilton Spectator July 18, 1905:8). Mental health is closely linked to physical health and quality of life. At the time, more and more people were classified as unable to care for themselves and thus were susceptible to tubercular infection. Rapid industrialization was believed to have created a variety of new pressures and stresses considered to be hazards to mental and physical health. The number of people at risk for contracting tuberculosis was steadily increasing; in order to stem this tide, citizens believed that the stressful conditions in Hamilton had to be changed.

The role of women in Hamilton was also changing as they slowly became more important and more influential members of society as it industrialized. Various women’s groups became powerful and authoritative in policy making in Hamilton. This rapid change in women’s traditional roles caused alarm in some

quarters and were expressed in *The Hamilton Spectator*, “the over-intellectual development of American women in schools and colleges led to their becoming unfit for the role of mothers” (*The Hamilton Spectator* August 7, 1905:6). Women were blamed for the moral decay that was believed to lead directly to increases in infectious disease. If women did not ensure that their families received proper food, the family could become targets of tuberculosis. If a woman did not clean her house properly then the rest of the household would be exposed to infection-causing bacteria.

The social and economic strains of industrialization and the rise of Darwinian science in the 19th century also called into question conventional religious ideologies in Hamilton. Terence Ranger and Paul Slack’s analysis of historical epidemics notes that it was commonly believed that “God sends plague as a punishment or a martyrdom which could not be resisted” (Ranger and Slack 1992:3). Christianity had declined in importance in Hamilton, shown by a religious census taken at the beginning of 1905 in which “nearly half the people of Hamilton [were] outside the place of the church” (*The Hamilton Spectator* January 12, 1905:4). Katherine McCuaig suggests that in order to revitalize Christianity people turned to the task of social salvation (McCuaig 1999:6). The local newspapers show that Hamilton was no exception. They clearly state that at this time the people of Hamilton were involved “in the crusade against corruption” (*The Hamilton Spectator* January 12, 1905:4). Diseases such as tuberculosis were believed by some to be punishment for actions that failed to conform to traditional guidelines and correct behaviour. Newspapers report incidences of businesses opening on Sunday, a “breach of the Lord’s day act” (*The Hamilton Spectator* August 8, 1905:1). Operating a business on Sunday was not only against Hamilton’s laws but also in direct opposition to the rules of God.

Other features of life in Hamilton were considered to be evidence of the growing moral corruption of its citizens. Sporting festivals had become full of “profanity, gambling and booze” and “thousands of...young men [were] being drawn into these evils through their connection with sport” (*The Hamilton Spectator* August 8, 1905:3). Such behaviour, especially drinking alcohol, was evidence of the participants’ disregard for their own welfare, which included their health. Alcohol was considered a major contributing factor to tuberculosis because it was associated with unhealthiness, poverty, and low moral standards. The Woman’s Christian Temperance Union (W.C.T.U.) was a voluntary organization that believed alcohol had negative effects on families and society.

The W.C.T.U. fought for several years to reduce the number of liquor licenses distributed in Hamilton and to reestablish traditional morals (The Hamilton Spectator January 2, 1903:10; The Hamilton Spectator January 19, 1905:10). Their crusade was based on the belief that restoring traditional values in Hamilton would serve to restore the standard of living as well as the health of its people.

Conclusions

The decision to open the Hamilton Sanatorium in 1906 was not based solely on medical reasons. The proportion of deaths attributed to tuberculosis had declined since 1896, relative to all causes of death in Hamilton (Figure 9.2).

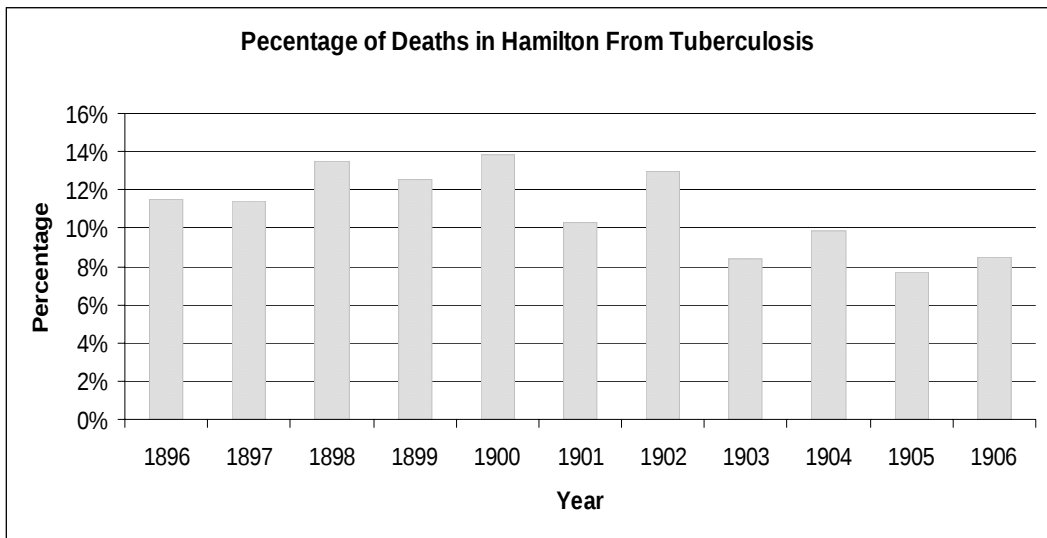


Figure 9.2: Percentage of Deaths from Tuberculosis in Hamilton, 1896-1905 (Roberts 1905:10).

Instead, the decision to open the Hamilton Mountain Sanatorium in 1906 was impelled to a great extent by public understanding of tuberculosis at the time and by the increasing popularity of treating infectious diseases through isolation (see chapters 11 and 15). The public interpreted the tuberculosis problem as a war between the citizens of Hamilton and the disease. By building a sanatorium in Hamilton, citizens were able to take an active role in fighting tuberculosis, whether this involved planning the sanatorium, fundraising, or actually working there. Citizens who suffered from the disease were able to fight it in their own

city, with the support of friends and family. In the Hamilton Sanatorium, the patients could focus on restoring their health and increasing their strength and resistance through proper nutrition, exercise and body maintenance. The Sanatorium also served as a place where the behaviour and habits of Hamilton's citizens could be controlled. Sanatorium staff ensured that traditional rules of behaviour were not breached and that residents were protected from the disreputable elements of society.

Over time, many of these beliefs about tuberculosis have been shown to be false yet "tuberculosis is once again a fearsome disease" (Feldberg 1995:208). Despite all the new knowledge that has been gained over the past century, tuberculosis is still understood as a foreign invader, as the fault of its victims, and as a barometer of individual and societal morals (Farmer 2005). In order to fully understand tuberculosis, it is important to recognize that the disease continues to be culturally constructed today, as it was in the past.

Treatment and Tuberculosis at Home: Remedies, Effectiveness, and Prevention

Logan Benz and Naoko Kiuchi

You realize that inhaling medicine is the best method to cure diseases of the breathing passages—common-sense tells you that...Formo, the perfect inhalant, the one that cures. Formo is simply absorbent cotton impregnated with curing, healing medicines. Just place a small circle of Formo in each nostril and every breath you draw will be a healing, curing draught. (Hamilton Evening Times January 5, 1905:6)

The goal of this article is to examine how the average citizen of Hamilton dealt with tuberculosis at the turn of the 20th century. Although a wide variety of medically sanctioned treatments were available for people suffering with tuberculosis (see chapter 11), these are not our concern. Rather, we consider informal treatments available in the popular and folk sectors of the medical system.

The popular sector of medicine is characterized by treatment or advice from any layperson, which may include self-treatment or medication, advice or treatment from friends, family or neighbours or consultation with another layperson. Popular treatments are based on common beliefs about the body's structure and function as well as the origin and nature of illness. Experience with an illness and its treatment are the traits that qualify certain individuals to dispense advice on certain illnesses, not their level of education or social status (Helman 2000:51-52).

The folk sector is intermediate between the professional and popular segments of medicine. Folk medicine can be sacred, secular or a mixture of the two depending on the time and place. Practitioners of folk medicine always use a holistic approach, treating all aspects of the patient's life as well as their illness. Folk medicine not only diagnoses illness, but also explains why the patient has it (Helman 2000:53-54). This chapter considers the intersection between these two sectors and how they influenced treatments available to tuberculosis sufferers in Hamilton in the early 20th century.

Historical evidence suggests that popular and folk remedies for tuberculosis have existed almost as long as the tubercle bacillus. From the Middle Ages to the 18th century in France and England, the touch of the king was thought to cure scrofula. Other treatments have included inhaling the smoke from cow dung, ingesting wolf liver that was boiled in wine, and applying gold salts and heavy metals (Magner 1992:325; Saskatchewan Lung Association 2006).

In this chapter, we explore preventative measures, home remedies and popular cures for tuberculosis employed in early 20th century Canada. We also weigh the evidence to determine if any of these measures were effective. The affordability of the treatments is also considered. Since most people in the early 1900s treated illnesses at home and only rarely consulted a physician, popular and folk remedies provide insight into how the average person dealt with the threat of tuberculosis.

FORMO gives continuous inhalation

You realize that inhaling medicine is the best method to cure diseases of the breathing passages—common-sense tells you that. But there has been one disadvantage of the inhalation method—it was inconvenient or impossible to use the treatment continuously. This fault

be found in every inhalant except one, and that is Formo, the perfect inhalant, the one that cures.

Formo is simply absorbent cotton impregnated with curing, healing medicines. Just place a small piece of Formo in each nostril and every breath you draw will be a healing, curing draught. The medically generated air is carried through every air passage, curing all diseased parts. Formo doesn't inconvenience in the least—you can go about your business all the while you are under the treatment. You breathe in the curing medicine constantly until you are permanently cured.

Formo, the perfect inhalant, is a positive cure for Cold in the Head, Catarrh, Bronchitis, Asthma, Fever, Croup, Sore Throat all affections of the lungs and air passages.

If your druggist doesn't keep it, we will mail it to you except of price—25 cents.

FORMO CO. 103
Toronto, Canada

FORMO
THE PERFECT INHALANT

Figure 10.1: Formo Advertisement (Hamilton Evening Times January 5, 1905:6)

Popular and Folk Medical Treatments

Besides medical treatments, many commercial and non-commercial options were available to the general public. Commercial products were advertised in local newspapers on a daily basis and include Dr. Chases' syrup, Dr. Williams' Pink Pills for Pale People, and Formo Medicated Cotton (Fig. 10.1).

Dr. Chases' syrup was made from a mixture of linseed and turpentine. It claimed to cure a cold before it turned into consumption, a common belief of this period. Dr. Williams' Pink Pills were believed to strengthen the blood and lungs. Formo consisted of cotton injected with "curing and healing medicine" (Hamilton Evening Times January 5, 1905:6). Placed in the nostrils, it was believed to provide protection or a cure for tuberculosis by medicating inspired air.

Visits to places with salubrious climates, such as British Columbia or Colorado, were prescribed by physicians and advertised in newspapers (Fig. 10.2). This is evidence that the humoral medical model continued to influence formal medical practise (see chapters 8 and 11).

Home remedies were published in books and newspapers. The recipe for the "green snail cure", for instance, was published in the Hamilton Spectator in early 1904:

...take a peck of snails...wash them in beer, put them in an oven and let them stay until they are done crying: then, with a knife and fork, prick the green from them and beat the snails, shell and all, in a stone mortar. Then take a quart of green earth worms, slice them

**Ask Your Physician
About Colorado**

He will tell you that it is almost the only section of country in America where consumptives have a chance to recover lost health. He will tell you, further, that the chances are decidedly in favor of a cure—if one acts before it is too late.

Thousands of Canadians have gone to Colorado for their health; have been benefitted; are now as well and strong as they ever were; are making good livings for themselves, and intend remaining there indefinitely. They like the climate, the people and the country.

Write—or call—and I will take pleasure in giving you full information about the Rock Island's service to Colorado.

**Rock Island
System**

**A. C. TURPIN, General Agent,
77 Yonge St., TORONTO, CAN.**

Figure 10.2: Trip to Colorado Advertisement (The Hamilton Spectator January 7, 1904:9)

through the middle and strew them with salt: then wash them and heat them, the pot being first put into the still with two handfuls of angelico, a quart of rosemary flowers, then the snails and worms, then egrimony, bears' feet, reddock roots, barberry brake, biloney, wormwood, of each two handfuls. One handful of rue-tumoric and one ounce of saffron well dried and beaten. Then pour in three gallons of milk. Wait till morning, then put in three ounces of cloves (well beaten), hartshorn grated. Keep the still covered all night. This done, stir it not. Distill it with a moderate fire. The patient must take two spoonfuls at a time. [The Hamilton Spectator January 13, 1904:6]

It is unclear whether this recipe is an advertisement, or merely a helpful suggestion from a newspaper reader. However, it provides a refreshing contrast to the medically oriented advertisements so common in newspapers of the day.

In her book published in 1897, Elizabeth Kuchenmaster, a tuberculosis survivor, offers suggestions for treating various symptoms of the disease. Olive oil figures prominently in her curatives. To fix a dry cough before it turns into consumption, she advises the following:

At bedtime, rub [feet and legs] gently with warm olive oil, pack them for three-quarters of an hour in a good large blanket fomentation, open them out and dry well; oil again; dry that off, put on a pair of cotton stockings and put the patient to bed...the morning after...an ordinary towel wrung out of cold water...[is] put tightly all round the back and breast of the upper part of the body...After three-quarters of an hour or so, this is taken off and the patient rubbed gently all over with good olive oil; that again is dried off. [Kuchenmaster 1897:32]

She also warns of the disastrous effects of alcohol on the human body, a common belief of the anti-tuberculosis movement of the early 20th century. Alcohol was considered to predispose drinkers and their children to tuberculosis. This belief was so widespread that the Quebec Royal Commission of 1910 stated that alcohol bred poverty, leading to overcrowding and poor diet, and inevitably resulted in tuberculosis (McCuaig 1999:12).

Effectiveness of Treatment

There is disagreement about the effectiveness of treatments advertised to the lay public. In 1909, The British Medical Association (BMA) reported that the vast majority of such treatments were deliberately marketed to deceive the average person for the purpose of making money. For the most part, no medicinal ingredients were found in treatments that were analysed; in fact, the most common ingredients were alcohol, sugar or other organic compounds (British Medical Association 1909). These analyses cannot be accepted at face value. The BMA researchers were biased toward a biomedical viewpoint that would seek to discredit popular or lay remedies. The report may have been merely an attempt to reduce the competition for medical professionals.

Physicians in Canada shared the perspective of the BMA. Cox and MacLeod (1911:66), for example, believed that many advertised products were frauds designed to steal the consumer's money. Similar warnings were published in Hamilton newspapers: "anybody who announces that he has a medicine for sale that will cure consumption is the deliberate murderer and swindler who wants your money so badly that he will kill you to get it away from you" (The Hamilton Spectator June 30, 1906:15).

COUGHS, COLDS
And Lung Troubles.

Sudden changes of temperature, exposure to drafts, cold feet, etc., cause coughs and colds, which often develop into—
Bronchitis, Pneumonia, Asthma, Consumption and Catarrh Troubles.

Break up these troubles by taking that great specific and remedy for coughs, colds, catarrhal affections and lung troubles—a powerful preventive and reconstituent—

VIN MARIANI

Read letter from the Celebrated Grand Opera Singer Emma Calvé

My Dear Mons. Mariani:—
"I followed the advice to cure my cold. I took hot grogs with your delicious wine, and it enabled me to sing "Carmen" last evening.
"With my sincerest thanks,
"EMMA CALVÉ"

EMMA CALVÉ

Hot Grog with Vin Mariani Mix a water glass one-third Vin Mariani and two-thirds boiling water (with or without sugar), add cloves and cinnamon.

Try Soothing, Exquisite, Effective Vin Mariani. All druggists.

LAWRENCE A. WILSON, Co., Limited, Agents, Montreal.

Figure 10.3: Vin Mariani Advertisement (Hamilton Evening Times February 3, 1904:3)

A few treatments tested by the BMA contained substances that were quite active, and even harmful, if taken in large quantities. For example, Dr. Williams' Pink Pills contained iron salts. Iron is known to be corrosive to the mucosa lining the gastrointestinal tract and can lead to perforation of the tract, pain, diarrhoea and possible haemorrhaging (Malahyde Information Systems 1998). If an individual failed to follow the directions and took too many of Dr. Williams' pills, serious consequences could arise. Vin Mariani contained potentially harmful and addictive ingredients, one of which was cocaine (Fig 10.3). If too much was taken at one time, it was possible to overdose on cocaine. The presence of cocaine may also explain why Vin Mariani was thought to be effective since the user may have been intoxicated and imagined that his or her symptoms had improved (Addiction Research Unit 2001).

At the other end of the spectrum, personal testimonials embedded in advertisements claimed that these medicines were genuine, as in the case of Psychine:

The doctors had given me up as an incurable consumptive. My lungs and every organ of the body were terribly diseased and wasted. Friends and neighbours thought I'd never get better. But Psychine saved me. My lungs have never bothered me for 16 years, and Psychine is a permanent cure. [Hamilton Evening Times September 30, 1905:14]

Personal testimonials were also found in self-help books. Dr. Yonkerman's (1907) book, *Consumption*, contains several personal testimonials regarding consumption remedies. Unfortunately, the book was intended to advertise his medicinal products (Yonkerman Consumption Remedy Company), which casts doubt on the testimonials. *Consumption Cured*, by Elizabeth Kuchenmaster (1897), describes treatments that the author believed cured her of tuberculosis. In contrast to Dr. Yonkerman, she is not trying to sell products. It is likely that she genuinely believed these cures worked and that it was her moral obligation to share her wisdom and experience with other tuberculosis sufferers.

Little can be said about the effectiveness of the treatments advertised and available during this time. All sources that evaluate efficacy are biased. While it is quite likely that the vast majority of the treatments were useless, the possibility remains that some, in fact, did work.

Was Alternative Medicine Affordable?

While many advertised treatments were available to the general public, it is important to investigate whether or not the average person could have afforded them. The Census of Canada from 1901 states that the average wage for a man in Ontario was \$1.38 per day while the average woman made \$0.72 per day. In one week in Ontario, individuals worked approximately 60 hours (Census of Canada 1901:xiv). This means that the average male in Ontario made approximately \$7 a week. The majority of advertisements found in the local Hamilton newspapers cost from \$0.10 cents to \$1, with the most common price lying in between \$0.25 and \$0.50.

When considering the affordability of treatments, the cost of living must be factored in to determine how much disposable income would have been available to the average citizen in Hamilton. Unfortunately, this information is difficult to find, especially given the time constraints of this project. Statistics Canada, the Census of Canada, and several archivists were consulted to no avail.

However, helpful information was available for Dr. Williams' Pink Pills for Pale People. A box of Dr. Williams' contained 40 pills and the adult dosage was two pills, three times a day. This means that the box would last an adult less than a week. Each box cost \$0.50, or 6 for \$2.50 (Kansas State Historical Society 2006). The average male in Ontario at this time made about \$28 per month. Therefore, a family of four would use about three boxes of the pills a week, or spend about \$5 a month on the treatment. Based on these estimates, it appears that Dr. Williams' Pink Pills for Pale People would have financially strained many families. To try and make ends meet many people may have attempted to work extra hours to make enough money to afford the pills. Many others may have spent less money on food or skipped meals to have enough money to pay for advertised treatments. Longer hours of work and poor nutrition may have contributed negatively to their overall health and possibly made them more susceptible to tuberculosis or less likely to recover from it.

Even though the treatments were quite expensive, many were willing to pay the price. Corley (1987) claims that consumers were willing to pay large sums of money for these cures and illustrates this by showing how the output of patent medicines in the United States far exceeded income earned. Individuals were willing to spend their money on the more popular treatments (Corley 1987:111) and Dr. Williams' was one of the most popular of the time. At its peak, the pills

were sold in 82 countries and the owner of the manufacturing company was extremely wealthy from the sales (Kansas State Historical Society 2006). The willingness to pay these prices was partly dictated by the culture of the time. Many British men and women had a deep mistrust of doctors due to the relatively rudimentary state of medicine (Corley 1987:111). Since Canada was still part of the British Commonwealth and had a large population of British descent, many citizens may have espoused these beliefs.

Prevention

To help prevent the spread of tuberculosis, health reformers attacked the disease in two ways. The first was bacteriological, aimed at eliminating or reducing exposure to the tubercle bacillus. The other was socioeconomic, aimed at reducing the prevalence of tuberculosis by improving social conditions, living conditions and general health (McCuaig 1999:7-8). These approaches were influenced by Sir William Osler's claim, "TB was predominantly 'a social disease with a medical aspect'. To cure TB, one had to cure society" (McCuaig 1999:8).

These two approaches were manifested in a variety of ways. To reduce the prevalence of micro-organisms, people began renovating their kitchens and bathrooms to have hard, easy-to-clean surfaces such as enamel. To attack tuberculosis at the bacterial level, women were encouraged to shorten their hemlines because it was thought that long skirts brought dirt and germs into the house. Spitting was a common practice in Canada at the turn of the 20th century and occurred in almost all public spaces (McCuaig 1999:10). Because dried saliva from consumptives could contain tubercle bacilli, and people could become infected by inhaling them, advertising campaigns discouraged spitting in public places using slogans such as, 'spitting is dangerous' (Tomes 1998:124).

Other common practices, such as sharing public drinking cups in schools, were strongly discouraged by reformers; instead, disposable drinking cups and 'bubbling fountains' were encouraged. Moist sawdust or a wet cloth on a long brush was recommended for floor cleaning, rather than the traditional dry sweeping method. In warm weather it was recommended that streets be sprinkled with sawdust and that shoes worn outside be wiped off upon entering the home (McCuaig 1999:10). Public workers began demanding that food in the home and shops be covered as protection from flies (McCuaig 1999:11). Finally, to prevent babies from contracting tuberculosis, babies were separated from their mother

immediately after birth until the mother was well enough to take care of a child (Saskatchewan Lung Association 2006).

Conclusions

In the early 1900s, a wide variety of alternative treatments were available for tuberculosis in Hamilton. The costs for these treatments were quite variable and were frequently advertised in the local newspapers, especially in winter.

The effectiveness of the advertised products is debatable. There are as many arguments for and against their effectiveness as there are products. All sources that discuss effectiveness are biased. While it is likely that many were useless, some may have been effective from a psychological perspective, if not biologically.

It is harder to make conclusions about the affordability of these products, given the difficulty of obtaining information on dosages and the cost of living in Hamilton in the early 20th century. Based on census information on wages and on the cost of Dr. Williams' Pink Pills for Pale People, it can be inferred that the average Hamiltonian could not afford many treatments. If our analysis of Dr. Williams' Pink Pills for Pale People is representative, it is fair to say that a large portion of the average person's salary was spent on these treatments. This financial strain had the potential to negatively affect their health and nutrition.

Prevention was addressed by attacking tuberculosis from bacteriological and socioeconomic perspectives. Anti-tuberculosis societies promoted practices that addressed the disease in terms of its biological and social effects arguing that the disease could be eliminated by changing daily habits and hygiene.

Tuberculosis is still considered to be a disease influenced by social conditions. Poverty, horrendous social conditions, and malnutrition remain significant problems that encourage tuberculosis to flourish today. Tuberculosis is re-emerging, especially in developing countries, and amongst the urban poor of western countries, due to the very conditions that promoted the disease a century ago (Barrett et al. 1998:259). Tuberculosis cannot be viewed in a social vacuum; rather, it is best understood from a holistic perspective.

Cough Won't Go Away? Medical Diagnosis and Treatment of Tuberculosis

Alicia E. Donis

Though an agent or a method do not 'cure', it may relieve, or it may help to put the patient in condition to recover. To demand either of drugs or mechanical measures that they shall work miracles, or to reject that which accomplishes desirable ends, palliative or remedial, because it does not achieve impossibilities is a practice as unscientific as it is, unfortunately, too common. (Solis-Cohen 1891:925)

At the turn of the 20th century it is likely that the majority of Canadians were infected with tuberculosis bacilli, as later in the century the prevalence of infection was still high, well after rates of tuberculosis had declined (Grzybowski and Allen 1999:1027). Virtually everyone's lives had been touched by tuberculosis in some way and the people of Hamilton were very aware of the symptoms of this devastating disease. Concerns about preventing and treating tuberculosis are evident simply from scanning newspapers from the period.

Medical specialists were no less preoccupied with this scourge, as a plethora of texts, speeches, and scholarly articles were written and presented on the subject. The early 20th century, moreover, was a period in which new scientific ideas were emerging about tuberculosis and the view that consumption was a contagious disease (see chapter 8) was spurring the development of new techniques and treatments. This chapter seeks to address this shift in tuberculosis technology by discussing common medical diagnostic techniques in Canada and Hamilton and their efficacy. I also examine some of the popular treatments of the

period, including prescribed lifestyle changes, surgical intervention, and medicinal remedies, and comment on their perceived and actual effectiveness.

Diagnosing Tuberculosis

In the early 20th century, tuberculosis often remained undiagnosed until the disease had progressed to an active case or even until severe symptoms were present (Wherrett 1977:34). Even if a visit were paid to a physician because of nagging symptoms, tuberculosis was often misdiagnosed in its early stages as typhoid, malaria, bronchitis, or the common cold (Otis 1909:83; McCuaig 1999:24). Several diagnostic methods were common at the time and used in conjunction with each other.

Patient Symptoms and History

A doctor examining a patient in the early 20th century would first ask for a description of symptoms. Some of the early symptoms of tuberculosis include a hacking cough, loss of weight or strength, slight fevers, and ‘night sweats’ (see chapter 2). Haemoptysis, which is bleeding from the lungs, was often the first symptom that called attention to the possibility of tuberculosis. It is almost fortunate that such an alarming symptom occurs fairly early in the disease process, as it often prompted individuals to seek medical attention (Otis 1909:84). The patient’s history of illness, as well as family history, was recorded. It was important to know the family history because many physicians believed that tuberculosis was hereditary. At the same time, recording the family history provided the doctor with an idea of the level of exposure to the disease (Brown 1941:528). A visual inspection of the chest would also have been conducted to observe its shape, irregularities, and breathing movements (Otis 1909:84). Although a diagnosis was not usually based solely on this information, these procedures were important first steps in the diagnostic process.

Percussion and Auscultation

Percussion is a diagnostic technique used by physicians to judge the condition of the chest cavity; it literally involved knocking on the thorax and listening to variations in the reverberating sounds. Auenbrugger is credited with the

discovery, or rediscovery, of this technique in 1761, which was considered a “method of greatest value in examining the chest” (Otis 1909:86). Unfortunately, the sounds of a tubercular chest were often indistinguishable from those produced by other conditions (Laënnec 1821:282). The percussion technique is also complicated by individual characteristics, such as height and weight, and the circumstances under which it is performed, such as the presence of background noise (Laënnec 1821:282). However, when combined with auscultation it became a valuable diagnostic tool (Waksman 1964:76).

Auscultation is essentially the use of a stethoscope, which allows a physician to hear breathing and voice sounds as they echo in the chest. Developed by Laënnec, this procedure was carried out on a small portion of the chest in which it was possible to identify Pectoriloquism, a phenomenon in which the patient’s voice seemed to come directly through the stethoscope (Laënnec 1821:298). The sounds varied, depending on the proximity of tuberculous cavities to the surface of the lungs, and were most evident when diseased portions of the lungs adhered to the pleura (Laënnec 1821:299). Today there is much less reliance on these techniques, but the stethoscope is still associated with a visit to the doctor.



Figure 11.1: Laënnec Examining a Patient.
(Medical Antiques Online 2006).

Sputum Test

The most important test for tuberculosis at the turn of the 20th century involved identifying tubercle bacilli in the sputum, matter expectorated from the lungs, of a suspected consumptive. The Ziehl-Neelsen staining technique was commonly used; here, acid-fast bacteria showed up as red rods and other organisms and tissue cells were stained blue (Waksman 1964:78). The presence of bacilli was proof of a latent infection; however, if bacilli failed to appear in the sputum sample but symptoms of tuberculosis were present, other tests were performed to confirm the presence of the disease (Otis 1909:90).

X-Rays and the Tuberculin Test

Two major diagnostic tests still employed today, the tuberculin test and x-rays, were just beginning to be used at the turn of the 20th century. In the tuberculin test a minute quantity of tuberculin is injected into an individual; normally, a reaction occurs if infection is present (Otis 1909:91). The test was not always definitive but was a valuable aid in early detection (Otis 1909:91). X-ray technology made it possible to visualize the condition of the lungs. Healthy lungs are translucent in x-rays, but dark shadows appear in the lungs of tuberculosis sufferers (Otis 1909:92). X-ray technology was limited, primitive and an unimportant diagnostic technique in Hamilton at the turn of the 20th century; it wasn't until 1900 that City Hospital physicians first applied to their Board of Governors to purchase an "Ex Ray Apparatus" (*sic*) (McCuaig 1999:24; Roach 1900:103).

Treating Tuberculosis

Among medical professionals, views on the curability of tuberculosis ran the gamut from conviction that it was curable to a general air of hopelessness in the face of acute forms, or 'galloping consumption' (Solis-Cohen 1891:715; Williams 1911:38). There was general consensus nevertheless that early detection led to a more favourable outcome for the patient.

Lifestyle Changes

The most popular treatments of the time involved changes in lifestyle. The three key components of treatment regimes were fresh air, hearty diets, and rest. They also formed the basis for sanatorium treatment (see chapter 13.) In Hamilton, medical advice on lifestyle change was disseminated to the public through newspaper articles, such as *Some Lessons in Deep Breathing* (Walker 1905:13) and *The Sunlight Cure* (Hamilton Times May 27, 1905:9).

Fresh air was considered to be crucial for health, according to George Bodington, the originator of open-air treatment. "Its privation is the most constant and frequent cause of the progress of the disease [tuberculosis]. To live in and breathe freely the open air without being deterred by wind or weather is the one and essential remedy in averting its progress" (Williams 1911:33). The healing

power of sunlight was also associated with open-air treatment, as embodied in the popular physician's adage, "Where sunlight enters not there the physician goes" (Otis 141:1909).

Relocation of tuberculosis patients to a seaside or mountain residence was encouraged; even a move to the country was considered beneficial. Canadians with the financial means to do so were encouraged to go to the dry belt of British Columbia or Alberta (Wherrett 1977:37). If relocation was not feasible, it was important to get as much sunlight and fresh air as possible. Residents of slums were instructed to sleep on the roof if nowhere else was available (McCuaig 1999:19). People were encouraged to keep windows open and sleep on verandahs or in tents on the lawn (OMA 1901b:380). Advice was even available on how to best set up a sick room for a tuberculosis patient; good ventilation and excellent light were essential.



Figure 11.2: An Article on an Exposition in New York Informing the Public About Air as a "Sure Cure" for TB (The Hamilton Spectator May 19, 1906:20).

A hearty diet was prescribed to consumptives, and almost always included abundant milk, fresh meat, and eggs. Diets were often specially tailored to the individual, but always incorporated many full meals. Weight gain was a standard way to evaluate the progress of treatment (McCuaig 1999:22).

The third prescribed lifestyle change was rest: "Your most important duty is to get well. Let all other duties be secondary" (Otis 1909:141). Consumptives were encouraged to give up all physical labour and were given advice on appropriate daily routines and suitable amusements.

Patients were expected to abide by strict guidelines and were monitored for their obedience to the prescribed plan. A 'school for consumptives' was available for those who wanted detailed instruction and had the means to pay for it. Over the period of a few weeks, they received instruction on 'living rightly', with

lessons on how to breathe, bathe, eat, and exercise properly (A School for Consumptives 1903).

Tuberculosis patients often resisted treatment in the form of prescribed lifestyle changes. Many people could neither afford to relocate nor afford the expensive diet. Many consumptives also lacked the luxury of resting and taking in fresh air and sunlight at their jobs. Others found it difficult to habituate to outdoor life or found the diet distasteful (OMA 1901b:380; Solis-Cohen 1891:758). On the whole, however, patients seemed to embrace the idea, if not the actuality, of lifestyle change. The emphasis on fresh air and sunlight was likely influenced by an idealized view of the countryside as a “healthy Garden of Eden”, separate from the filthy cities (McCuaig 1999:20). Most influential, however, was the reported success of the regimen by doctors all over the world, and especially exemplified by the success of the sanatoria.

Most of the lifestyle changes, along with recommendations for better hygiene, were simply ways to improve an individual’s ability to fight infection. Some have questioned whether relocation actually provided any benefit (Wherrett 1977:37), but Dr. James Roberts of the City of Hamilton Board of Health felt that without fresh air and good food, tuberculosis mortality would swell (1905:10-11). The importance of fresh air and a good diet are regarded today as common sense, but these ideas were revolutionary at the turn of the 20th century.

Surgical Intervention

Surgical intervention played a role in the treatment of tuberculosis, but because the need for surgery was not generally accepted, such procedures were not common in the early 20th century. Several types of surgery were performed. Laparotomy was occasionally performed to explore the abdomen for tuberculosis (Guthrie 1903:331). Cavernostomy was a procedure in which lung abscesses (or any cavity) from tuberculosis underwent open drainage (Naef 1990:18).

Artificial pneumothorax, hailed as “the greatest progress” in the treatment of tuberculosis (Naef 1990:15), was the most popular surgical treatment at the time. In this procedure, gas was injected into the space between the linings of the chest and lung to make the lung collapse. Oxygen and nitrogen were used in this process but the latter was favoured because it absorbed more slowly (Waksman 1964:80). A small quantity of gas was introduced into the lung each day; as the absorption capacity of the pleura decreased, the interval between injections

increased (Waksman 1964:80). The procedure could be performed at the bedside and was often done without anesthetic (Caldwell 1988:253). The logic behind the procedure was simple: if rest fostered healing, healing would progress more quickly in an immobilized lung. The hypothesis was backed up by clinical cases of miraculous recoveries by patients who suffered a spontaneous pneumothorax when cavities ruptured or a lung collapsed from massive interpleural pressure (Naef 1990:15).

There is no clear evidence, however, that resting the lung through collapse had a similar effect to bed rest (Dubos and Dubos 1952:152). Furthermore, accidents could happen during the procedure because the needle was inserted by feel and could lodge in the pleura, in a pulmonary blood vessel, or worse, in the lung (Caldwell 1988:254). Convulsions, blindness, and/or paralysis could result if a bolus of air from the apparatus entered the circulatory system (Caldwell 1988:254).

As well, collapse was often not even effectively produced by the procedure (Caldwell 1988:254). One surgeon claimed, “The pneumothorax needle was the most dangerous weapon ever placed in the hands of a physician” (Caldwell 1988:257). By the late 1950s, artificial pneumothorax had fallen into disrepute (Caldwell 1988:257), and effective chemotherapy for tuberculosis removed the need for surgical treatment.

Medicines

Medicinal preparations were also undergoing modification at the turn of the 20th century as physicians discarded traditional treatments for tuberculosis, some of which were deemed “useless remedies”, such as strychnine, arsenic, dog’s blood and gold salts (Otis 1909:100; Solis-Cohen 1891).

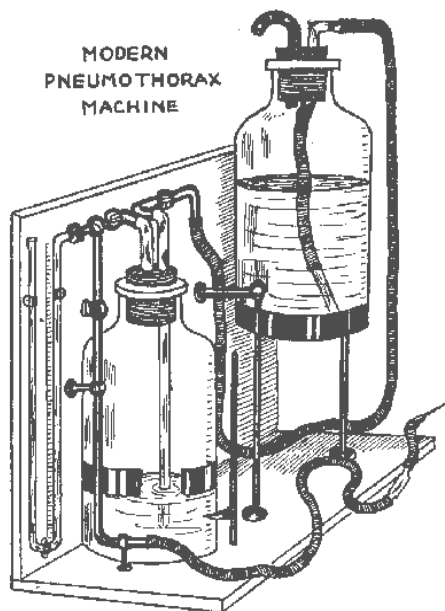


Figure 11.3: Pneumothorax Machine (Saskatchewan Lung Association 2006).

Preparations and tonics remained popular, as a scan of any newspaper of the time demonstrates (see chapter 10). Doctors were still endorsing some of these cures, as evidenced by treatments advertised in Canadian medical journals. Cod-liver oil is a good example. In the late 1860s, cod-liver oil was one of the leading treatments for consumption and used extensively in hospitals and private practice (Williams 1911:31). By the turn of the century, however, cod-liver oil was falling into disfavour and was most often prescribed as a nutritional supplement. Maltine, a remedy containing cod liver oil, was one such supplement (Maltine 1901:xxi).

Hypophosphites were also commonly found in prescribed remedies, many of which had cod-liver oil as a base. Angier's Petroleum Emulsion with Hypophosphites claimed to relieve pulmonic congestion, and ease the cough and respiration for a number of conditions including acute and chronic phthisis (Angier's Petroleum Emulsion 1901:xv).

Scott's Emulsion, which contained cod-liver oil and hypophosphites, was widely advertised in Hamilton newspapers as providing "tissue-food, blood-food, and marrow-food" (Scott's Emulsion 1904:3). A *System of Practical Therapeutics*, a medical text published in 1891, recommends hypophosphites to improve the blood and nervous system (Solis-Cohen 1891:866).

Creosote was a common chemical in remedies of the day. Wampole's Creo-Terpin Compound, which contained creosote carbonate, was touted as "a reconstructive tonic, and a stimulant to the respiratory centres" (Wampole's Creo-Terpin Compound 1903:v). Creosote was believed to stimulate the bronchial and alveolar epithelium to a "healthier action" as well as bring about "recession" in "morbid phenomena" (Solis-Cohen 1981:862-3). A *System of*

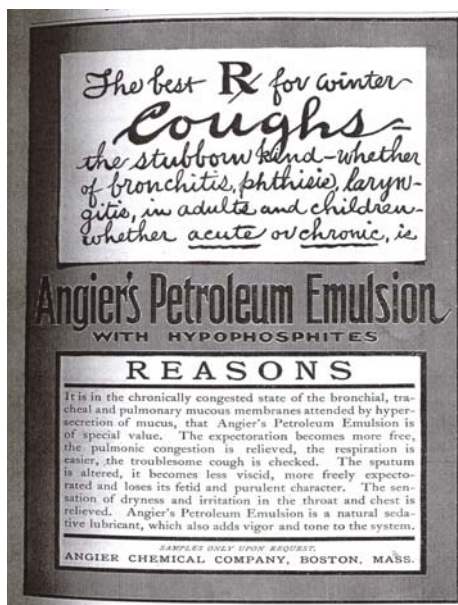


Figure 11.4: Advertisement for a Phthisis Remedy in a Canadian Medical Journal (Angier's Petroleum Emulsion 1901:xv).

Practical Therapeutics placed creosote in the tops ranks of tuberculosis treatment,

even after acknowledging that it did not destroy bacilli in the blood and tissue (Solis-Cohen 1891:857). Creosote could be taken in a variety of forms including inhalations, injections, pills and capsules, rectally and orally mixed with other substances, such as alcohol, glycerin or cod-liver oil (Solis-Cohen 1891). Aside from the general treatment of tuberculosis, it was also prescribed for numerous specific symptoms such as toxemia, vomiting, and diarrhea (Solis-Cohen 1891).

Opiates were also commonly used in remedies. Glyco-Heroin was a frequently advertised tuberculosis treatment discussed in the medical journal, *The Canadian Practitioner and Review*. As one would imagine, opiates were often prescribed for pain, but they were also used to stop diarrhea and cough caused by vomiting (Solis-Cohen 1891:855, 923).

Tuberculin

No discussion of the early treatment of tuberculosis would be complete without mentioning Koch's tuberculin. Other than patent medicines, it was the only specific treatment that targeted tuberculosis (McCuaig 1999:23). Tuberculin was a mixture of proteins and antigens taken from a broth in which tuberculosis bacilli had been cultured (McCuaig 1999:24). Koch initially believed he had developed a treatment for tuberculosis, hypothesizing that by simulating natural resistance with repeated injections it would cure tuberculosis by allowing patients to shed infected tissue and heal (McCuaig 1999:24). As trials progressed in many countries, it was soon considered a failure. Furthermore, reports circulating at the time suggested that large doses of tuberculin actually worsened the preexisting condition (Solis-Cohen 1891:873; Williams 1911:48). Conflicting evidence for the efficacy of tuberculin as a treatment was rampant, and it continued to be administered in smaller doses and modified versions to select patients, many of whom seemed to make better progress than those without the serum (Williams 1911:49). It is now recognized, however, that Koch's tuberculin is an indispensable diagnostic tool, rather than a treatment.

Conclusions

We see the practice of medicine today as advanced and modern, in much the same way as physicians practicing at the turn of the century viewed their own diagnostic tools and medical procedures. Tuberculosis diagnoses were made

using a combination of long-standing medical traditions (percussion and auscultation) and recent developments (sputum testing). Treatments were based on clinical observations and evidence from sanatoria, as well as contemporary understanding of the human body, disease, and chemical properties. Treatment regimens that combined different approaches were common. In cases where surgery or medicine was used, lifestyle changes, especially exposure to fresh air and sunshine, were also recommended (OMA 1901a:389). At the turn of the 20th century, we also see a shift in medical practice toward more science-based approaches, such as sputum tests, the use of tuberculin and innovative surgeries, although the lifestyle cure hearkens back to an earlier age. Although different treatments appeared to offer varying levels of success and hope, an effective treatment only became available in 1944 with the discovery of streptomycin.

Nowhere to Go: Hospitals in Hamilton Before ‘the San’

Virginia Knott

The best medical opinion of today says that consumption is a curable disease if taken in proper time. It can not be easily treated either in the home or in ordinary hospital buildings such as those in Hamilton. (Hamilton Times October 16, 1905:8)

At the turn of the 20th century, tuberculosis was considered to be a social disease with medical aspects (Wherrett 1977). As there were no reliable cures at the time, many sufferers remained in their homes to battle the disease. Even though many North American doctors had accepted the germ theory of disease, others continued to argue that heredity was the mode of transmission of tuberculosis (Gagan 1981:31). As a communicable disease, this infection could easily spread throughout the members of a household. Although Hamilton hospitals admitted patients infected with the disease, numerous complaints lodged against the hospitals demonstrate that the care available to patients, especially those suffering from tuberculosis, was inadequate. Newspaper articles and letters to the editor from 1904-06 articulate concerns and complaints regarding the cleanliness, nutritional value and quality of foods and beverages, inadequacy of nursing staff, and over-crowding in the hospitals. I argue in this chapter that during the study period (1904-06), Hamilton hospitals were unable to care for the many cases of tuberculosis. Due to inadequate care, it was neither possible to contain the infection within hospitals nor to protect society from it. For these reasons, the construction of a sanatorium in Hamilton was necessary to care for and quarantine infected individuals, especially those in the advanced stages of the disease.

The Hospitals

According to the Board of Health Minutes for Hamilton for 1904-05, there were several charitable organizations in Hamilton, including the two major hospitals: the City Hospital (also known as the Hamilton General Hospital) and St. Joseph's Hospital (The Board of Health Annual Report 1904-05:6).

This chapter focuses primarily on the City Hospital, because from 1904-06 it was the main hospital in Hamilton treating individuals in the early stages of tuberculosis. St. Joseph's Hospital is described briefly to provide context for the discussion of City Hospital.

St. Joseph's Hospital



Figure 12.1 St. Joseph's Hospital, Hamilton circa 1920
(The History of Health Care in Hamilton October 27,
2006)

St. Joseph's Hospital opened on June 11, 1890. The late Father Ryan of Oakville had left a bequest amounting to approximately \$8,000. This money was allocated for the establishment of a hospital in either Hamilton or Toronto. Bishop Dowling, who had recently purchased a property on John St. South, "thought it might as well be established here, and he placed the intended Episcopal Palace at the disposal of the good sisters of St. Joseph and

assisted them to convert it into a hospital" (The Hamilton Spectator June 12, 1890:5). This was thought to be an ideal location for a hospital, evident in the description, "one of the most ideal sites on the Continent" (History of St. Joseph's Hospital and School of Nursing 1950:4).

St. Joseph's Hospital was equipped with 25 beds and could accommodate between 40 and 50 patients. It was not until 1923-24, however, that the addition of beds allowed the hospital to accommodate 200 patients (History of St. Joseph's

Hospital and School of Nursing 1950:12). A hospital containing 25 beds was insufficient for the treatment of infectious diseases in Hamilton. Additionally, it was not until 1912 that an x-ray department was opened. As x-rays were in the preliminary stages of use for determining tuberculous cases, a hospital that lacked x-ray technology entirely was likely unable to diagnose tuberculosis with any degree of accuracy (see chapter 11). Although St. Joseph's was built before the height of the tuberculosis epidemic in Hamilton, available documentation does not mention what, if any, tuberculosis treatment facilities were available there. For this reason, this article focuses on the City Hospital.

Stigma and Admission to the City Hospital

At the turn of the 20th century, tuberculosis was a highly stigmatized disease in Hamilton and elsewhere (see chapters 4, 8, 9 and 15). It was generally viewed to be a disease of the poor that could easily be transmitted to others: "more than being a severely debilitating and often fatal disease, tuberculosis carried with it a cruel social stigma because of the conditions under which it appeared to thrive" (Gagan 1981:31). As a stigmatized disease, tuberculous patients, especially those with limited funds, were not always welcome at the City Hospital and, in fact, chronic cases were prohibited from treatment there (see chapter 16).

To the poor, however, there was no answer. Hospital wards closed their doors [to tuberculosis sufferers] along with the rest of society. All had excuses for non-action: provincial authorities claimed to lack finances, charities said it was hopeless to attempt a task so big without government help, and municipal and federal governments claimed it was not their responsibility or under their jurisdiction. [Wherrett 1977:12]

Although many tuberculous patients were turned away from hospitals, some people in the preliminary stages of the disease were treated at the City Hospital and "It was necessary to have tubercular cases in the general wards with other patients" (Hamilton Evening Times March 18, 1905:5). Moreover, many sufferers were unable to afford treatment at the sanatoria (Wherrett 1977:43). Although some hospitals were equipped to deal with tuberculosis, less than six years before the opening of the Hamilton Mountain Sanatorium there were

thousands of cases of tuberculosis, but fewer than 50 beds in all of Canada reserved for the treatment of tuberculosis (Wilson 2006:11). In other words, hospitals were not only unwilling, but also unable, to care for the majority tuberculosis sufferers.

Hospital Conditions



Figure 12.2 Hamilton General Hospital (The City Hospital) circa 1888. (The History of Health Care in Hamilton October 27, 2006)

In the early 1900s, a reliable cure for tuberculosis had yet to be found. It was not until 1944 that streptomycin, the first effective remedy against tuberculosis, was discovered. Streptomycin was isolated from a soil fungus, *streptomyces griseus*, by a group of researchers led by microbiologist Selman A. Waksman (Wilson 2006:9). Until this point, it was believed that the best cures for tuberculosis were not medical but rather social:

“What remains unchanged, and, no matter what discoveries are made by science, will always remain unchanged, is that whatever recoveries are made solely and simply by the patient’s own self” (Wood 1906:15). To arrest and potentially cure tuberculosis, it was believed that the sufferer’s environment had to be changed:

It is necessary for the treatment of early and curable cases that residents should be far from the impure air of a city or of any manufacturing centre. Freedom from dust, smoke and all irritating and infective organisms are prime requisites for healing of the lungs to ensue and especially must the curative treatment be given where, with a maximum of sunshine, the greatest number of hours

may be spent by the patient outdoors. [The Hamilton Spectator November 12, 1904:10]

These ideas were paired with the belief that nourishing food and pure water were effective aids in combating tuberculosis. However, due to the poor conditions that existed in Hamilton hospitals in the early 20th century, these requirements were not met.

Furthermore, Hamilton hospitals, specifically the City Hospital, were receiving complaints about the quality of care and lack of cleanliness. S.E. Taylor, known as “The Admiral”, wrote a letter protesting sanitary conditions at the hospital. He charged, “...the bandages were thrown in the garbage pail instead of being burned; that some of the utensils were used without being disinfected” (The Hamilton Spectator November 26, 1904:9). Since tuberculosis is a contagious disease, it was vital to use sterilized equipment and properly dispose of anything that might have contained infective agents. Since it appears that the City Hospital was neglecting proper disposal practices, tuberculous patients that were admitted into the hospital may have infected other patients who were not infected with tuberculosis. Instead of aiding the treatment of the sick, hospital conditions would have exacerbated an already dire situation.

In addition to clean surroundings, the Sanatorium Movement advocated the effectiveness of a nourishing diet and pure water to strengthen the body (see chapter 13). There are several charges against the City Hospital regarding the quality of the food. Alderman Findlay, a patient at the city hospital in 1904, presented the accusation, “a piece of roast beef had been re-broiled to make it appear as a steak. He was hungry, and wanted some solid food, and at the meeting alleged that there was no steak in the institution, but that a piece of re-broiled roast beef had been brought to him to appear as steak” (Hamilton Spectator, November 26, 1904:9). Since there were no proven cures for tuberculosis at the time, it was thought that proper nutrition was imperative for the healing process. If the hospital was serving questionable, previously cooked meat as was indicated by Alderman Findlay’s accusations, the situation at the hospital would not have been conducive to recovery from tuberculosis, according to the beliefs of the time.

The provision of pure water also proved to be problematic in the City Hospital. There were allegations that nurses were providing water to patients from ice stored in bathtubs: “It was admitted by a couple of nurses that the pail [full of ice]

might have been placed in the bath, and they also admitted that the ice in the pail was sometimes used to give to patients to drink, or placed in the milk to cool it off" (The Hamilton Spectator November 26, 1904:9).

Furthermore, there were charges that nurses were rude. At the opening of St. Joseph's Hospital, Dr. Herod noted, "Everything in a hospital depends upon the nurses" (The Hamilton Spectator June 12, 1890:5). Since tuberculosis was a disease that required rest and relaxation, a stressful situation caused by the nurses could have exacerbated tuberculosis symptoms, compounded by the fact that the nurses expected gratitude in the form of a present after the patient was released. Staffing was also a problem; at the City Hospital, there were complaints that there were too few nurses in the Jubilee wing. Alderman Findlay stated, "[he had] waited an hour on one occasion for a nurse, and stat[ed] that they were overworked" (The Hamilton Spectator November 26, 1904:9). Many tuberculous patients required extensive nursing care. If the City Hospital was understaffed, causing the patients to suffer long wait times, the nurses were obviously unable to provide for their needs.

Finally, in his 1905 report, the hospital inspector found the City Hospital to be grossly overcrowded.

I was sorry to find that on account of the overcrowded condition of the Hospital it was necessary to have tubercular cases in the general wards with the other patients. This should not be permitted and until some permanent arrangement can be made it would be much better to erect tents outside for the care of these cases. They certainly should not be kept in wards with other patients. [Hamilton Evening Times March 18, 1905:8]

Since the hospital was overcrowded and unable to accommodate tuberculosis patients, there was great potential for the infection to spread between patients. To rectify the situation, the inspector suggested:

All contagious and infectious diseases are under the direct supervision and control of the local Board of Health, and should be cared for, as in Toronto, Ottawa, and several other places in Ontario, in a hospital entirely separate and distant from the General Hospital [also known as the City Hospital]. I feel I cannot too

strongly urge the importance of immediate attention to this matter.
[Hamilton Evening Times March 18, 1905:8]

Due to the inadequate care for tuberculosis patients at the City Hospital, it was necessary to build the Hamilton Mountain Sanatorium (see chapter 13).

Community Opinion

It was the general opinion at the turn of the 20th century that a local sanatorium was necessary to remove tuberculous individuals from the hospitals: “The best medical opinion of to-day says that consumption is a curable disease if taken in proper time. It can not easily be treated either in the home or in ordinary hospital buildings such as those in Hamilton” (Hamilton Times October 16, 1905:8). There was also a general feeling that the City Hospital was incapable of caring for tuberculous patients. One Hamiltonian went so far as to state, “It [the sanatorium] would be the means of restoring to health and usefulness from year to year hundreds who, under present conditions, seem doomed to fade and die prematurely, and who in their illness are a menace to the health of the rest of the community” (Crerar 1905:5). Hamiltonians were clearly behind the call for a separate hospital to deal exclusively with tuberculosis. Eventually, these pleas were heard and the Hamilton Mountain Sanatorium was erected in 1906.

Conclusions

Hamilton hospitals were not only unwilling, but also unable to deal with tuberculous patients. Poor conditions at the City Hospital likely made it a center for transmission of the disease. Unclean and unsanitary conditions, poor food quality, inadequate and overworked nursing staff, and overcrowding were all conditions that were present at the City Hospital from 1904-06. As the only treatment for tuberculosis at the turn of the 20th century was rest, fresh air, and good nutrition, the situation at the City Hospital was not conducive to the treatment of tuberculosis. Ultimately, it became necessary to build a sanatorium in Hamilton so that tuberculosis sufferers could receive better care and also so that they could be separated from the rest of society to reduce the spread of infection.

The Sanatorium Movement

Erika Kastner

The white plague threatens the home of every citizen; it attacks rich and poor alike. In defence the call comes to you to give generous aid to the sanatorium movement. (Hamilton Times October 16, 1905:8)

Fresh air, clean water, lots of rest and proper nourishment: the recipe for a healthy recovery from tuberculosis. When medicine failed to provide a cure for the white plague that ravished almost every country, to fight the disease the world looked back to the very basics of nature to cleanse the mind, body and soul. Out of this idea the sanatorium was born, and establishments popped up all over Europe and North America. This chapter focuses on the sanatorium movement and how it affected Hamilton and the city's decision to build the Hamilton Mountain Sanatorium.

History of the Sanatorium Movement

The history of the Sanatorium movement is a long and drawn out process. For the most part, the principles upon which the movement was based are twofold: first, it was believed that bustle and poor nutrition either precipitated or exacerbated consumption and therefore removal to a salubrious environment could cure or arrest the disease. The second fundamental belief was that tubercular lesions could heal spontaneously (Hill 1911:97). Sanatoria, therefore, were medically supervised refuges from bad air, crowded households and the wear of industrial life in which tuberculosis thrived.

Located in the countryside, it was thought sanatoria might allow the lungs to recuperate. More specifically, sanatoria would allow the lungs to build a shell around the infection to contain it and wall off the bacilli that could not be killed, and perhaps rebuild old cavities by encouraging further fibrosis (see chapter 2). Patients were able to rest from family cares and business, were encouraged to exercise, and were well fed (Hill 1911:97), all in the hopes that the change in the sufferer's life would cure them from the horrible disease. At a sanatorium, patients were exposed to a clean environment to help prevent them from getting sicker; they were encouraged to rest when they felt tired from their illness, which in turn gave them the energy to be active outdoors in the fresh air. The fresh air produced a larger appetite and led to better nutrition (Hill 1911:97).

In 1840, George Bodington created what would be known as the first sanatorium near Sutton Coldfield, England. Although scorned by his contemporaries, Bodington preached the importance of fresh air and exercise. From Sutton, we look to Germany where the sanatorium vogue is said to have officially begun around 1860. It was inspired by a mixture of traditional cure-taking at spas, nature worship and a new physiology of lung-weakness which suggested that phthisis was caused by the failure of small, weak hearts to circulate the blood forcefully enough to prevent the deposit of tubercles (Hill 1911:97).

In 1859 Dr. Herman Brehmer implemented new treatments based on these

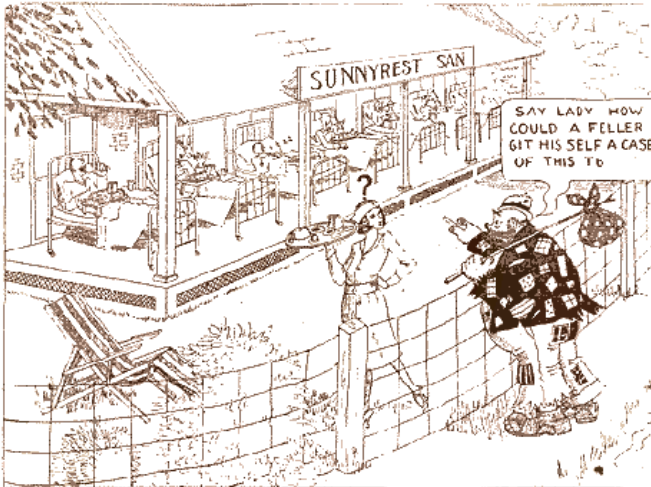


Figure 13.1: Sanatorium Cartoon Depicting San Life
(Saskatchewan Lung Association 2006)

theories at his sanatorium in the German Alps. He hoped that while patients were outdoors, nature would purify their spirits; while indoors, their blood and digestive system would be cleansed by water (Hill 1911:98). As decades passed sanatoria popped up in Europe in countries such as Germany, Austria, Sweden, Spain, and England. Each implemented its own version of treatment,

whether by more rest than activity to strengthen the lungs, or more activity than rest to strengthen the heart. The premises behind all sanatoria were the same, however: “Rest, fresh air, proper food, and the knowing how to take care of yourself and acting accordingly are the essential features of the fight that is being consistently waged against the white plague” (Hamilton Times February 1, 1905:5).

In 1885 the Sanatorium movement came to North America with the opening of the Adirondack Cottage at Saranac Lake in upper New York State. After visiting various sanatoriums in Europe and the United States, Sir William Gage decided it was time to open a sanatorium in Canada; in 1896, formation of the National Sanatorium Association began (Saskatchewan Lung Association 2006a). Gage scoured the country for ideal locations and in 1897, Canada’s first sanatorium, the Muskoka Cottage Hospital, opened in Gravenhurst, Ontario (Saskatchewan Lung Association 2006a). Subsequently, sanatoria opened all over Canada (Table 13.1) and by 1938 it was estimated that there were enough sanatorium beds to treat every single tuberculosis patient in the country (Saskatchewan Lung Association 2006a). Canada was in the forefront of the Sanatorium Movement.

Sanatorium	Location	Date	Patients
Muskoka Cottage Hospital	Gravenhurst, Ontario	1887	Anyone who could pay
Muskoka Free Hospital for Consumptives	Gravenhurst, Ontario	1902	Only beginning stage
Toronto Hospital for Tuberculosis	Weston, Ontario	1904	Only far gone patients
Mountain Sanatorium	Hamilton, Ontario	1906	Anyone affected by TB
King Edward Sanatorium	Tranquille, British Columbia	1907	NA
Royal Ottawa Sanatorium	Ottawa, Ontario	1909	NA
Ninette Sanatorium	Manitoba	1910	NA
Laurentain Sanatorium	St Agathe, Quebec	1910	NA
Jordan Memorial Sanatorium	River Glade, New Brunswick	1913	NA
Dalton Sanatorium	Charlottetown, PEI	1913	NA

Table 13.1: First Sanatoria in Canada and Patients Served (Saskatchewan Lung Association 2006).

Hamilton Mountain Sanatorium

In the summer of 1906 the first patients were admitted to what would become the Hamilton Mountain Sanatorium, and later Chedoke. Located on the mountain's brow of what is presently Sanatorium Road in Hamilton, it had its beginnings in 1904 when John H. McMenemy started treating patients in open-air tents in the Chedoke woods (Wilson 2006:21). Although not medically trained, McMenemy had visited many families affected by tuberculosis and decided that action needed to be taken. He selected three young girls deeply affected by the disease and transported them to his site on the Niagara escarpment (Wilson 2006:21) where he treated them using the principles of the sanatorium movement: proper rest, activity, and nourishment. After two of the girls recovered, McMenemy decided to set up camp for older male sufferers.

By the fall of 1905, McMenemy's patients were not well enough to return to work, neither could they spend the winter in his makeshift sanatorium, which was inaccessible during the winter and spring (Wilson 2006:22). Sending them to an area hospital was out of the question because there was no guarantee that they would be quarantined to control the disease. Several articles in the *Hamilton Spectator* in 1905 discuss the challenges Hamilton hospitals faced in dealing with tuberculosis patients and securing funds for additional quarantine wings (see chapter 12). As a result, many tuberculosis sufferers were turned down when they sought treatment from hospitals (Wilson 2006:22). For McMenemy, this meant that all his hard work in the summer months would be undone when his patients returned to the same conditions in which the disease thrived. According to *Chedoke; More than a Sanatorium*, McMenemy forged ahead undaunted, convinced that he could eventually convince the community to support a local sanatorium (Wilson 2006:22). He solicited donations and gained support from prominent Hamiltonians, and soon had everyone in the community talking about his idea (see chapter 14).

Soon, the Hamilton Health Association became responsible for the anti-tuberculosis movement. Before the Sanatorium Movement, tuberculosis was thought to be a death warrant; with McMenemy's success on the mountain and other testimonies from Gravenhurst's Sanatorium, Hamiltonians began to see a light at the end of the tunnel and believed it was possible to be cured from this disease. With the generous support from the community, the Mountain Sanatorium opened its doors on May 28, 1906 and declared its mission: "It is the

intention of the association to care for the consumptive citizens of Hamilton and Wentworth, giving them accommodation and treatment at the sanatorium. The aim and object of the association will be the care and treatment of all our own people who are afflicted with this dread disease” (Hamilton Times October 21, 1905:8).

Community Influence

Political and medical officials were pushing for the construction of the Hamilton Mountain Sanatorium and had the support of the community. However, there were other influences and incentives behind the initiative than just the desire to cure local consumptives.

Certainly, community attitudes to tuberculosis were changing and the disease had become a major concern. It was no longer a disease that could be ignored, as it was affecting everyone in the community. A letter to the Hamilton Times stresses this: “Sir- The case of the poor fellow Liphad, of Galt, should make us all think of the need of providing for our consumptive poor...it is his turn today: it may be ours tomorrow” (Hamilton Times September 23, 1905:1)

Hamilton prospered as an industrial city with dirty, dangerous jobs with long hours and low wages, the type of environment in which tuberculosis thrived (see chapter 5). Countless letters to The Hamilton Times in 1905 express the concerns of community members. Tales of the success of the Muskoka Free Hospital in Gravenhurst seem to have influenced Hamiltonians and left them wondering when Hamilton would take action to conserve their well being by building a sanatorium. Citizens were realizing the importance of treating the disease in its early stages, and recognizing the benefits of quarantine since people infected with the disease were not only in danger themselves, but were a danger to the rest of the community (see chapter 15). R. Tayker speaks for all Hamiltonians about the need to remove the danger: “Take the father, mother, son or daughter who has this trouble well advanced. They are a very immediate and great source of danger to everyone in the house, and they certainly should be removed and cared for” (Hamilton Times September 23, 1905:1). Tayker goes on to mention that patients in Toronto were being cared for in a hospital erected specifically for advanced cases of tuberculosis, and suggests that this is a matter that the Mayor and council should take up.

The Annual Board of Health report for 1905-06 sheds a different light on the demand for a sanatorium. In a speech made by an unknown member it is mentioned that the public have been led to expect too much from the sanatorium regime, both in terms of individual cures and eradication of the disease (Roberts 1906:19). Also, as the results of sanatorium treatment accumulated, they were found to be less uniformly good than hoped, leading to a feeling of disappointment, and almost annoyance, raising the question of whether sanatoria were accomplishing much:

The Sanatorium constitutes an important division of the work. But the problem of the extermination of tuberculosis is too vast to be solved in so simple a fashion. The outlook of the sanatorium is toward recovery of a certain proportion of early cases. But the number of cases ultimately cured by sanatorium treatment is small in proportion to the major issue, namely, the suppression of the disease. [Roberts 1906:20]

This critique was leveled even before the sanatorium had opened its doors. In light of the decreasing rate of tuberculosis deaths in the years leading up to the building of the Mountain Sanatorium, one is left wondering, why bother? More importantly, it begs the question, why was Hamilton Mountain Sanatorium really built?

A Matter of Money

Several factors contributed to the building of Hamilton Mountain Sanatorium, besides eagerness to control tuberculosis. The first was financial. Toronto had free access to the Muskoka Free Hospital in Gravenhurst because the railroad provided free trips to patients sent there. The sanatorium itself was free, so the City of Toronto could cure its consumptives at no expense. Although Hamilton benefited from the free services at the Muskoka Free Hospital, there was no free railway service for Hamiltonians. The City had to cover the rail fare and per diem expenses of each patient. By 1904 Hamilton had spent \$4000 sending people to Muskoka (Wilson 2006: 23).

The expense must have been eating away at city officials; it must have hardly seemed worthwhile since it wasn't possible to send everyone away for treatment.

Furthermore, Muskoka Free Hospital only accepted individuals in the beginning stages of tuberculosis. Individuals in the later stages of the disease were considered incurable and turned away. This meant tuberculosis was still very prevalent in Hamilton and elsewhere. Lacking the ability to quarantine all tuberculous individuals, it seemed next to impossible to control or eradicate the disease. Not only was Hamilton dealing with the expense of curing people in the beginning stages of the disease, there was no guarantee that they would remain healthy when they returned home.

The Hamilton Times reported on October 21, 1905, that the trustees needed to secure \$50,000 in order to build the Mountain Sanatorium and accommodate everyone in need. This seemed like a lot of money, even though ultimately the City was saving on the costs of patients who would have been sent to Gravenhurst. The article failed to mention that the plan for a sanatorium was put into motion even before McMenemy started his campaign. In 1902, Dr. James Edgar began advocating the importance of a sanatorium for Hamilton at the annual meeting of Canadian Associations of Charities (Wilson 2006:18). The ball kept rolling when the Hamilton Improvement Society was formed and by 1903, the organization had already begun to secure funds for a local sanatorium.

A Sense of Pride

In the early 1900s Hamilton was quickly becoming a major centre of heavy industry, it was an important transportation hub, and there were plenty of jobs available because of its ideal location for steel and iron manufacturing industries. The city boomed and quickly rivaled the province's capital. If Hamilton were to become an influential city, one that set standards, it would have to show that it was innovative. I believe that the Hamilton Mountain Sanatorium helped to serve this purpose. The sanatorium was not a new idea, but Hamilton's was among the first five built in Canada. To rival the Muskoka Free Hospital in Gravenhurst, it was decided that treatment at the Hamilton Mountain Sanatorium would be free and that it would accept all patients, no matter how advanced their disease.

In the months leading up to and during the construction of the Hamilton Mountain Sanatorium, there was constant debate as to how it would be run. The citizens wanted the danger of tuberculosis removed from their community. City officials were also influenced by experts, such as Dr. Bruce Smith, the provincial Hospital Inspector: "consumption is a home disease; the house or the workshop is

its fostering place...to my mind there is but one method by which to treat our consumptives and combat the spread of infection, and this is the establishment of municipal sanatoria where all cases would be cared for” (Hamilton Times October 16, 1905:8).

Dr. Smith was pushing for sanatoria to be built all over the province. Like many in his profession, he saw sanatoria as a way to eradicate tuberculosis once and for all by reducing the spread of infection. Before this, many excuses had been offered: provincial authorities claimed a lack of finances; charities said it was hopeless to attempt a task so large without government help; municipal and federal governments claimed sanatoria were neither their responsibility nor under their jurisdiction (Wherrett 1977:11). In 1905, the federal government was pushed to become involved with the fight against tuberculosis, with the result that “active steps were taken to lessen the widespread suffering, and great mortality among the people of Canada caused by the various forms of tuberculosis” (Saskatchewan Lung Association 2006a). In April of that year, the Senate passed a resolution and plans were put into action to support the establishment of sanatoria in each province (Saskatchewan Lung Association 2006a). Perhaps this initiative provided the push Hamilton needed in order to put forth a plan for a local sanatorium.

The Hamilton Mountain Sanatorium was the fourth sanatorium built in Canada but the first to offer services to absolutely everyone suffering from the disease (see Table 13.1). As mentioned previously, the sanatoria in Gravenhurst and Toronto only accepted those in the early and late stages of the disease, respectively. Hamilton was now seen as the city that set the highest standard for tuberculosis treatment and recovery, and as a leader in the Sanatorium Movement. At the Annual Board of Health meeting, Hamilton was praised by none other than Dr. Smith, as an example to other cities. For a city anxious to expand and gain greater prestige, this was perfect publicity. The race to eradicate tuberculosis was on, and Hamilton was in the lead.

Hamilton’s persistence in building a sanatorium also can be linked to a larger social issue, one of modernity. This is the process through which a relatively isolated community makes the transition to a more integrated, large-scale society. The theory of modernity involves increased movement of goods, capital, people, and information among formerly separated areas, and increased influence that reaches beyond a local area; increased formalization of those mobile elements, development of circuits on which those elements influence travel, and

standardization of many aspects of the society in general that is conducive to mobility; and finally, increased specialization of different segments of society, such as the division of labour, and interdependency among areas (Leppert 2004).

The argument here is simple: the City of Hamilton, like many others in Canada in the early 20th century, had already developed many features of modernity. It was a bustling transportation hub, a seaport, and a booming industrial centre. It had been influenced by nearby cities, such as Toronto. After following in the footsteps of other cities, Hamilton finally blossomed and expressed its civic pride and modernity through the Hamilton Mountain Sanatorium and became an influential city in its own right.

Conclusions

Shortly after the turn of the 20th century, sanatoria were considered to be the only hope for curing tuberculosis. In reality, the Sanatorium Movement did little to cure patients at all. In fact, it only served to boost the morale of its citizens by quarantining individuals suffering from the disease. The movement essentially ended in 1948 when effective antimicrobial treatments were introduced. Thereafter, the number of tuberculosis patients dwindled. By the 1960s, sanatoria began to appear on the real estate market and most were turned into general hospitals, such as Chedoke Hospital in Hamilton.

Although the Sanatorium Movement may have done little to reduce the rates of tuberculosis, Hamilton did benefit from it. Its presence demonstrated to the rest of the province that the city had become a major source of wealth, innovation, and independence. The city was already in transition toward modernity and the Mountain Sanatorium was a perfect addition to the process. At a time when most of North America and Europe was faced with the tuberculosis problem, sanatoria were a welcome solution. In the years following construction of the Mountain Sanatorium, Hamilton continued to grow in population, wealth, status, and as a medical centre, a position it holds today, in part, because of the Sanatorium Movement.

The Political Economy of Tuberculosis: Funding the Sanatorium

Sloane Bernard

Rising above the humble tent site which marked its beginning three decades ago in a Mountain orchard, Mountain Sanatorium stands today on Hamilton's mountain brow as a \$2,000,000 health community which ranks among the greatest anti-tuberculosis institutions on the North American continent. Boasting physical proportions of greatness achieved in an amazing history of development, the Hamilton "San" has become an enduring moment to Hamilton philanthropy. Behind its attainments in brick and stone lies a nobility of humanitarian purpose excelled, perhaps, nowhere in the world. (The Hamilton Spectator December 17, 1938:24)

The Hamilton Mountain Sanatorium (the San) was not the first of its kind. Prior to its construction there were three other tuberculosis treatment centers in Ontario (see chapter 10). In the early 20th century, however, there was a growing perception that tuberculosis was increasing in the Hamilton area. Along with this perception came mounting pressure to create a local tuberculosis center. As stated by the Board of Health, "The 'White Plague' threatens the home of every citizen; it attacks rich and poor alike. In defence of your home, in self-defence the call comes to you to give generous aid to the sanatorium movement" (Hamilton Times October 16, 1905:8). It would have been impossible to establish a sanatorium in Hamilton without the monetary and non-monetary efforts of various boards, groups, clubs and ordinary citizens. This chapter examines the political and financial foundation for the Hamilton Mountain Sanatorium, and

some of the individuals who made it possible. The city united in an active effort to fight tuberculosis; however, this battle was not free from political entanglement. This chapter begins by arguing that the establishment of the San was as much due to a lack of funding from the Grand Trunk Railway, as it was to the accumulation of contributions from local donors. I then examine some of the key contributors to the development and management of the San in its early days.

City Improvement Society

The death toll from tuberculosis in Hamilton was as high as 13.8 percent of all deaths in the early 20th century (Board of Health 1904-05:10). Before the Hamilton Mountain Sanatorium was established in 1906, the Muskoka Cottage Sanitarium had opened its doors on July 13, 1897 (Campbell 1953:59). Since much had been accomplished towards eradicating tuberculosis, in terms of legislation and sanitation, it was believed that Hamilton required a local centre to win the battle against tuberculosis.

In 1902, Dr. James Edgar spoke at the annual meeting of the Canadian Association of Charities that was hosted in Hamilton. The coverage of his presentation inflamed public fear about the high incidence of tuberculosis (Wilson 2006:18), and prompted formation of the Hamilton City Improvement Society. The City Improvement Society wasted no time. By 1903, the Society had launched its initial endeavors to secure funds for a local sanatorium. However, they were confronted with the growing panic of ‘phthisiphobia’, or dread of the disease, present throughout Europe. Much unnecessary hardship was created for tuberculosis sufferers as they were denied access to public hospitals and increasingly abandoned without treatment of medical attention (Campbell 1953:60). This made many citizens leery of the idea of a local institution for consumptives, fearing “the prevailing westerly winds would blow the germs down into the city and infect everybody” (Barlow 1992:B3). The City Improvement Society nevertheless transferred \$7,000 in donations, collected by public subscription, to the National Sanitarium Association (Wilson 2006:18).

Under the auspices of the City Improvement Society and Canadian Club, meetings were held in 1904 in the Board of Trade rooms in Hamilton. The objective was to generate interest in the work of the National Sanitarium Association. The objective was not only to cure cases of consumption, but also to prevent the spread of the disease and to eradicate it entirely (The Hamilton

Spectator March 16, 1904:1). They “began an extensive campaign to acquaint the public with the facts concerning tuberculosis, and to raise funds” (Campbell 1953:59). W. J. Gage, the president of the association stressed that the association was a charitable one and that no one would profit from its efforts (Hamilton Health Association Annual Report 1918:5).

It is likely, however, that other financial circumstances gave impetus to the movement to build the San. The Grand Trunk Railway Company carried 100 ‘tuberculosis indigents’ per year at no cost, from Toronto to the Muskoka Free Hospital. The contract did not include tuberculosis sufferers from Hamilton, which meant that the City was required to pay the railway fares and a municipal grant for any charity cases accepted from Hamilton (Campbell 1953:63). This crystallized the financial necessity for Hamilton to have a local sanatorium. Evidently, the City Improvement Society’s fund-raising efforts for a local sanatorium would directly benefit Hamilton’s municipal coffers.

John H. McMenemy

John H. McMenemy was Hamilton’s welfare officer before he began his crusade to establish a local sanatorium (The Hamilton Spectator January 22, 1937:3), an effort that lasted over 73 years, until his death. Believing that sunshine, fresh air, and nutritious food would help people suffering from tuberculosis, he set up two used tents on the Mountain near the Chedoke Woods (Wilson 2006:21), thereby fulfilling the need for a treatment center “easy of access, amid sanitary surroundings, but not too near the city” (Hamilton Times October 16, 1905:30). In the inclusive spirit of McMenemy, “it would seem contrary to the spirit of the movement to reject any sufferers from Hamilton because he or she is without money” (Hamilton Times October 16, 1905:8). From these humble beginnings, a number of organizations began the work that would eventually allow the Hamilton Mountain Sanatorium to come into being.



Figure 14.1: Imperial Order Daughters of the Empire (Hamilton Public Library)

Imperial Order Daughters of the Empire (IODE)

The Daughters of the Empire (IODE) was originally organized for patriotic purposes during the South African War (Campbell 1953:66). Subsequent to the end of the war, their objectives turned toward aiding in the fight against

tuberculosis. The IODE had been actively fundraising for this cause since the idea for a Hamilton Pavilion at the Muskoka Free Hospital had been proposed. Hoping to help the tubercular poor of the city, they contributed approximately \$800 to furnish a ward in the building (Campbell 1953:65).

The Hamilton Spectator reflects the aims of the IODE, and their concern for the “God-given heritage” of Hamilton’s “very own youth and manhood”, as follows:

As medical returns state that relapses from apparent cure have hitherto been traced to return of patients to unsanitary conditions of life. All sorts of inducements are offered by our several governments, too, to many immigrants, aliens and foreigners in every sense of the word, while our very own youth and manhood are supinely allowed to fill premature graves, for lack of that which is their God-given heritage. [The Hamilton Spectator November 12, 1904:10]

With these goals in mind, the women of the IODE set their sights on a new target: forming an association to raise funds to build a sanatorium near Hamilton (Campbell 1953:67). This marked the birth of the Hamilton Health Association.

Hamilton Health Association

Formed in 1905, the Hamilton Health Association was the first completely local association in Ontario responsible for an anti-tuberculosis movement (Wilson 2006:25). Composed of a Men’s Board and a Ladies’ Auxiliary Board, it was granted its official provincial charter on December 30, 1906. The Men’s Board was to act as an administrative body and the Ladies’ board was responsible for supporting advisory decisions and raising funds (Campbell 1953:67). In addition to the Boards’ primary responsibilities of instituting and managing a local sanatorium, it was quickly realized that they held a much larger role in the education and promotion of preventative measures and enhancing public awareness.

Marion Crerar, Regent of the Municipal Chapter of the IODE, served as the first president of the Ladies’ Board, a role which she held until her death in 1919 (Wilson 2006:25). Governor General Earl Grey once described her as

“Commander-in-Chief of the army engaged in fighting the White Plague in Canada” (Bailey 1981:156). Mrs. William Southam and Mrs. Robert Evans were equally loyal and dedicated and organized numerous events to raise funds for the San (Campbell 1953:67).

The Association was so successful that by 1906, over \$40,000 had been collected: \$15,000 from city churches; \$4,000 from manufacturing concerns; \$3,200 from specific IODE fundraising efforts; \$4,000 from a Provincial Government grant; and individuals donations ranging from \$2 to \$1,000 each (Campbell 1953:67). As president of the Ladies’ Auxiliary Board of the Hamilton Health Association, Crerar received help from other chapters to obtain linens, oranges, milk, fruit, and clothes (Campbell 1953:70).

Initially, physical recreation was deemed vital in tuberculosis treatment because rest had not yet been recognized as important for healing (Campbell 1953:68). In collaboration with her husband, Mrs. Crerar presented the Board with \$1,200 to build Crerar Hall, a recreation building for the San (Campbell 1953:68). She also supervised the “Made-in-Hamilton-Exhibit” that worked in partnership with the IODE to raise \$2,500 towards the establishment of the Hamilton Mountain Sanatorium (The Hamilton Spectator October 4, 1905:5).

The plans to promote the sanatorium scheme were furthered by Mayor Biggar at the local chapter of the Daughters of the Empire. He outlined the work of the association and asked for the help of the ladies, who were valuable allies in charitable work. The chapter agreed to hold a meeting within the next few days and devised a way to raise money for the sanatorium fund.

The trustees of the Hamilton Health Association set a target of \$50,000 for the endowment fund to put the proposed consumptive sanatorium on a sound fiscal base (The Hamilton Spectator October 4, 1905:5). They signed the following statement of aims and objectives:

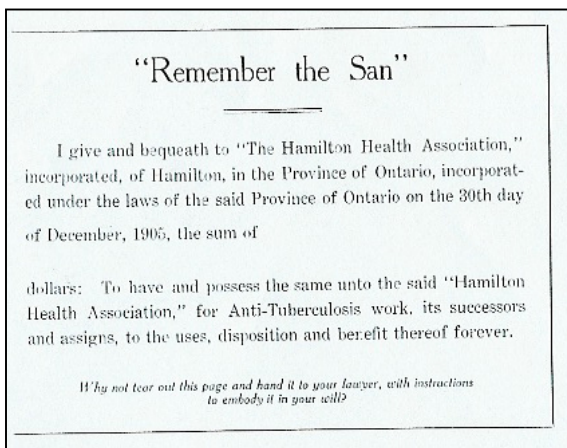


Figure 14.2: Request for Funds, Hamilton Health Association (Hamilton Health Association Report, 1920)

To the citizens of Hamilton and Wentworth county:

An effort is now being made to raise by popular subscription a fund of at least \$50,000 for the endowment of a sanitarium for the care of consumptives, to be located on the mountain brow about two miles from the city limits, in the Ancaster township.

The site of about 100 acres has been donated for this purpose by Messrs. Long & Bisby, of this city. The location is an ideal one for the purpose intended. The property has been deeded to the undersigned trustees of the Hamilton Health Association, and the trustees, with the assistance of an energetic general committee, are making the effort to raise a \$50,000 endowment fund.

It is the intention of the association to care for the consumptive citizens of Hamilton and Wentworth; giving them accommodation and treatment at the sanitarium. The aim and object of the association will be the care and treatment of all our own people who are afflicted with this dread disease. If the trustees are able to secure the \$50,000 endowment fund they are assured they will be able to accommodate all these without any further general call upon the citizens.

It is a cause that interests all classes of citizens and the trustees ask that every citizen- young and old, rich and poor- should take part in this grand effort to grapple with the common enemy of health and happiness of all. [The Hamilton Spectator October 21, 1905:19]

The Hamilton Health Association's Annual Reports make repeated calls for donations to the tuberculosis cause. Four different memberships were available: Associate, Active, Sustaining, and Annual Endowment, each of which required a larger monetary donation, but was rewarded with commensurately more information from the Association (Hamilton Health Association Annual Report 1920:17). The reports also inform the public that assistance would only be provided to individuals with tuberculosis who had lived within the boundaries of Hamilton for 12 consecutive months (Hamilton Health Association Annual

Report 1920:17). Donations played a crucial role in the provision of free treatment.

However, the board's efforts did not begin and end with public fund-raising. Board members also contributed what they could of their own time and money. In one instance, a cheque for \$1,000 was received from one of the directors of the Ladies' Branch to help make needed improvements to the sanatorium (The Hamilton Spectator March 25, 1919:12).

Mayor Biggar's Efforts



Figure 14.3: Mayor Biggar
(Hamilton Public Library)

Mayor Biggar was one of the moving spirits of the sanatorium project. His persistent efforts and encouragement were rewarded when it was reported, "people of all classes and of all circumstances are giving in proportion to their ability" (The Hamilton Spectator October 28, 1905:5). The Mayor was singled out for special praise: "[T]he city is in great luck in having such a man in the civic chair at this particular time. Mr. Biggar has sacrificed much valuable time and comfort for the good of the sufferers of the White Plague, and his example has so inspired others that the movement cannot help but being a grand success" (The Hamilton Spectator November 6, 1905:16)

Churches

Mayor Biggar recommended that Hospital Day be established to allow the churches to take up a collection to support the establishment of the Sanatorium (The Hamilton Spectator October 28, 1905:5). Each church was in charge of its own collection. Circulars describing the proposal were put into the pews (The Hamilton Spectator October 21, 1905:19). Mayor Biggar also suggested that two canvassers assist each church. The canvassers would be supplied with printed information about the aim and objectives of the movement (The Hamilton Spectator October 28, 1905:5). The church representatives and canvassers were:

- Anglican – Christ church cathedral. George Bull, William Armstrong; St. Luke's, John Savage; St. George's, Ald. Nicholson, H. J. White; St. John

the Evangelist, J. H. Collinson, D. L. McKeand; St. Mark's, Stuart Strathy, H.H Roberston; St. Matthew's, A. Anthony, James Stoker; St. Peter's, Wm. Hazel, sr., George Lay.

- Roman Catholic – St Mary's cathedral, A. O'Brien, J. J. Burke; St. Patrick's, George Lynch-Staunton, K.C., J. M Brown; St. Lawrence, Charles Marriot, John Flahaven; St. Joseph's Col. A. H. Moore, J.P. Hennessy.
- Presbyterian- Central, Adam Zimmerman, M.P., George Hope; St. Paul's, John Leggat, J.D. Wilson; Knox, George Guy, R.L Smith.
- Methodist- Zion Tabernacle, J.H Bennett, A.C. Blake; Emerald street, James Williams, George Weaver.
- Baptist- James street, Henry New, Samuel Gilles; Ferguson avenue, J. Thompson, James Henderson; Victoria avenue, J. C. Baxter, John Peebles; Panton street, Thomas McGamby, Edward Henderson.
- Congregational – First church, Charles Diff, S. H. Alexander: St. Paul's German Lutheran, John Gompf, J. Voelker.

(The Hamilton Spectator October 21, 1905:21)

Those in charge of the collections showed commendable zeal in their efforts and some secured subscriptions amounting to close to \$1,000 (The Hamilton Spectator October 21, 1905:21). When the general contribution of the church people are added to this amount the subscriptions collected by the canvassers and clergy were astronomical for the time.

Leading Subscription Lists	
Donator	Amount in Canadian Dollars (\$)
R. A. Beaus	\$500
W. E. Sanford Mfg. Co.	\$500
The B. Greening Wire Co.	\$500
Federal Life Assurance Co.	\$500
Wood, Vallance & Co.	\$300
George Hope	\$300
Burrow, Stewart & Milne	\$250
Spectator Printing Co.	\$250
J. Turnball	\$250

Table 14.1: Breakdown of Subscription Lists to Canvassers (The Hamilton Spectator October 21, 1905:21).

Conclusions

The dream of the Hamilton Mountain Sanatorium came into being through the active efforts of many people. Only some of the key players involved in the San's funding are mentioned here. Yet it would not have been possible to build the Sanatorium without the efforts of ordinary citizens who dug into their pockets and gave voluntary donations. The dream of the sanatorium provided a sense of community and created the feeling that every little bit of money was important. Beyond the financial aspect of the project, the visits, entertainment, and the little gifts to sick patients allowed Hamilton's Sanatorium to stand out from the rest. It was more than an institution erected through the financial means available. It was Hamilton's voice saying that *their* people counted and that the community was willing to do everything in its power to make sure its citizens knew this.

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The Community of the Sick: Reactions to Quarantine and Isolation

Tanya M. Jacob

Consumption is not so much a matter of having the very best medical attention; it isn't a matter of getting the right kind of medicine; it isn't even a matter of living in a sanatorium in some far off place. It's a matter of pure air (which is never very far away), of eggs and milk, and of rest from work and worry. (The Hamilton Spectator June 30, 1905:15)

With the rise of tuberculosis in Hamilton at the beginning of the 20th century, the general population did not know what to do, or how to react to this disease for which there was no cure and only minimal intervention strategies. By 1902, tuberculosis was seen as the 'great killer' (Wherrett 1977:5), shown not only through the illness and deaths of people in the City of Hamilton, but also through media representations and through the deaths of novelists, actors, artists and musicians (Wherrett 1977:5)

Quarantine and isolation were considered to be the best option for tuberculosis sufferers. This strategy was a result of medical advances that showed that tuberculosis was contagious and deadly (Wherrett 1977:11). Yet in the early 1900s, newspapers printed advertisements for many new cures and treatments for it. They conveyed a false hope that tuberculosis was an easily combatable disease and that effective treatments were available. These advertisements were placed, moreover, when tuberculosis rates in Hamilton were declining (see chapters 3, 4, and 17).

This raises the question of whether it was actually necessary to isolate tuberculous individuals from the community. This chapter explores the concept of quarantine, and the reasons it was believed to be an important public health initiative. I briefly outline the sanatorium movement and the medical and social factors in Hamilton that led to the emergence of the Hamilton Mountain Sanatorium. I also cast a critical eye on the underlying aspects of medical fashion and social stigma that I believe made it seem necessary to build ‘the San’. Essentially, I ask whether the Hamilton Mountain Sanatorium was medically necessary in 1906, or if its construction was in fact oriented toward appeasing fears and social upheaval within the city.

The Concept of Quarantine

Before the discovery of the tubercle bacillus by Robert Koch in 1882, tuberculosis was understood to be a hereditary disease promoted through negative environmental factors (Lerner 1996:258). After Koch’s medical breakthrough, which led to the realization that tuberculosis was contagious, fear and tensions arose within the public, and quarantine measures were thought to be the only suitable way to treat the sick and combat the disease (Lerner 1996:258).

The concept of quarantine first emerged in the 14th century during an outbreak of the plague in Italy. The Italian word ‘quarantine’ means ‘forty days’ and refers to a period of isolation required of ships with probably cases of contagious disease that arrived in port. This length of time was believed to be sufficient to dissipate the disease and stop it from spreading from the port to the city (Musto 1988:67). Quarantine has been used either as a means of limiting trade between different people and places, or to isolate infected individuals from the rest of a population (Sattenspiel et al. 2003:4).

In the case of the Hamilton Mountain Sanatorium, quarantine refers to the latter case because it was intended to establish a boundary between the ‘kind of person’ who would become diseased and ‘respectable people’ who wished to remain healthy (Musto 1988:77). In effect, quarantine represents a “marking off and creation of a boundary to ward off a feared biological contaminant within a ‘healthy population’” (Musto 1988:67-68).

Establishing such boundaries stems from an undeniable and heightened fear among the general public of anyone and anything that could harm them or disrupt their lives. Such drastic measures to prevent the spread of infection and disease

are usually imposed on “the bodies of those who were least able to protest” (Lerner 1996:258). Ultimately, isolation “reflects society’s tendency to stigmatize and punish those groups that become associated with given diseases” (Lerner 1996:258).

The Sanatorium Movement

The Sanatorium movement originated in Europe in the 1840s and took root in North America in 1876 when the first institution was built at Saranac Lake (Shyrock 1936:314). The Muskoka Cottage Sanitarium in Gravenhurst was the first treatment facility for tuberculosis in Ontario and became an example that each city strove to emulate in order to protect its citizens. At the time, sanatorium isolation and recovery was the only method of treatment that had universally satisfactory results (Elliott 1903:2). Nevertheless, the rise, dominance, and fall of the tuberculosis sanatorium has been labeled as “one of the strangest episodes in the history of medicine” (Dormandy 1999:147).

The aim of the sanatorium was to provide fresh air, rest, and improved nutrition, conditions that would gradually restore the general health of the infected individual (Elliott 1903:5). To Dr. J. H. Elliott, the physician in charge at the Muskoka Cottage Sanitarium, healing was secondary to improving nutrition (Elliott 1903:5). Furthermore, it was also important to help patients lead a ‘hygienic life’ in order to be ‘cured’:

If we can by the erection of sanatoria for all classes of rich and poor, and by carrying on the hygienic, dietetic, educational and symptomatic treatment for all consumptives outside such institutions, cure the curable, and make harmless the incurable tuberculosis patients, the problem of dealing with the most widely spread of all diseases will have been solved. [Knopf 1899:332]

However, this treatment was only beneficial to people diagnosed in the early stages of the disease, and accounted for only 15 percent of patients within the city (Wherrett 1977:54).

In addition, only 20-30 percent of tuberculous individuals were ‘apparently cured’ while 25 percent were much improved (Elliott 1903:4). It was

recommended that people with more active disease be nursed at home, rather than away, amongst strangers (Elliott 1903:4). Was this not stating, in effect, that death was inevitable and that the sanatorium was unwilling or unable to provide treatment for people in the later stages of the disease?

A Sanatorium in Hamilton

The call for a sanatorium in Hamilton arose at the turn of the 20th century when tuberculosis became the number one killer of its citizens (Wherrett 1977:10). Consumptives became social outcasts. Hospitals closed their doors to tuberculous individuals (see chapter 12). Officials agreed that a solution was needed to deal with the complexities of the tuberculosis problem and it was suggested that an isolation hospital might serve the purpose (The Hamilton Spectator January 4, 1904:5). A small consumptive hospital on the top of the Hamilton Mountain, it was thought, would be the best place in the province to help the sick (The Hamilton Spectator January 4, 1904:5).



Figure 15.1 Opening day of the Mountain Sanatorium, May 28, 1906 (McMaster University Images 1906).

At a meeting of the National Sanatorium Association on March 16, 1904, the initial steps were taken to convince the city of the need to build an isolation hospital. At that time, Hamilton was interested in consumption, but was not showing any sympathy or compassion toward citizens diagnosed with tuberculosis (The Hamilton Spectator March 16, 1904:3). This marks the beginning of

attempts to convince the city to recognize the benefits of quarantine. A profound interest in helping the consumptive poor was thoroughly addressed and was one of the fundamental reasons given to improve the tuberculosis problem.

By July of 1905, no decision on a sanatorium for Hamilton had been made. An article in the Hamilton Times, *Danger of Tuberculosis*, noted that the Gravenhurst

Sanitarium was filled beyond capacity and that there was nowhere else to place infected patients. The following year saw completion of the Hamilton Mountain Sanatorium on May 28, 1906. It offered patients fresh air, a good diet, and plenty of rest believed necessary for patients to make a full recovery. However, the few treatment options available within the sanatorium were unproven and often failed to minimize the spread of tuberculosis. Quarantine and isolation, in fact, are now considered to have been ineffective because tuberculosis is a chronic disease that involves a long period of infection before recovery (Pope 1938:328). This raises the question, again, of the purpose of ‘the San’. Was it an attempt to help an ailing population, or was the sanatorium an easy strategy for those unwilling or unable to see tuberculosis as a social disease?

The Community of the Sick

There are many reasons why the sanatorium was built after so many years of discussion. I contend that medical fashion, the stigma attached to tuberculosis, and the social environment of Hamilton contributed directly to the building of the sanatorium. In other words, the Sanatorium was not built solely to cure the sick, but also to put Hamilton on the map and to segregate individuals feared by the rest of society.

Medical Fashion

The opening of the sanatorium appeared to be a positive and necessary step in order to help people suffering with tuberculosis. However, sanatoria offered minimal interventions (Dubos and Dubos 1952:134). The Hamilton Mountain Sanatorium put the City of Hamilton on the map of medical progress.

The idea that treatment on the ‘Magic Mountain’ could affect a cure was counterbalanced by patients’ experiences of isolation, rigidity, and degradation (Magner 1992:325). Tuberculosis became known as an “ideal disease for the promotion of ill founded methods” (Dubos and Dubos 1952:134).

Social Stigma

Tuberculosis deeply affected individuals, families, friends, and the whole community of Hamilton. It was hard to find a family that was not in some way

connected to a person with tuberculosis (Wilson 2006:7). Yet consumptive people became the enemy within the city; they were discarded and isolated socially from friends, and knew that their chances of employment were diminishing daily (Wherrett 1977:12). People with consumption “aroused little compassion in the healthy”, could not touch or kiss other members of their family or children, were told to sleep separately from their spouses and had to arrange their lives around prescribed practices of hygiene so as not to infect others around them (Smith 1988:71-72). Tuberculosis was a destructive social force that “wrecked hopes, broke courtships, crushed breadwinners as they neared their maximum earning capacity and bereaved young families” (Smith 1988:1).



Figure 15.2: Hamilton Market (Hamilton Postcards March 16 1906)

The stigma attached to infected people led to the need for concealment and segregation of tuberculosis patients. People in Hamilton were terrified of the deadly nature and contagiousness of the disease, and when educated about what tuberculosis was, only became increasingly frightened (Ripley 1992:11). Tuberculosis meant segregating oneself from family and friends and accepting that in many cases the ‘breadwinner’ could no longer support the family.

Tuberculosis became the central factor in life; it shaped one's personality and relationship to the world (Mooney 1979:3).

Individuals tried to avoid diagnosis, not only because they did not want to hear the bad news, but also because they knew that infection would make it difficult or even impossible to get insurance or keep a job (Musto 1988:76).



Figure 15.3 A Tuberculous Mother at the Sanatorium Visiting Her Family Without Leaving Her Bed (Saskatchewan Lung Association 2006)

It was widely understood at the time that “victims of the disease were isolated, shunned and confined in sanatoriums in a manner reminiscent of the medieval leper” (Magner 1992:325). Yet the sanatorium became the hope for recovery and the only escape from the feelings of isolation that already existed. The sole advantage to isolation was the relief of knowing that consumptives could no longer infect their

families (Wherrett 1977:41). The disadvantage to confinement at the sanatorium was lack of contact with loved ones (Wherrett 1977:41). Patients within the sanatorium spent long periods away from their families (usually from 6 months to 2 years), many times without signs of improvement accompanied by feelings of vanished hopes and mental anguish (Dubos and Dubos 1952:220).

For the people of Hamilton the sanatorium became a place to send consumptives to recover from their disease, as well as a place to segregate and educate the “spreaders”. There was no law needed to keep the infected within the sanatorium because the terror of the people of the city kept them there (Dubos and Dubos 1952:172).

Was the Sanatorium Worthwhile?

When the Hamilton Mountain Sanatorium was opened in May of 1906, tuberculosis rates were falling but other equally critical factors surrounding the disease were still very much in the forefront of people's minds. City officials were trying to keep the citizens of Hamilton from infection, decrease their fear of tuberculosis, and ultimately give them a sense of security and peace.

Many other places in Canada were building sanatoriums, and given the access to Hamilton Mountain, construction of a sanatorium seemed the right thing to do.

It would serve to segregate the sick from the healthy, give people a sense of security again, and lessen the problem of tuberculosis that had been looming over the city for years.

However, the sanatorium did more to harm to the citizens than give them the sense of peace that they sought. The segregation of consumptives left them isolated from their communities, families, children, parents and all aspects of what they had called their life. They left their families, only to be placed in a facility that offered fresh air, diet and rest, a regimen that was not a cure for tuberculosis, but rather a method of societal influence over infection and those who were infected (Lerner 1996:257).

Was the building of the sanatorium a band-aid solution for a difficult social problem or did it offer real medical help to people afflicted with tuberculosis? There is no answer to this question. Perhaps the people who were helped would say that 'the San' saved their lives and therefore was the right solution at that time. People who were turned aside and told to remain in their homes were perhaps already beyond help. In the end, The Hamilton Mountain Sanatorium provided a safe haven for some and a sad end for others; only history can tell the tale of the disease and the treatment, and its cost to a city and its people.

Tuberculosis and the Law

Jessica J. Campbell

Already we are in advance of most cities in having compulsory notification. We have an anti-spitting by-law, which the proper authorities could with little difficulty enforce, and facilities are freely provided by our Board for the disinfection of houses. Does it not seem reasonable, then, with the hearty co-operation of the Medical profession, the public, such an influential body of citizens as the Health Association, and the aid, perhaps later on, of a little legislation, to expect at no distant date a diminution in the tuberculosis death rate? James Roberts, M.D. (Hamilton Board of Health 1905-06:20).

Legislation, be it provincial or municipal, is meant to serve the social order of a community. When a major infectious disease seems to be taking hold of a community, people look to prevention and cures to alleviate the social disorder that ensues. Not only are preventive measures and medical treatments important, but public health and municipal legislation are central to dealing with an infectious disease. In this chapter, I explore how tuberculosis affected the laws and legislation of Hamilton at the turn of the 20th century by examining the anti-spitting by-law and milk pasteurization laws. I also examine the hospital by-laws during this point in time to determine if any of these laws may have helped reduce the spread of tuberculosis. Finally, I examine some of the Provincial legislation that was introduced to deal with tuberculosis in Ontario in order to link Hamilton's initiatives to the legal and political contexts of the region. I argue that Hamilton city officials were actively attempting to control tuberculosis at the turn of the 20th century through the introduction of tuberculosis specific legislation. The purpose of this chapter is to scrutinize the hospital by-laws and relevant city

by-laws, and to compare Hamilton to other Ontario cities, such as Toronto, in order to explore the relationship between tuberculosis and the law.

Public Health Law

Public health initiatives are intended to prevent disease, prolong life, and promote health through community efforts; control infectious diseases; and educate the public about principles of hygiene, diagnosis, and treatment to ensure a community standard of adequate health maintenance (Toth 2001:37). The purpose of the 1884 Public Health Act in Ontario was aimed at “providing local authorities with the power to regulate the behavior of their citizens in the interests of safe-guarding the public health” (Powell 1984:414). The Act was still in effect at the turn of the 20th century. Although it was intended to protect the Ontario public from health-related concerns, it could only do so if the laws were effective and if communities complied with them. Public health initiatives were critical for maintaining the safety and livelihoods of the people of Hamilton.

Two decades after the Act came into effect, it became compulsory to report tuberculosis in Ontario (Brink 1965:20). On November 24, 1902, Hamilton City Council passed a by-law that required physicians in the municipality to report by way of a standard form to the Medical Officer of Health every case of pulmonary tuberculosis that the doctor attended (Toth 2001:109; Gagan 1981:146). These reports also had to be submitted within one week of discovering the disease. In addition, a death from tuberculosis had to be reported within 24 hours (Gagan 1981:146).

Public Health legislation is essentially the basis for municipal laws regarding health. The laws that were born from this type of legislation were intended to safeguard the people of Hamilton against infectious disease. In the following section, I scrutinize the relationship between provincial and municipal legislation.

Provincial Legislation Affecting Municipal Law: The Ontario Milk Act

The Ontario Milk Act was passed on March 24, 1911 (Brink 1965:20). The Act focused on the care and maintenance of cows. The Act covered issues regarding the cleanliness and sanitary conditions of cows, and regarding the storage and bacterial testing of milk. The goal was to prevent the spread of bovine

tuberculosis through the provision of safer milk for human consumption (see chapter 2):

When cattle become infected with TB, the bacteria infect the udders, and are carried in the milk. Humans that drink this infected milk ingest the deadly bacteria which produce TB. Bovine TB, when spread to people can cause crippling injuries to the bones and organs, and can lead to death if untreated. [Saskatchewan Lung Association 2005]

By 1915 a city by-law in Toronto made it compulsory to pasteurize milk prior to sale (Brink 1965:20). It was not until October 1, 1938 that legislation called for the pasteurization of milk sold in all Ontario cities and towns (Brink 1965:22). The short history of milk pasteurization in Ontario shows how provincial legislation to control tuberculosis infection had a trickle down effect to large cities, such as Hamilton.

In 1910, the Public Health Act empowered the Food Inspector to ensure that beef sold for human consumption did not come from tuberculosis-infected cows (Toth 2001:51).

During this period, the Hamilton Board of Health agreed to force dairy vendors to comply with city milk by-laws. Hamilton officials claimed that this law was the most advanced municipal milk legislation in Canada (Toth 2001:111). It took some time to institute these laws, but recognition that the spread of tuberculosis

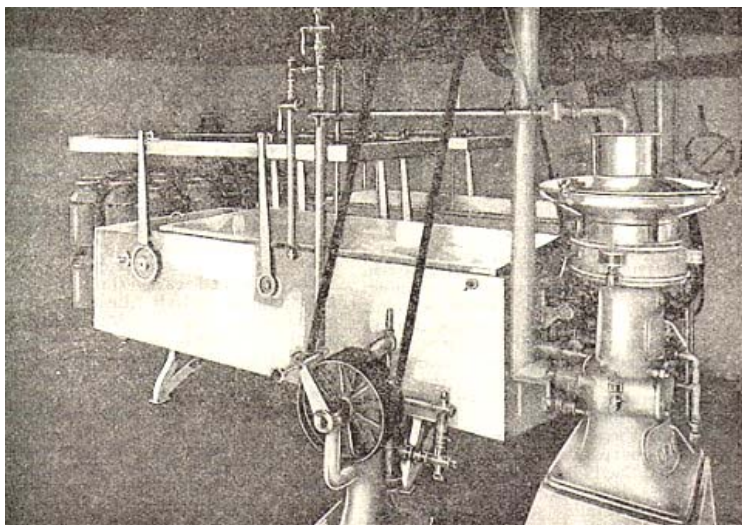


Figure 16.1: Machine for Milk Pasteurization (Saskatchewan Lung Association 1925)

between animals and humans could be reduced was a significant contribution to public health in Hamilton.

The Hamilton Board of Health on Milk

James Roberts, Medical Officer of Health for Hamilton, discusses the role of dairy products in tuberculosis in the 1905-06 annual health report. Roberts states, “that the time has arrived when the existing provisions of the law, with regard to the housing of dairy cattle, to milk stores, and to milk distribution, and the periodical inspection of such cattle and dairies should be more strictly enforced upon local authorities” (Hamilton Board of Health 1905-06:15). This suggests that the Board of Health was beginning to take responsibility for the care of cows and for protecting milk distribution in Hamilton. Roberts goes on to comment that public outcry was a strong motivating factor in the passing of laws related to milk inspection in the province. However, he cautions that inspections would be useless without appropriate means to enforce them (Hamilton Board of Health 1905-1906:16).

In 1916, the Hamilton Board of Health called for the compulsory pasteurization of milk (see Figure 16.1), but this recommendation was neither considered nor implemented. On January 1, 1923, the Department of Health ruled that all milk for sale, distribution, or human consumption in Hamilton had to be pasteurized (Toth 2001:113). Yet it was not until 1928 that City Council constituted the by-law that made it compulsory for all milk in Hamilton to be pasteurized prior to distribution (Toth 2001).

In this way, experience with infectious disease in the early 1900s eventually led to the establishment of the Hamilton’s milk by-laws. These actions can be attributed to accumulating knowledge about the role of milk consumption in bovine tuberculosis in humans, especially children (see chapter 5).

Anti-Spitting By-Law

The literature in the early 20th century suggests that the spread of tuberculosis was attributed to spitting. We see evidence of this in Eugene Wood’s comment that “a loose cough will deposit the sputum on the sidewalk where it will dry, be trodden to powder, whirled about in the wind for healthy people to breathe, and so start up new implantations of these bacilli” (Wood 1906:15). Many people were

aware that spitting could affect the health of others, but the anti-spitting by-law was put in place to protect citizens against those who spit in public places.

Spitting was considered to be a habit not easily broken; city officials believed a by-law was necessary to persuade the public to cease the behavior. The Hamilton Health Association wanted City Hall to prosecute 'spitters' to send the message that this behavior would not be tolerated because it increased the risk of spreading tuberculosis (Toth 2001:114). Essentially, the view was that it was the responsibility of the ill individual to change their spitting behavior in order to help control the spread of the infection: "it is a murderous practice to spit where others may bring the infection into a house on shoes or on skirts" (Wood 1906:15). Wood suggested, moreover, that there should be areas in the street kept continuously wet where people could spit without imposing the risk of infection upon others. Additionally, he blames the spread of tuberculosis on spitting: "I feel somewhat justified in presuming to say that this terrible toll we pay to the Captain of the Men of Death is due entirely to spitting" (Wood 1906:15). Spitting was clearly a central concern in the fight against tuberculosis among the general public, as well as among medical and political officials.

This is why the anti-spitting by-laws were put into place, and why individuals, such as Wood, were so passionate about the dangers of spitting in public. It is no wonder the city took action against a behavior that many citizens feared put them in peril. Hamilton was one of the first cities in Ontario to introduce anti-spitting legislation (Toth 2001:114).

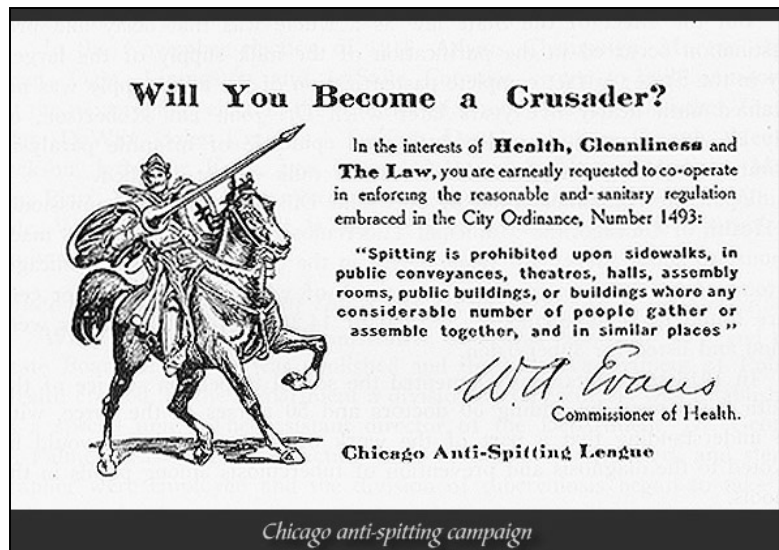


Figure 16.2: Sign for the Anti-spitting Campaign in Chicago (Illinois Department of Public Health 1901)

The precise date of the anti-spitting by-law remains uncertain, but the Annual Report of the Board of Health for 1906 indicates that it had been passed. The legislation was believed to have contributed to lowering the tuberculosis death rate in 1905, relative to 1896-1905 (Hamilton Board of Health 1904-05:10). The by-law was also intended to educate the public about tuberculosis infection and to inspire a willingness to participate in the anti-tuberculosis movement as a method of disease prevention (Toth 2001:109).

Hamilton's City Hospital By-Laws

Regulations to control the spread of tuberculosis were also put in place in Hamilton's hospitals. The by-law imposed by the Board of Governors on the City Hospital in relation to the admission of patients is perhaps the most interesting. It prohibits incurables and chronic cases of senile debility and insanity from admission (Board of Governors 1896-1925:1). It could be argued that this by-law contributed to the spread of tuberculosis because tuberculous individuals had nowhere to go for treatment (see chapter 12). They would have been forced to rely upon others for care, such as relatives, or seek refuge at the Hamilton Asylum (see chapter 6).

Another by-law that served to govern patient behavior in the hospital is pertinent here. In brief, the by-law states that any public ward patient who was reasonably healthy, in the opinion of the Medical Superintendent, was required to assist in the nursing care of other patients (Board of Governors 1896-1925:1). It is possible that some "reasonably healthy" patients could have had early tuberculosis and not shown obvious symptoms (see chapter 2). This by-law may have been intended to help the nursing staff care for patients, but it may also have contributed to the spread of tuberculosis within the hospitals.

Hamilton and Toronto

To understand the relationship between tuberculosis and the law, it is beneficial to consider Hamilton's legal responses to tuberculosis to those of other cities at the turn of the 20th century. I have chosen Toronto for this purpose. A provincial laboratory was established in Toronto in 1890 and began testing milk supplies in 1913 (Perkins-Bull 1934:301). This laboratory was the first institution of its kind in North America (Perkins-Bull 1934:245). It performed tuberculin testing on

cattle, bacteriological inspections of water, and examined the sputum and blood in suspected cases of tuberculosis (Perkins-Bull 1934:245). There is no evidence that a similar laboratory existed in Hamilton in the early 20th century; consequently, Hamilton medical officials and sanitary inspectors would have had more limited access to such tests. Even though the Ontario Milk Act of 1911 legislated standards for the care and cleanliness of cattle (Brink 1965:20), it did not require tests for tuberculosis in cattle. Toronto's laboratory, however, was already doing so in 1890. Evidently, even though Hamilton seemed to be ahead of other major cities in Ontario in terms of anti-tuberculosis legislation, Toronto was also in the vanguard of important public health initiatives in the early 20th century.

Conclusions

This chapter has considered the relationship between tuberculosis and relevant public health legislation enacted in Hamilton at the turn of the century, such as the adoption of the anti-spitting law. Provincial legislation played an important role in stimulating municipal initiatives. The Ontario Milk Act, for example, influenced the development of milk pasteurization laws in Hamilton. The Public Health Act in Ontario, moreover, was central to legal initiatives put in place to deal with tuberculosis. Since this Act gave municipalities the power to regulate public actions concerning health and disease, it is essential to consider the ways in which this Act influenced legal matters in Hamilton.

Health officials in Hamilton responded quickly to public health directives and were active in instituting by-laws specific to tuberculosis control. The anti-spitting by-law was one of the most important initiatives. People who were free of tuberculosis were concerned that they could contract the disease through the spitting behavior of other citizens. This concern was shared by city health officials and prompted the adoption of the anti-spitting law. Hamilton's City Hospital's attempt to limit the spread of tuberculosis, evident in the by-law refusing admission to incurables, may actually have contributed to the spread of infection. Finally, a quick consideration of anti-tuberculosis initiatives in Toronto shows that Hamilton was one of several Canadian cities in the forefront of tuberculosis treatment and legislation at the turn of the 20th century.

Every Breath Counts: Tuberculosis in Hamilton Today and Yesterday

Alexandra Pearcey and Alissa Johnston

Predictions that TB would disappear by the year 2000 have proven false...The resurgence of the disease has brought about renewed interest in the fight among people who were previously uninterested (Saskatchewan Lung Association 2006).

The resurgence of old diseases has caused a sensation within contemporary academic discourse. Tuberculosis exemplifies how a disease that once plagued humanity is on the rise again. This chapter begins by outlining contemporary epidemiological concepts and explores the current state of tuberculosis in Hamilton. We then apply these concepts by re-visiting tuberculosis in Hamilton in 1904-05 to determine if this disease was emerging at the turn of the 20th century. By studying tuberculosis in both the present and the past, we may be able to inform our understanding and management of the disease today.

We consulted a variety of primary and secondary sources. To provide a comprehensive overview of emerging and re-emerging diseases, we draw on the scholarly literature. To evaluate the resurgence of TB, we then apply these concepts to contemporary primary data, including census information from Statistics Canada, City of Hamilton records from 2000-04, and data provided by the World Health Organization (WHO). Using a similar method, we assess tuberculosis as an emerging disease in 1904-05 using City of Hamilton Annual Health Reports. Databases were created in Microsoft Excel© to compile graphs. Our purpose is to explore the past and present state of tuberculosis as an emerging disease within the City of Hamilton.

Contemporary Framework

The term ‘emerging infectious disease’ encompasses a broad range of infections, including newly appearing and old diseases that are rapidly increasing in terms of incidence or spatial distribution (Morse 1995:7). The term ‘*re-emerging* infectious disease’ more specifically refers to diseases experienced in the past that are on the rise. We prefer to use the latter in the case of tuberculosis because it was prevalent in the past and it is, therefore, more accurately described as re-emerging.

There are various theories to explain changes in the patterns of infectious disease. Epidemiologic Transition Theory, introduced by Omran in 1971, argues that the majority of infectious diseases follow the same pattern of decline in human history through a series of stages (Barrett et al. 1998:248). The first stage, ‘pestilence and famine’, involves the rise of infectious diseases, such as tuberculosis, due to lifestyle changes (Barrett et al. 1998:252). During the second stage, ‘receding pandemics’, infectious diseases seemingly retreat (Barrett et al. 1998:256). The third stage, ‘degenerative and man-made diseases’, is characterized by the increasing prevalence of chronic diseases, such as cancer, diabetes and heart attacks (Barrett et al. 1998:256). However, it is evident that not all infectious diseases follow this long trajectory in human history; some diseases, once believed eradicated or controlled, are now re-emerging.

Tuberculosis in Hamilton Today

Tuberculosis is one such re-emerging disease. The rise of tuberculosis is an international concern because the unusually high incidence of the disease is being recognized across the globe. In the mid-1980s, for example, industrialized countries began to experience a disturbing rise in known cases of tuberculosis (Lillebaek et al. 2002:679). Since the mid 1990s, however, Canada and other industrialized countries have seen a notable decrease in tuberculosis rates (McKeown 2006:138). By exploring tuberculosis rates in the City of Hamilton over time, and by placing them within the context of reemerging infection, Hamilton’s position within this larger historical and global pattern can be assessed.

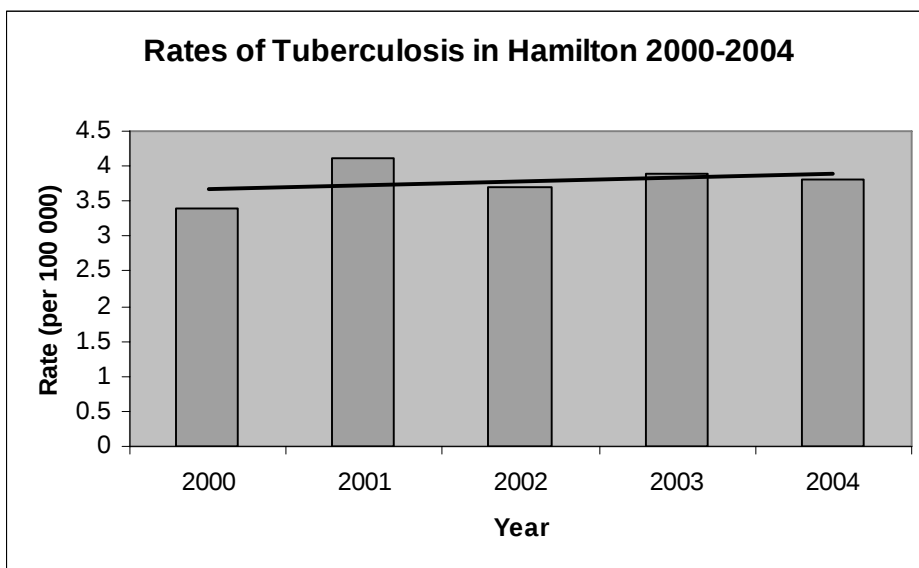


Figure 17.1: Tuberculosis Rates Per 100,000. Hamilton, 2000-04 (My Hamilton 2006)

Hamilton has seen an escalation in tuberculosis rates since the year 2000 (Figure 17.1). In the year 2000, there were 3.4 cases of tuberculosis per 100,000; by 2004 this had risen to 3.8 cases per 100,000. In 2001, reported cases of tuberculosis rose to 4.1 per 100,000. This makes the 2002 rate seem relatively low, but this is still higher than the rate in the year 2000. That said, the increase of 0.4 cases per 100,000 over the five-year period is relatively slight.

While there may be increases and decreases in rates from year to year, tuberculosis is slowly on the rise in Hamilton. In order to determine whether this is a persistent pattern or simply a temporary fluctuation, Figure 17.2 shows the overall trends for tuberculosis since 1994 for Toronto, Ontario, and Canada. Toronto has the highest tuberculosis rates, but shows a drastic decrease in from 20 to 13.8 per 100,000 over the ten-year period. Tuberculosis rates in Canada and Ontario are also on a downward slope. This suggests that the slight increase in rates of tuberculosis in Hamilton between 2000 and 2004 is likely a temporary fluctuation rather than a steady movement upward.

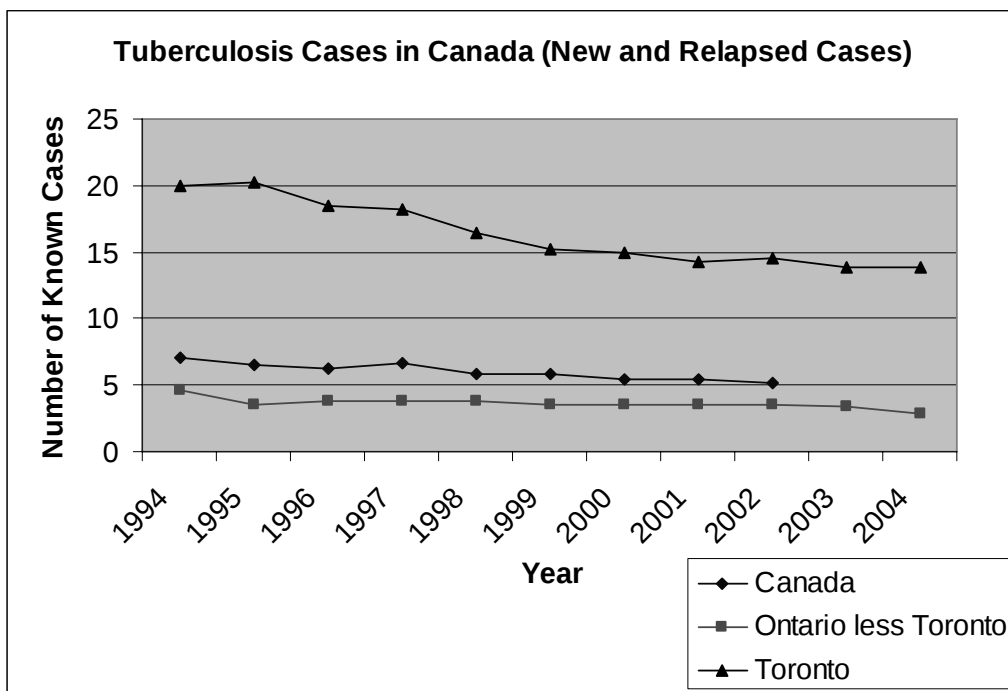


Figure 17.2: Tuberculosis Rates per 100,000. Canada, Ontario (less Toronto), and Toronto (McKeown 2006:138)

Even though tuberculosis rates are on the decline, they were quite recently on the rise. It is therefore necessary to explore the factors that contributed to this increase. It is estimated that approximately 76 percent of tuberculosis cases in Canada occur among foreign-born Canadians while 15 percent occur among Aboriginal Canadians (Canada Communicable Disease Report 2005:45). According to the Government of Canada, those at highest risk of contracting tuberculosis in Canada include “people born in or traveling to countries where TB is common” and “people with an Aboriginal background” (Public Health Agency of Canada 2004). Interestingly, “while the poverty rate for the total population in Hamilton is 20%, 44% of people with Aboriginal status live in poverty, while recent immigrants fare even worse, with 52% in poverty” (Chabriol et al. 2006:19). This suggests that both groups share similar socioeconomic conditions.

Top Ten Countries of Origin of Hamilton Immigrants, in order, 2001	
Country of Origin	Rates of Tuberculosis (per 100 000)
Yugoslavia (Serbia and Montenegro)	37
Poland	33
India	168
China/Philippines	406
Iraq	133
Bosnia/Herzegovina	58
Pakistan	181
UK	12
Croatia	46

Table 17.1: Rates of Tuberculosis in the Top Ten Countries of Immigration for Hamilton (Stats Canada 2001; WHO 2006)

It is evident from Table 17.1 that Hamilton's immigrant population is composed of individuals originating from countries that experience extremely high rates of tuberculosis. In 2001, Hamilton's top source of immigrants, Yugoslavia, had a tuberculosis rate of 37 per 100,000, compared to Hamilton's rate of 4.1 per 100,000. India, China/Philippines, Iraq, and Pakistan have the highest rates of tuberculosis, skyrocketing from 133 to 406 per 100,000.

Clearly, immigration contributes to tuberculosis rates in Hamilton. The Canadian Lung Association states, "today, about 70% of TB cases in Canada originate from outside the country" (The Lung Association 2006). The question then becomes, how is tuberculosis entering Canada? Canada requests that all immigrants complete a medical examination, including a chest x-ray, prior to entering the country; individuals with inactive cases of tuberculosis are accepted (CIC 2002). In such cases, individuals must comply with a medical surveillance program that involves reporting to a public health authority within 30 days of entering Canada (CIC 2002). The downfall of this program, however, is that inactive cases of tuberculosis may become active at any point in an individual's life (The Lung Association 2006). One report to a public health official after only being in Canada for 30 days is not effective in preventing the spread of the disease in the long term. Furthermore, people coming to Canada from other countries for six months or less require no medical examination; this includes

tourists, students, and temporary foreign workers (CIC 2006). Six months, however, is a sufficient amount of time in which active tuberculosis can be spread. Tourists, students, and temporary foreign workers in Canada for more than six months are usually required to complete a medical examination if they are listed as coming from a “Designated Country/Territory” (CIC 2006). Poland, the second highest source of immigrants to Hamilton, has a relatively high incidence of tuberculosis yet it is not a Designated Country (CIC 2006).

The circumstances in which many immigrants live for their first years in Canada allow inactive cases to shift to active cases of tuberculosis. As discussed in chapter 2, undernourished individuals or those in poor health are susceptible to tuberculosis. Immigrants, especially those from Third World countries, experience low wages as they learn new skills during their first five years in Canada: “The process of being integrated into the institutional structure of the labor market of a foreign country is necessarily time-consuming” (Roy 1997:157). With lower wages, immigrants experience a lower standard of life and poorer living conditions in which nutrition and other living requirements are inadequate. These circumstances allow latent TB infections to become active. Individuals from high incidence countries, therefore, contribute to the incidence of active tuberculosis in Hamilton because sub-standard living conditions cause inactive cases of tuberculosis to shift to active ones.

The Aboriginal population makes up the second largest group of individuals affected by tuberculosis in Hamilton. The conditions in which Aboriginal people in Canada live are similar to those experienced by new immigrants. “Aboriginals earn much less than white or even visible minority workers in Canada”, resulting in sub-standard living conditions including inadequate housing and nutrition (Pendakur and Pendakur 1998:524). In fact, while Aboriginal people make up about 2 percent of Hamilton’s population, they constitute about 20 percent of the homeless population (Chabriol et al. 2006:19). Homelessness increases the likelihood of contracting tuberculosis because it is associated with poor health and nutrition. Socioeconomic circumstances, therefore, are central factors in the increased risk of developing tuberculosis among immigrant and Aboriginal populations in Hamilton.

Was TB Emerging in Hamilton in 1904-05?

Having determined that tuberculosis is, in fact, not on a steady incline within

Hamilton today, we now turn to consider the state of tuberculosis in Hamilton during 1904-05. In order to determine if tuberculosis was emerging in 1904-05, it was necessary to scrutinize historical data from a broader time span. Unfortunately, tuberculosis case rates do not exist for Hamilton during this period; however, mortality data begin in 1896, providing a ten-year window on overall time trends (Figure 17.3). When considering the contemporary and historical pictures of tuberculosis in Hamilton, it is important to recall that the two sources of data are not directly comparable.

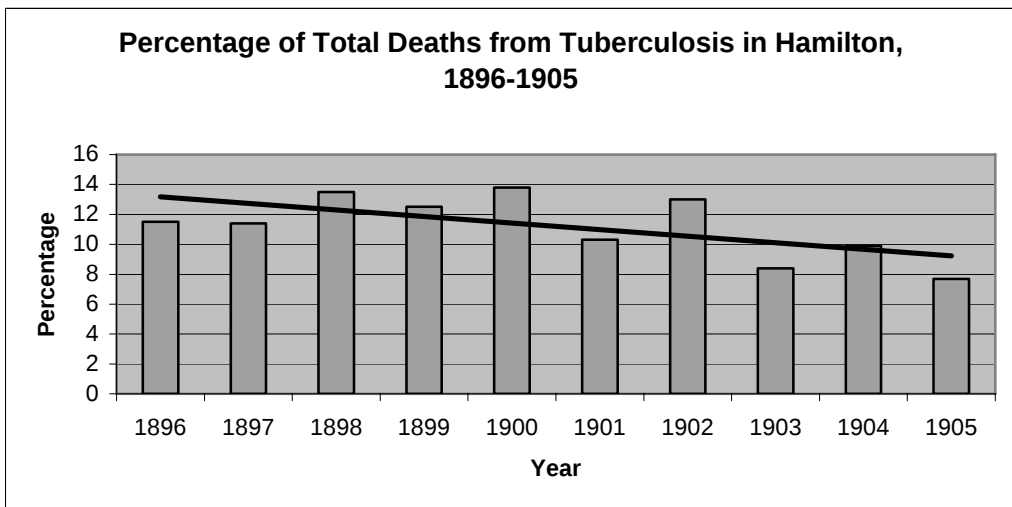


Figure 17.3: Percentage of Deaths from Tuberculosis in Hamilton, 1896-1905 (Annual Health Report, 1904-05).

Figure 17.3 shows that the overall percentage of deaths from tuberculosis declined between 1896 and 1905; in other words, tuberculosis was not emerging during this period. In fact, while there are small fluctuations, the proportion of tuberculosis deaths in 1905 was among the lowest, at 7.7 percent of all deaths that year. Evidently, the situation in Hamilton at the turn of the 20th century was similar to the situation in Hamilton today: tuberculosis was on a downward slope.

As discussed earlier in this chapter, the persistence of tuberculosis in Hamilton today can largely be attributed to social circumstances. People who live in poverty, many of whom are immigrants and Aboriginal people, are most affected by tuberculosis. As demonstrated in previous chapters, socioeconomic status was

a major determinant of who developed tuberculosis in Hamilton in 1904-05. Even though the disease was prevalent at the time, “tuberculosis was considered a disease of the poor because they were the most effected population in society” (Archives of Hamilton Health Sciences and Faculty of Health Sciences 2005). Interestingly, immigrants to Hamilton had tuberculosis mortality rates similar to native-born Canadians in 1904-05 (see chapter 4); on the other hand, immigration is the largest contributing factor to TB rates in Hamilton today.

This does not contradict the fact that socioeconomic status is a determinant of tuberculosis status. It suggests that the conditions of life in 1904-05 were more similar between immigrants and native-born Canadians, and that the gap between infection and disease rates between the two groups may have been smaller than it is today. In other words, while the composition of Hamilton has changed, people of lower socioeconomic status continue to be most affected by tuberculosis. Whether we reflect on contemporary data or historical information, the common denominator for tuberculosis remains lower socioeconomic status.

Lower socioeconomic status is a major factor influencing who becomes infected with tuberculosis and explains why the disease persists. While the direct association between tuberculosis, poverty, and a lower standard of living is recognized, the outcomes of these circumstances, such as increased susceptibility to disease, are not always recognized. Since “poverty is Hamilton’s biggest challenge with 20 percent of its citizens living at or below the poverty line”, this city is ripe for the propagation of tuberculosis (Hamilton Roundtable for Poverty Reduction 2006). Management and control of tuberculosis therefore needs to be centered on this factor. In 2005, The Roundtable for Poverty Reduction was formed with the goal of tackling poverty in Hamilton (Hamilton Roundtable for Poverty Reduction 2006). While its focus is on poverty and children, this initiative is still in its beginnings (Hamilton Roundtable for Poverty Reduction 2006). In an effort to improve the standard of living for immigrants, it plans to attack poverty from all directions, including immigrant workforce integration (Hamilton Roundtable for Poverty Reduction 2006). Efforts such as these, which get at the root of a problem rather than its surface expressions, are necessary in the fight against tuberculosis. If the environment in which tuberculosis flourishes can be changed, the disease cannot maintain itself.

Conclusions

Based on case rates for the turn of the 21st century, it can be concluded that tuberculosis is declining in Hamilton, despite a resurgence in the disease in the mid-1990s. Reflecting on tuberculosis mortality data available from the turn of the 20th century (1896 to 1904-05), it can also be concluded that tuberculosis was diminishing. In our investigation of the factors that contribute to tuberculosis rates both in the present and the past, it was concluded that although the composition of Hamilton's population has changed, groups with lower socioeconomic status at both times experienced higher risks of developing tuberculosis. Current efforts to tackle the fundamental problem of poverty in Hamilton are necessary in the fight against tuberculosis. The disease cannot maintain itself unless it is given the necessary conditions to thrive – poverty and substandard living conditions.

Glossary

Abscess See *Lesion*.

Anti-spitting by-law A law passed to prohibit spitting in public. Public spitting was believed to place others at risk of contracting tuberculosis.

ArcView 3.2 A GIS mapping software used to plot data. See also *Geographic Information System*.

Artificial pneumothorax Surgical procedure in which gas (nitrogen or oxygen) is injected into the intrapleural space to collapse the lung.

Asthenia Lack of strength; weakness.

Auscultation The use of a stethoscope, allowing a physician to hear breathing and voice sounds as they echo in the chest.

Bacilli Long, slender rod-shaped bacterium.

Boarder A person who lives as a member of the tenant's household and shares the facilities of the home. See also *Lodger*.

Bodington, George An English doctor considered the originator of open-air treatment. In 1840 he published *On the Treatment and Cure of Pulmonary Consumption*, condemning the current therapy and suggesting instead a regimen which included plenty of fresh air, gentle outdoor exercise and a healthy diet.

Bovine tuberculosis Tuberculosis infection in cattle, which normally occurs in the udders. See also *M. bovis*.

Built environment The context and setting for human activity. The physical surroundings that influence, and are influenced by, people's behavior.

By-law A piece of legislation, either municipal or institutional, meant to establish order over specific issues of concern in a community or district.

Catarrh Inflammation of a mucous membrane.

Cavernostomy A surgical procedure in which lung abscesses of tuberculosis (or any cavity) undergo open drainage.

Census Attempt by a government agency to collect vital statistics about all people in a geographically-bounded area, and time period.

Chicken pox A disease usually of children, caused by the *Varicella zoster* virus. Symptoms include mild headache and fever, malaise, and eruption of blisters on the skin and mucous membranes.

Childhood type tuberculosis Lesions in the lungs and associated tracheobronchial lymph nodes resulting from the first infection of pulmonary tissue. See also *Tuberculosis*.

Cholera A severe infectious disease of the small intestine caused by the bacterium *Vibrio cholerae*. Symptoms include diarrhea, vomiting, muscle cramps, severe dehydration, and depletion of electrolytes.

Cohort A group of people who share a specific demographic or statistical characteristic.

Age cohort A group of people who can be divided into discrete categories by age in years.

Sex cohort The division of a population into either male or female subpopulations.

Consumption Another term for tuberculosis. It is a progressive wasting away of the body, most commonly from pulmonary tuberculosis. See also *Tuberculosis*.

Consumptive A person suffering from tuberculosis and exhibiting the symptoms thereof. See also *Consumption*; *Tuberculosis*.

Contagious disease A disease transmitted through direct or indirect contact with an infected individual.

Darwinian science An approach to medical analysis based on Charles Darwin's theories of evolution and natural selection.

Diphtheria A febrile, infectious disease caused by the bacillus *Corynebacterium diphtheria*. Symptoms include formation of a false membrane in the air passages.

Emerging infectious disease New and old infectious diseases whose incidence or spatial distribution are increasing rapidly.

Empyema Collection of pus in a body cavity.

Enlightenment, the A philosophical, scientific, and intellectual movement in Europe during the 17th and 18th centuries which valued objectivity, logic, reason, and rationality.

Epidemiologic Transition Theory Introduced by Omran in 1971, the theory argues that over the course of human history infectious diseases declined in three stages: pestilence and famine, receding pandemics, and degenerative diseases.

Fibrosis The formation of excess fibrous connective tissue in an organ.

Folk Sector An intermediate between the professional and popular segments of the medical practice; can be secular or a mixture of the two depending on the time and place. It does not just deal with the illness, but all aspects of the patient's life.

Forlanini, Carlo Italian doctor whose 1882 invention of the artificial pneumothorax was hailed as the greatest progress in treatment of tuberculosis, and ushered in the era of collapse therapy in the treatment of tuberculosis.

Gage, Sir William See also *National Sanatorium Association*.

Galloping consumption An acute form of tuberculosis. See also *Consumption; Tuberculosis*.

Germ Theory A biomedical theory that considers specific microorganisms to be the cause of specific infectious diseases.

Geographic Information System (GIS) A system designed to geographically map data for spatial analysis.

Grand Trunk Railway, The A railway between Montreal and Toronto established in 1852 by the Canadian government.

Haemoptysis Bleeding from the lungs; one of the early symptoms of tuberculosis.

Hamilton area Geographic area covering Hamilton, Ancaster, Beverly, Dundas, East Flamborough, West Flamborough, Glanford, Waterdown, Binbrook, and Saltfleet.

Hamilton Health Association (HHA) Citizens' organization which supported and operated the Hamilton Mountain Sanatorium, popularly known as 'the San', to treat pulmonary tuberculosis.

Hippocrates A Greek physician (c. 460-377 B.C.) who approached medicine from a scientific view separate from the philosophical speculation and superstition that was common at the time. Often referred to as 'the father' of western medicine.

Hospital by-laws Regulations imposed by the Board of Governors on the City Hospital in Hamilton.

Humouralism A conception of human health and disease that proposes that there are four liquids or humours in the body: black bile, yellow bile, blood, and phlegm. When all four humours are in balance, an individual is healthy; disease results from imbalance between internal humours and external forces, such as lifestyle, diet, personality type, and environment.

Humourism See also *Humouralism*.

Hydrocephalus Abnormal increase in the cerebrospinal fluid surrounding the brain, causing the brain to become compressed, as in tubercular meningitis. See also *Tubercular meningitis*.

Hypophosphite A salt of hypophosphorous acid.

Immigrant A person born outside Canada entering from another country with the intent to live within the Dominion of Canada

Incurables Persons suffering from chronic tuberculosis not expected to recover.

Inoculation The introduction of bacteria into the body via a cut in the skin, with the intent of producing immunity to the targeted disease.

Insane persons Persons that suffer from severe mental illness, mental deficiency, mental incompetence or an unsound mind.

Intrapleural space The space between the linings of the chest and lung.

Johnson, Melville Hamiltonian businessman who wrote a series of articles in The Hamilton Spectator about the experiences of his family who migrated to Canada in 1906.

Koch, Robert A German scientist who first isolated and identified the microorganism, *Mycobacterium tuberculosis*, that causes tuberculosis. See also *Germ Theory*.

Kuchenmaster, Elizabeth Survivor of tuberculosis and the author of *Consumption Cured*.

Laënnec, René-Théophile-Hyacinthe A French physician who invented the stethoscope in 1816, and made important contributions to the understanding of tuberculosis, the disease that eventually killed him.

Laparotomy Surgical opening of the abdominal region to explore for tuberculosis.

Legislation A law enacted by a governing body.

Lesion A localized and defined area of injury that is often inflamed, filled with pus, usually caused by bacteria.

Living population All individuals of a population who are alive.

Lodger A person who stays in a given house, typically a room, and shares the facilities of the house, excluding meals. See also *Boarder*.

Lupus vulgaris A tuberculous disease of the skin marked by formation of soft brownish nodules with ulceration and scarring.

Marasmus Chronic malnutrition, most often in children.

McMenemy, John H. Hamilton's relief officer when "the San" opened in 1906. He had no medical training but advocated that immediate action be taken to treat consumptives.

Measles An acute infectious disease. Symptoms include inflammation of a mucous membrane, fever and small red spots in the skin.

Medical Health Officer The individual responsible for health-related activities in a district.

Miliary tuberculosis Acute tuberculosis in which minute tubercles are formed by tubercle bacilli in one or more organs of the body and usually spread via the circulatory system.

Mortality rate The ratio of deaths to the living population of a bounded region; usually expressed per 1000 people by year. See also *Specific mortality rate*.

Mumps A disease caused by a virus that usually spreads through saliva. The disease affects the glands, which produce saliva for the mouth causing the glands to painfully swell.

Mycobacterium Genus of bacteria of the family *Mycobacteriaceae* difficult to stain, including *M. tuberculosis* and *M. bovis*. See also *M. tuberculosis*; *M. bovis*.

Myelophthisis Replacement of normal bone marrow tissue with abnormal, usually fibrous, tissue.

M. bovis A strain of tuberculosis-causing bacteria. Originating in cattle, it can cause disease in humans if infected animal products are ingested. See also *Bovine tuberculosis*.

M. tuberculosis The causative agent of tuberculosis that enters the body through inhalation, ingestion or sometimes inoculation. It is exclusive to humans. See also *Tuberculosis*.

National Sanatorium Association Founded by Sir Willam Gage in 1896. This Association is responsible for founding the first sanatorium in Canada.

Ontario Milk Act Legislation concerned with the care and maintenance of cattle in the Province of Ontario. The Act serves to ensure safe milk for human consumption.

Pasteurization Partial sterilization of a liquid (usually milk) at a high temperature and for a period of exposure sufficient to destroy dangerous microorganisms, normally bacteria and viruses.

Percussion A diagnostic technique which involves ‘knocking’ on the thorax. The condition of the chest cavity is assessed based on variations in the reverberating sounds.

Phthisis A term for pulmonary tuberculosis used in the 17th and 18th centuries.

Plague An infection that affects a large number of people.

Pleura The membrane lining of the chest and lungs.

Pneumothorax The collapse of a lung caused by cavities rupturing into the intrapleural space or by the pressure of massive intrapleural exudates.

Popular Sector Treatment or advice from any lay person which may include self-treatment or medication, advice or treatment from friends, family, neighbors and/or consultation with another lay person.

Population at risk Any group of people in danger of contracting a disease.

Population distribution Frequency of occurrence in regards to where and how a category of items exists.

Population structure Age and sex composition of a population.

Public charge A person who has become dependent upon the state for health or economic security.

Public Health Act Legislation detailing the laws pertaining to health and disease. The Act serves to regulate the behaviors of the citizens under the jurisdiction that it covers.

Pulmonary tuberculosis The most common form of tuberculosis, expressed in the lungs by the appearance of abscess and tubercles. Symptoms include coughing, exhaustion and blood in the sputum. See also *Consumption*; *Tuberculosis*.

Quarantine Marking off and creating a boundary to protect a non-infected population from a feared biological contaminant.

Re-emerging Infectious Disease Infectious diseases from the past that are resurging.

Romanticism An intellectual and artistic movement in Europe during the late 18th and early to mid-19th century that valued individuality, imagination, emotional feeling, creativity, and celebrated the beauty of nature and folk traditions.

Russian Revolution of 1905 Anti-government and violent struggle rooted in tensions that had been growing in the Russian Empire for some time during the shift from feudal state organization to market-driven capitalism.

Russo-Japanese War A conflict that lasted from 1904 to 1905 stemming from rivalry between the imperialist ambitions of Russia and Japan. Russia sued for peace in 1905 in order to deal with the Russian Revolution of 1905. See also *Russian Revolution of 1905*.

Salubrious Promoting health or wellbeing; wholesome.

Sanitarium Health Resort. Not to be confused with Sanatorium. See also *Sanatorium*.

Sanitation The state of being clean and free of germs, which aids in the preservation of health and the absence of disease.

Sanatoria Plural of Sanatorium See also *Sanatorium*.

Sanatorium Hospital or clinic dedicated to the treatment of tuberculosis. In 1905 when the Hamilton Health Association received a charter to build a sanatorium, the National Sanatorium Association thought that a distinction should be made between sanitarium and sanatorium. The official distinction was made with the opening of the Mountain Sanatorium in Hamilton in 1906.

Sanatorium Movement Dates from the 1890s–1950s when sanatoria became popular institutions for treating tuberculosis. See also *Sanatorium*.

Scarlet Fever A contagious and febrile disease caused by a *Streptococcal* infection. Symptoms include reddening of the skin and the development of small bumps.

Scrofula A form of tuberculosis affecting in the lymph nodes in the neck, seen most often in children.

Senile debility Disabilities associated with aging.

Smallpox A severe contagious disease caused by the *Variola* virus. Symptoms include pustular eruptions that often leave permanent pits or scars.

Social Representation Theory Common perceptions within a particular community about a subject are constructed and represented in the popular media.

Specific mortality rate The number of deaths in a population compared to the number of living persons in the same population, divided into defined categories.

Age Specific mortality rate The number of deaths in a population compared to the number of living persons in the same population, divided into discrete age categories.

Sex Specific mortality rate The number of deaths in a population compared to the number of living persons in the same population, divided into either male or female categories.

Sputum Mucous matter discharged or coughed up from the respiratory tract and diseased lungs, often containing blood or pus.

Streptomyces Aerobic bacteria of the genus *Streptomyces*, certain species of which produce antibiotics.

Streptomycin An antibiotic produced by *Streptomyces griseus* and used to treat tuberculosis.

Tabes mesenterica Tuberculosis of the lymph nodes in the abdomen. See also *Consumption*; *Tuberculosis*.

Tubercle A small, firm, rounded nodule or swelling; the characteristic lesion of tuberculosis.

Tubercular meningitis An inflammation of the membranes at the base of the brain.

Tuberculin A sterile liquid culture containing proteins of tubercle bacilli used in diagnostic tests for tuberculosis.

Tuberculosis A highly contagious, usually chronic disease caused primarily by *Mycobacterium tuberculosis* or *Mycobacterium bovis*. It primarily affects the lungs and can potentially affect any area of the body via the lymph nodes or circulatory system. Commonly referred to as TB. See also *Consumption*.

Typhoid Fever An infectious, often fatal, febrile disease. Symptoms include intestinal inflammation and ulceration. It is caused by the typhoid bacillus, which is usually acquired through food or drink.

Wards The electoral divisions of Hamilton.

Wasting disease Any disease causing progressive emaciation and loss of vitality and strength. Often synonymous with tuberculosis. See also *Consumption*; *Tuberculosis*.

Whooping cough An infectious disease of the respiratory mucous membrane, caused by *Bordetella pertussis*. Symptoms include short, convulsive coughs and a ‘whooping’ sound.

Woman’s Christian Temperance Union (W.C.T.U.) A volunteer organization that recognized the negative effects of alcohol and campaigned for a reduction in the availability of alcohol.

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Index

A

Aboriginal Canadians 140, 142
Advertisements 56, 61, 74, 75, 77, 79, 90, 121
Alcohol 12, 70, 76
Alternative Medicine 79
 Dr. William's Pink Pills for Pale People 75, 78, 79
 Formo 75
 Olive Oil 76
 Psychine 78
 Vin Mariani 78
Anti-spitting by-laws 60, 132, 133
Asthenia 147
Annex, The 46, 53

B

Biggar, Sanford 115, 117
Boarders 50, 147
Bodington, George 86, 102, 147
Bovine Tuberculosis 8, 35, 130, 147
Brehmer, Herman 102
Built environment 52, 147
By-law 130, 131, 132, 134, 147

C

Canada
 National Census (see "Census")
 Immigration 26, 141
 Population growth 26

Canadian Association of Charities
107, 112

Catarrh 10, 11, 62, 63, 147

Census 15, 21, 28, 49, 147

Children 13, 17, 31-37

Chicken Pox 66, 147

Cholera 66, 148

Christianity 70

Churches 117

 Hospital Day 117

City Council 130, 132

City Hall 133

City Health Reports 65

City Hospital 51, 86, 94-99

City Improvement Society 112

Cod-liver Oil 90

Cohort 148

 Age Cohort 148

 Sex Cohort 148

Consumption (See "Other Terms for Tuberculosis")

Creosote 90

Crerar Hall 115

Crerar, Marion 114, 115

D

Darwinism 70, 148

Daughters of the Empire (IODE),
The 113

Death Records 15, 28, 33, 49

Department of Health 132

Diagnosis 84

 Auscultation 84

 Patient history 84

 Percussion 84

 Sputum Test 85

Tuberculin Test (see “Tuberculin Test”)

X-Ray 86

Diet 86, 87, 88

Diphtheria 66, 148

Disease

Disease causing agents 5, 8, 56, 58

Disease outbreaks 57

Infectious 66, 138

Disinfection 60

Distribution 39, 40

Dowling, Thomas Joseph 94

E

Edgar, James 107, 112

Empyema 10, 148

Enlightenment 57, 148

Epidemic 32, 57

Epidemiologic Transition Theory 138, 148

Emerging Diseases 138, 148

Re-emerging Diseases 138, 152

Evans, Mrs. Robert 115

F

Factories 48

Forlanini, Carlos 149

G

Gage, William 103, 113, 149

Garbage 46, 47

Germ Theory of Disease 8, 55, 58, 59, 61, 63, 64, 149

GIS 39, 149

Grand Trunk Railway 113, 149

H

Hamilton

Area 28, 29

Industrialized 26, 45

TB Death Rates 28

Hamilton Board of Health 60, 131, 132

Hamilton Health Association 104, 114, 133, 149

Hamilton Hospitals 94

Challenges 96, 104

Hamilton General Hospital (See “The City Hospital”)

Hamilton Improvement Society 107

Hamilton Mountain San, The 104, 106, 107, 108, 122, 125, 127

Hamilton Pavilion 114

Hereditary 55, 56, 59, 64

Hippocrates 56, 149

Home 33, 34, 36, 37, 47, 50, 52, 60, 74

Hospital 93-99, 103, 104, 106, 124

Housing 46, 49

Housing Boom 46

Hospital by-law 134, 149

Humouralism 56, 149

humoural medicine 59, 75

humoural model 55

humourism 149

humoural tradition 56, 59

humours 56

Hydrocephalus 10, 11, 149

Hygiene 59, 60, 126

Hypophosphites 90

I

Immigrants 21-30, 140-144, 150
 Country of origin 24, 28, 141
 Lived environment of 25
 TB deaths of 28, 29
 Stereotypes 25
 Stigma 23
Immigration 22, 24, 26, 28, 141
Incurables 134, 150
Industries 48
Infection 6, 7, 9, 10, 13
Insane persons 150
Inoculation 6, 150
Institutions 134
Isolation Hospitals 67, 124

K

Koch, Robert 8, 55, 58, 91, 150
Kuchenmaster, Elizabeth 76, 78, 150

L

Ladies' Auxiliary 114
Laënnec, Rene 85, 150
Langrill, W.F. 46, 53
Law 129, 130, 131, 132, 134
 Municipal 130
Legislation 130, 150
 Municipal 130, 131
 Provincial 130, 131
Lesion 6, 9, 32, 150
Living Population 150
Lodgers 50, 150

M

McMenemy, John 104, 113, 150
Measles 13, 66, 150
Men's Board 114
Medical Fashion 125
Medical Officer of Health 130, 132
Milk pasteurization 6, 131, 132, 151
 Unpasteurized milk 35
Modernity 108, 109
Morals 57, 60, 69
Mortality Rates 16, 17, 18, 29, 42, 151
 Age-specific 17, 18
 Sex-specific 16
Mumps 66, 151
Mycobacterium 5, 151
 M. bovis 6, 8, 9, 35, 37, 151
 M. tuberculosis 8, 9, 13, 56, 58, 62, 64, 151

N

National Sanatorium Association
103, 124, 151
Newspapers 61, 67, 68, 75, 86, 90

O

Ontario 15, 16, 17, 18, 26
 Board of Health 67
 Urban growth 26
Ontario Milk Act 130, 135, 151
Open-Air Treatment 86
Opiates 91

Other terms for tuberculosis 9-11
 Consumption 10, 11, 12, 55, 56, 57, 61, 62, 63, 148
 Galloping Consumption 86, 149
 Lupus vulgaris 11, 150
 Marasmus 11, 150
 Miliary tuberculosis 10, 11, 151
 Myelophthisis 10, 11, 151
 Phthisis 10, 11, 151
 Scrofula 10, 11, 153
 Tabes mesenterica 10, 11, 153
 Tubercular meningitis 10, 11, 154
 Wasting Disease 10, 11, 154
 Overcrowding 35, 48, 49

P

Pasteur, Louis 8, 58
 Patient 84, 87, 88, 91, 94, 95, 97-99, 102-104, 123-127, 134
 Phthisisphobia 112
 Pills 75, 78, 79, 91
 Pneumothorax 88, 89, 151
 Population
 At Risk 15, 16, 152
 Distribution 16, 152
 Structure 16, 152
 Poverty 24, 30, 57, 59, 76, 140, 143, 144
 Provincial Government 115
 Public Health 60, 130
 Officials 46, 52, 59, 60, 105, 133
 Public Health Act 130, 131, 152
 Pulmonary Tuberculosis 6, 7, 11, 130, 152

Q

Quarantine 24, 121, 122, 125, 152
 History of 122

R

Re-emerging Diseases (See “Epidemiological Transition Theory”)
 Regulate 130
 Roberts, James 47, 53, 88, 132
 Romanticism 57, 152
 Romantic era 57
 Romantic myth 57
 Romantic period 57
 Romantics 57

S

Sanatorium
 Adirondack Cottage 103
 First 102, 103
 Impact of 123, 127
 Movement 101, 103
 Muskoka Cottage Hospital 103
 Muskoka Free Hospital for Consumptive 103, 106, 107
 Toronto Hospital for Tuberculosis 103
 Sanatorium Treatment 59, 86, 102, 104, 123
 Effectiveness 106, 123
 Sanitation 47, 59
 Sanitationists 59
 Sanitation movement 59
 Sanitation practices 59
 San Movement, The 123

- Purpose of 125
- Schools 33, 34, 35, 37
 - For consumptives 87
- Senile debility 134, 153
- Sewers 46, 53
- Smallpox 66, 153
- Smith, Bruce 107, 108
- Social representation theory 61, 153
- Social stigma 95, 125
- Socio-economic status 42, 80, 142, 143, 144
- South African War 113
- Southam, Mrs. William 115
- Spitting 59, 80, 133
- Sputum 7, 34, 59, 60, 85, 132, 153
- Standard of Living 25, 144
- Statistics 22
 - Issues with 22
- Stethoscope 85
- St. Joseph's Hospital 94
 - Sisters of St. Joseph 94
- Streptomycin 96, 153
- Sunlight 87, 88
- Symptoms 7, 32, 84
 - Early signs 84

T

- Toronto 139, 140
- Treatment of Tuberculosis 75, 86
 - Affordability 74, 79
 - Effectiveness 77, 89, 96
 - Lifestyle Change 86
 - Surgical Intervention 88
 - Medicinal Remedies 89
- Tubercle 7, 153
- Tubercular character type 56

- Tubercular constitution 59
- Tuberculin 8, 91, 154
- Tuberculin Test 86, 134
- Tuberculosis
 - Causes 12
 - Childhood 32, 148
 - Discovery of 8
 - Pathology 5
 - Prevention of 37, 80
 - Susceptibility 13
 - Symptoms (see "Symptoms")
 - Transmission 6
 - Other terms (See "Other Terms for Tuberculosis")
- Tuberculosis bacillus 6, 58, 59, 63, 80
- Typhoid Fever 66, 154

U

- Unsanitary Conditions 47

W

- Wage 79, 142
- Ward 40, 41, 42, 154
- Whooping Cough 13, 66, 154
- Women 14, 33, 69, 70, 80, 114
- Wood, Eugene 132, 133
- Working Conditions 46, 48