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Inventing the Cure:

Tuberculosis in 20th-Century Nova Scotia

by

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at

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ABSTRACT

In the early 20th century tuberculosis became the concern of social reformers because of its links with poverty and new medical knowledge about its infectiousness. Although reform might have taken several directions, the one chosen prior to 1914 was in line with the essentially conservative character of the reform movement, which revered scientific expertise as a solution to many social problems. Voluntary organizations were established to deal with tuberculosis, but generally accepted the leadership of physicians, who successfully promulgated a "cure" in the form of the fresh-air sanatorium regime. Tuberculosis and public health became quasi-specialties in medicine, with the role of the laity sharply reduced. Nova Scotia's sanatorium opened in 1904 as the first provincially-established tuberculosis facility in Canada. Although it could take in only a tiny fraction of cases and left those who could not pay completely unprovided for, it represented virtually the only action taken by the medical profession or the provincial government until the 1930s to cope with a disease which affected thousands. Voluntary activities, which had taken on a bureaucratic character by the 1920s, helped shape a public health system which was designed to function as a clearing-house for the sanatorium and the new tuberculosis annexes at general hospitals. The system was non-threatening to private practitioners at the cost of being inaccessible and unhelpful to many people. No action was taken toward provision of non-institutional care until the tuberculosis death rate had declined so much as to make this almost irrelevant; nor was any government action taken to alleviate the circumstances of the indigent tuberculous until federal money became available after the second world war, at which time treatment became compulsory. The steady decline of tuberculosis helped justify a variety of programmes, yet probably owed little to any of them.

INTRODUCTION

Although tuberculosis is a disease older than civilization, it may be claimed with some justice that it was "discovered" as a target for public health efforts only around the turn of the 20th century. As the greatest of the killer diseases, known to be contagious since Robert Koch's isolation of the bacillus in 1882, tuberculosis became a major concern of the burgeoning pre-war social reform movement. No cure was known, and efforts to find a specific preventive vaccine had so far failed. Yet the instrument preferentially chosen for the North American attack on tuberculosis was a specialized, "curative" institution run by authoritative medical experts: the tuberculosis sanatorium. Nova Scotia's sanatorium, the first such government-established facility in North America, opened in 1904 to the acclaim of tuberculosis activists throughout the continent. Wrote Annie McLean of New York's Charities magazine in 1905, "The people generally lack confidence in institutional care, and they must be educated up to its value before they will take advantage of the opportunity offered....[But] it is interesting to note that the provincial government is awake to the need of the hour. It would seem that the institution must prove a great boon to the province."[1]

The Nova Scotia Sanatorium was in the vanguard of a movement which swept North America in the years before the First World War. In 1901, there had been two sanatoria in

Canada. By the end of 1913 there were 24 in operation, with many more in the planning stages. As the main weapons in the fight against tuberculosis, these institutions made little sense. Tuberculosis infection was virtually universal; sanatoria could take in only a handful of cases. Tuberculosis was generally diagnosed only in the advanced stages; sanatoria promised help only to incipient cases. Tuberculosis was most common among the poor, but sanatoria were very often inaccessible to those who could not pay.[a] Nova Scotia's Provincial Sanatorium levied weekly charges, payable in advance.

While the number of cases in the province was never known with any precision, a 1928 study by Tuberculosis Commissioner Joseph Hayes stated that according to "the most conservative statistics there are constantly between three and four thousand cases of active tuberculosis in Nova Scotia", less than 600 of which had been reported to the Public Health Department.[2] Yet between 1904 and 1945, the Provincial Sanatorium, for many years the only facility in the province and always the largest, had treated a total of 6,351

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[a] "Directory of Anti-Tuberculosis Institutions and Organizations", CTAAR, 1910. Of the 19 residential institutions whose fee structures were known, only seven levied no charges. Two maintained a number of free beds, while ten were run strictly on a pay basis, with charges ranging between $3.50 and $18.00 per week.

patients.[3b] By allocating the lion's share of available money to "cure" a few patients who could pay their own way and by choosing, at least in the beginning, those whose disease had not yet disabled them, the Nova Scotia government and other agencies like it had defined public health goals in the narrowest possible way. By 1908, serious questions were being raised at the Washington International Congress on Tuberculosis regarding the value of sanatorium treatment; and in Nova Scotia by 1909, something seemed to have gone seriously wrong. "Fully one-half of all admissions [since opening]", wrote the sanatorium superintendent that year, were "in their graves".[4] More tuberculosis deaths were being reported than ever before, and Nova Scotians, both patients and doctors, were increasingly losing faith in the institution. In 1910, Nova Scotia's Provincial Health Officer declared that sanatoria "must fail" as the solution to tuberculosis.[5] Yet in Canada and the rest of North America, sanatorium-building continued unabated, and the Nova Scotia sanatorium, far from collapsing, enjoyed a resurrection in public confidence and was expanded in 1912, and again during the First World War.

A satisfactory explanation of these events must take into account not only the state of medical knowledge of the time,

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[b] Table C-7 briefly compares provincial population, numbers of tuberculosis deaths, available tuberculosis treatment beds and numbers of patients treated between 1911 and 1951.

but also the nature of tuberculosis as a social disease, the rise of medical professionalization as part of a wider social reform movement, and the related change in conceptions surrounding the nature of public health and prevention. Since health matters have been primarily a provincial affair in Canada, with much of the financial responsibility traditionally devolving upon the municipalities, the study of tuberculosis activities in the context of a single province, with frequent reference to the national and worldwide scene, makes sense. The early involvement of the provincial government, the pre-eminence of Nova Scotia's medical profession within the Atlantic region, the relative severity of the province's tuberculosis problem and the developing balance between government and voluntary action make the Nova Scotian situation a particularly interesting one.

Moreover, the province's activities hardly took place in isolation. There was an international movement to control the disease in virtually all industrialized countries, and Nova Scotian practitioners attended and publicized developments at regular international tuberculosis congresses as well as keeping abreast of the latest research and practices, particularly in the U.S. and Britain, through journals and professional and personal contacts. The voluntary anti-tuberculosis movement, affiliated with the Canadian Tuberculosis Association, was also important in disseminating information and in helping promote and finance new types of

"crusades" such as the health demonstrations of the 1920s. Demonstrations and other special projects often followed American models, and American agencies -- notably the Rockefeller Foundation -- were frequently closely involved in funding and programme design for Nova Scotia, as for other parts of Canada. For these reasons, virtually all the major factors involved in the struggle against the disease in Canada as a whole are represented in the Nova Scotian situation.

The Face of Tuberculosis

The nature of the disease itself is an important part of the story.[6] Tuberculosis can affect virtually any part of the body and give rise to a baffling range of symptoms. Before isolation of the bacterium *Mycobacterium tuberculosis* by German scientist Robert Koch in 1882, its various manifestations were typically looked upon as separate diseases. Hence there are a great many terms historically used to refer to this disease, including scrofula, various "abscesses", bone caries, Pott's disease or hunchback, and "galloping consumption" -- the rapidly-fatal form known today as miliary tuberculosis. Its most common appearance, however, was in the lungs of young adults, where it went by the name of consumption, phthisis, decline, hectic fever or "white plague"; its victims commonly being referred to as "consumptives" or "phthisics". Its primary mode of spread is via droplet infection from sputum released into the air during

coughing, sneezing or spitting. The term "open tuberculosis" or "open case" refers to cases in which the sputum tests positive for tuberculosis bacilli. Positive sputum indicated that a bacilli-filled lung cavity had formed in communication with the upper respiratory tract, and the various lung collapse theories adopted over the years aimed at closure of such cavities to prevent transmission of the disease to others and to promote healing. Simple excision of these foci, in the days before drug therapy, was usually regarded as impossible because of the near-certainty that microorganisms would gain access to the blood during the operation and thus disseminate throughout the body. Rupture of such a cavity into a blood or lymph vessel could accomplish the same thing in the course of the disease. Such rupture could also pose an immediate threat to life, as blood hemorrhaged uncontrollably into the cavity and caused hemoptysis--the coughing up of blood. Bacilli could also enter the digestive tract if sputum were swallowed, greatly accelerating the progress of the disease; for this reason, as well as to prevent reckless spitting, patients were encouraged always to carry and use a disposable covered sputum cup.

Gastro-intestinal tuberculosis, especially in children, was also a possible result of infection with Mycobacterium bovis, or bovine tuberculosis, via infected milk. Although Robert Koch announced in 1901 that the bovine bacillus could not cause tuberculosis in humans, subsequent investigation,

notably by a British Royal Commission before the First World War, proved him wrong, and the campaign for clean milk, hitherto justified on the same grounds as that for clean, unadulterated food of all kinds, took on new importance. Koch was also responsible for the announcement of a "cure" -- tuberculin -- in 1890, and its failure to live up to this promise caused bitter disappointment in the medical world.

The onset of pulmonary tuberculosis is usually quite insidious. Although typical first symptoms include a loss of appetite, weight loss, slight fever, night sweats and a persistent cough, individual patients might experience no more than a vague feeling of malaise, or even nothing at all. Traditional diagnostic methods -- observation, percussion and auscultation -- could easily miss the presence of early disease. Sputum analysis, when positive, at least gave a definitive answer, but only in cases which had already become considerably advanced. Soft-tissue visualization by x-ray did not become practicable and widely-used until after the First World War.

The enigma presented to physicians by tuberculosis was complicated, in cases which were not too far advanced, by the tendency of the disease, always in precarious balance with natural immune forces, to go into spontaneous remission. When this happened, almost any treatment might seem to have wrought a cure or, at least, a substantial improvement. Partially for this reason, a multitude of tuberculosis "cures" were

discovered and tested over the years, to be clung to by some practitioners even after their inefficacy had been generally acknowledged, and many patients continued to rely on some favorite patent medicine or other. A tendency for relapsing patients to emigrate or change physicians probably also contributed to doctors' difficulty in following the results of a particular treatment. Even after the high frequency of relapse was recognized, sanatoria continued to emphasize the short-term results of treatment, often to the point of obscuring patient's long-term fates.

The Context of the Anti-Tuberculosis Struggle

I: A Have-Not Province

The twentieth-century struggle against tuberculosis in Nova Scotia took place against a backdrop of steadily worsening economic conditions relative to the rest of the country, and the inception and consolidation of regional disparity have been a prime focus of historians' attention.[7] Although full-blown depression did not strike until the 1920s, the roots of crisis can be traced back much further than this.

The traditional mercantile economy of shipbuilding, fishing and lumbering gave way after Confederation to development strategies based on rail access to the central continent, resulting in significant growth in secondary manufacturing, and later to booming activity in the iron and steel industries. These developments were encouraged and, to

a great extent, permitted by favorable tariffs under the National Policy and favorable freight rates on the Intercolonial Railway which allowed the region to compete for business in central Canada and the expanding west. But although the per capita value of Maritime manufactures more than doubled between 1880 and 1910, signs of trouble were already evident.[8] One by one, locally-owned enterprises underwent takeover by central Canadian concerns and thus became increasingly vulnerable to layoffs or shutdown in hard times. By 1914, the region's most important financial institutions had also been transferred to outside interests; the Bank of Nova Scotia, for example, had moved its general managers' office to Toronto as early as 1900.[9] The situation was thus exacerbated by a net flow of capital out of the region to finance growth elsewhere, and the Maritimes was quickly becoming a "branch-plant economy". In Cape Breton, where industrialists exploited the richest coal and iron deposits in the country, there was early involvement by central Canadian and American capitalists, and the emergence of the British Empire Steel Corporation [BESCO] in 1920 marked, in the words of T.W. Acheson, "the final nationalization of the region's major industrial potential and the failure of its entrepreneurs to maintain control of any significant element in the industrial section of the regional

economy".[10c]

A devastating blow was provided by changes in federal transportation policy, entailing merger of the Intercolonial Railway into the Canadian National and the loss of the favorable rates for westbound freight which had done so much to counteract the disadvantage of distance from major markets. Between 1917 and 1923, freight rates for various commodities had increased between 140 and 216 per cent; and between 1920 and 1926, 42 per cent of the region's manufacturing jobs disappeared.[11] Other crucial circumstances included the shift of much central Canadian export business to American rather than to Maritime ports, and the long-term erosion of national tariff protection for the products of the regional coal and steel industry, which effectively annulled the price advantage of Nova Scotian versus American coal and which became especially significant once the wartime boom in steel production had ended. The war had also disrupted world markets for more traditional industries such as fish and lumber. By the beginning of the 1920s, full-scale economic depression had become a fact. Moreover, "hard times" would become a permanent feature of Maritime life.

Once commonly viewed as an unfortunate but inevitable result of Canadian geography, regional disparity has more

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[c] BESCO had taken over both the Toronto-Montreal owned Dominion Steel Corporation and the Nova Scotia Steel and Coal Company, which had been locally-owned until its takeover by New York interests in 1917.

recently been the focus for a diversity of opinion. Marxist scholars, holding that an unequal distribution of wealth is an inherent feature of capitalism, see the region's economic woes as a natural consequence of capitalist growth and consolidation. Others point to changing market conditions, or to specific policy choices made by a succession of governments which failed to see the creation of regional equality as a legitimate goal. These views are not necessarily incompatible, given the interdependence of politics and large business interests; it is certain, for example, that the changes in tariff and transportation policy which so damaged the region's economy were very much a function of pressure from central Canadian enterprises with their own interests in mind, and which held a dominant voice in federal politics. In 1871, the Maritimes had contained 18.2 per cent of the Canadian population; by 1921, with the expansion of the west and the consolidation of capital and industry in Toronto and Montreal, the region's share of population had shrunk to 11.4 per cent.[12] Accordingly, its number of seats in the House of Commons was reduced at regular intervals, leaving Maritimers with an increasingly weak voice with which to protest developments. During the twenties, this factor had a spiralling effect as more and more Maritimers left the region in search of better opportunities.

Out-migration, however, was not the region's only response to the situation. Wage cuts at BESCO resulted in a

series of bitter strikes by miners and steelworkers in the first half of the twenties, accompanied by armed intervention from troops and "special police". Farmer and labour political parties, while seen by some as a vehicle for protest, were more often apparently viewed by Maritimers as too representative of the interests of other regions, especially the West. It was, in fact, the Conservative party which successfully established itself as the representative for a growing number of people who saw themselves as part of a movement for "Maritime Rights". Seemingly a crusade which transcended class concerns, the movement was, as Ernest Forbes points out, more probably seen by a variety of groups as an essential first step in gaining their diverse, and even conflicting goals. While labour might hope for full employment and an end to oppression by corporate bosses, professionals for leadership roles in a society educated to recognize their worth, and entrepreneurs for a profitable share of the nation's industry and trade, all could agree that none of this was possible so long as the region's economic and political status within the country continued to decline. This consensus resulted in a sweeping victory for Nova Scotia's Conservatives in 1925. They continued in power until 1933, by which time Liberal Prime Minister Mackenzie King had taken sufficient notice to appoint a Royal Commission to investigate the Maritime claims. The subsequent Duncan Commission recommendations for federal action on many fronts,

though hailed as a victory for the movement, were largely ignored or implemented only in a token way by the King cabinet; its major accomplishment, and its likely purpose in the first place, was pacification of a potentially troublesome region.

The Maritime depression of the 1920s was immediately followed by the Great Depression of the 1930s, and the region continued to bear a disproportionate burden relative to other regions in the smaller share of federal money available to it for relief and services. Again, federal policies, especially with regard to the matching-grants scheme for most forms of aid, seemed deliberately designed to make the poorest region poorer still, and to ensure it would be in the least favorable position for recovery.[13] Perhaps because Maritime underdevelopment had by this time actually come to be seen as "natural" and inevitable, the region also received much less than its share of wartime contracts in the 1940s, when production in crucial industries was wholly under federal regulation. Usable steel-producing plant was allowed to lie idle, while the critical function of wartime ship repair suffered measurably by the underuse of Maritime port facilities.[14]

Not until the 1960s would regional disparity again become a significant issue on the national agenda, with deliberate measures being at last taken -- with, so far, minimal success -- to "equalize" regional development. With respect to our

consideration of the tuberculosis problem, these later developments followed the introduction of effective drug therapy and the near-disappearance of the disease. In the first half of the century, however, at least until the appearance of federal health grants in 1948, the state of provincial finances did limit the amount of money available for a variety of programmes, including public health. Meanwhile, recurrent periods of severe economic depression and continuing underdevelopment combined to make the question of providing medical care for the tuberculous indigent especially urgent, while at the same time limiting municipalities' resources for dealing with it. Yet the ultimate effects of curtailed programmes or insufficient sanatorium beds for the poor remain doubtful. The most significant consequence of hard times for the story of tuberculosis may well have been an increased susceptibility among Nova Scotians to the disease itself.

II: Government and the Public Health

General public health activities in Nova Scotia, as in other parts of Canada, are much older than the campaign directed specifically against tuberculosis. Before the effects of industrialization with accompanying immigration and urbanization had taken hold, Canadians had little incentive to build a public health machine comparable to those already well-established in older countries such as England; hence

efforts were usually quite sporadic, organized particularly around a variety of nineteenth-century epidemics including cholera and smallpox. For most of the nineteenth century, tuberculosis was not a focus of these campaigns, since accepted medical wisdom generally held it to be inherited. By the 1890s, however, the newly teeming cities and the perceived social evils of industrialized society led most provincial governments to conceive of public health as properly a permanent function, and to provide for central boards of health to direct and oversee local activities.[15] Because tuberculosis had by then been recognized as an infectious disease, it became an obvious focus for early public health organizers and a central element around which a growing bureaucracy defined and expanded its sphere of operations.

Bureaucracies, seemingly destined to expand of their own accord forever, have become almost a cliche of modern times. The mechanisms of bureaucratic establishment and growth in mid-nineteenth-century English government as described by Oliver MacDonagh and others offer a model of increasing government involvement in the affairs of the population.[16] Although the development of a public health bureaucracy occurred later in Nova Scotia than in England, the same classic pattern is evident. Briefly, there is initial recognition of a social evil, which the government attempts to solve with a once-and-for-all piece of legislation outlawing it, characteristically envisioning an ideal situation and

without providing definite means of enforcement. In actual practice, however, it is soon found that little changes; the problem is more complex than it at first appeared. The next logical step is the appointment of some central authority reporting to government to oversee the operation of the act, resulting in an increased flow of information about the original problem, and a drive to close loopholes and improve enforcement by appointing additional personnel who, in turn, discover still more aspects of the problem requiring attention. From this point bureaucratic growth is assured, and adjustments to the pertinent legislation become increasingly routine.

Tuberculosis held a unique position among the diseases with which the new public health authorities had to deal. For one thing, it did not fit well into the traditional idea of public health as protection for the community as a whole, rather than for individuals.[17] Typhoid, for example, could be fought on a broad basis by improvements to water systems; smallpox by short-term quarantine and compulsory mass vaccinations. Community control of tuberculosis, on the other hand, logically meant isolation by some means, and presumably concomitant treatment, of infectious individuals for greatly extended periods of time: often for years, or until the patient died. These measures, moreover, were potentially applicable to vast numbers of people, including the indigent; perhaps, <u>especially</u> the indigent, given the frequency with

which tuberculosis attacked the poor.

A system of sorts for treatment of the sick poor already existed in early twentieth-century Nova Scotia, including a public hospital and a visiting dispensary in Halifax and a network of poor asylums elsewhere. But this system was hardly adequate for the long-term housing and care of greatly-increased numbers of infectious tuberculous. Besides, the provincial hospital, like others in North America, was undergoing profound transformation in the years surrounding the turn of the century. For most of the nineteenth century, community hospitals had been seen as places which provided free care for those who lacked the means to pay a private physician, or without a suitable home environment in which to be treated; now, in response to a variety of factors, they were becoming acute-care institutions which increasingly served all social classes. Because chronic tuberculosis was a poor fit both for traditional public health schemes and for the emerging modern hospital, it would have to be approached in some novel ways -- as indeed it was.

Voluntary organizations, including both physicians and lay workers, were an early and enduring feature of the anti-tuberculosis campaign. In some parts of Canada, notably Ontario, voluntary organizations were at the heart of the anti-tuberculosis struggle, and worked together with strongly autonomous municipalities and a minimum of provincial government involvement to achieve their goals.[18] In the

Maritimes, however, largely because of the relative lack of financial resources in the municipalities, concerned citizens necessarily looked toward the central government. This involved something of a contradiction, in that public health activities were firmly centralized, while welfare -- and hence payment for treatment of indigent patients -- was still considered a municipal responsibility. This situation led to recurrent trouble over the years as the government attempted to wrestle with the tuberculosis problem.

III: Social Reformers and the Medical Profession

Because the inception of the anti-tuberculosis struggle in Canada coincides in time both with a strong drive for social reform and with the modern rise to power of the organized medical profession, the twentieth-century history of this disease inevitably involves some analysis of the role of both forces in helping shape the course of events.

One of the peculiarities of tuberculosis is that, in the early twentieth century, it was often perceived as a social as much as an individual disease.[19] The basis for this was its long-recognized association with poverty and overcrowding, two of the chief perceived evils of industrializing cities.[20] Obviously, not every consumptive was a pauper; no social class was immune. But a strong connection between high tuberculosis prevalence and poverty was unquestioned. It was evident in the shocking prevalence of "lung blocks" in the slum areas of

cities, although the problem was often ascribed to darkness, "foul air", filth and drunkenness rather than poor nutrition.[21] Volunteer workers were also concerned about the plight of sweatshop labourers suffering from tuberculosis, whose lack of rest coupled with abysmal living and working conditions gave them almost no chance to recover.[22] The connection became even clearer later, when statistics showed that tuberculosis mortality in a country varied directly with the incidence of "pauperism".[23] Physicians in Nova Scotia, in particular those working with the Visiting Dispensary, were well-acquainted with this relationship.[24] The historical association between tuberculosis and poverty has been frequently noted up to the present day.

This association was largely due to the nature of the disease. Clinical pulmonary tuberculosis typically results from reactivation of an infection acquired earlier, often after many years of dormancy. Further, its development has often been tied to conditions which tend to lower an individual's natural resistance to disease. Therefore, tuberculosis thrives in circumstances featuring poor nutrition, overcrowded living conditions and stress. Since it was also the pre-eminent single cause of death in North America and the foremost killer of young people, it was an obvious target for the burgeoning middle-class social reform movement in the years before the First World War.

Reformers, influenced either by the currency of the "new

liberal" philosophy or the religiously-based Social Gospel movement which paralleled it, characteristically tried to reconcile traditional values with modern industrial society and believed that the new age of science and industrial technology could provide the solutions to the social evils which had accompanied its introduction.[25] A wide variety of movements came under the reform umbrella, including temperance, urban reform, women's suffrage, health, education and child welfare.[26]

The new liberalism of the reform movement, in rejecting the earlier classical liberal ideology of laissez-faire and Darwinian "survival of the fittest", drew on the optimism of neo-Hegelianism which emphasized rational resolution of conflict and aimed at the establishment of an ordered, rational, harmonious society in which all groups would contribute to and benefit from an expanding economy.[27] The Social Gospel, primarily an English Protestant movement but with a smaller Roman Catholic counterpart in Quebec, similarly emphasized the good of the community as a whole and the necessity for accompanying spiritual exercises with practical, concrete action to better the lot of one's fellow creatures.[28] An anti-urban bias was common: many health reformers, for example, were quite receptive to the "fresh-air tuberculosis cure" promulgated by physicians. The problem, it seemed, could be at least partially solved by exporting the urban poor to the country. Dr. S.A. Knopf of

New York wrote in 1902, for example, that

> physicians, statesmen, philanthropists, and thinking citizens should combine their efforts to counteract the ever growing tendency of people to emigrate from the healthy rural districts and small cities to the crowded metropolises... The family physician in particular has a great mission to perform in this connection. He should urge the younger members of a family, where there is a tendency to tuberculosis, to emigrate from city to country...rather than remain in, or come to, large cities...[29]

This viewpoint, which idealized the "old-fashioned" rural life as healthful, was commonly held by Nova Scotian anti-tuberculosis activists as well, even though tuberculosis death rates in the province's rural areas often equalled or outstripped those in the cities, as Tables A-3 and A-4 and their accompanying graphs attest.[d]

Undoubtedly, the conscious motivations of many of those whom Weinstein calls "ordinary liberals" or "ordinary social reformers" went no further than a laudable humanitarian desire to do good, to become involved in worthwhile activity outside the domestic sphere, to feel useful, and perhaps to salve one's conscience. Certainly, voluntary workers in the health field can readily be credited with such motives.

But there were other motivations as well behind the reform movement. Weinstein, for example, traces consistent support for the "new liberalism" among American business leaders anxious to quell both the ferocity of untrammelled

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[d] See Appendix: Tables and Graphs.

competition among themselves and revolt in the ranks of their workers. To this end, for example, the National Civic Federation aimed at the promotion of "sympathy and a sense of identification between the employer and his employees by integrating the lives and leisure time of the workers with the functioning of the corporation."[30] Business acceptance of trade unions was encouraged by the NCF as a far more manageable alternative to worker discontent than the socialism which might otherwise spread. Government regulation of monopoly and nefarious business practices was also promoted as a way of stabilizing the marketplace and ensuring access to services. While reform rhetoric invariably emphasized fairness and free enterprise and denied class bias, Weinstein shows that business leaders in the NCF were adopting a political role in full consciousness of their own class interests, having, in Weinstein's words, "come to understand, as Theodore Roosevelt often told them, that social reform was truly conservative".[31]

Similarly, educational reformers, adopting the business credo of "expansion, efficiency, economy, and expertise", tried to inculcate their students with a belief in rational development, traditional moral values and, as Wood puts it, "the inherent humanitarian progressivism of capitalistic business."[32] Idealism was thus transformed into an exercise in social engineering. In the words of Barry Franklin,

> The social system itself is viewed [by the school] unproblematically as pre-given. The concern is

> with the most efficient and certain means of socializing the individual to a pre-established normative pattern.[33]

The aim to create social unity by educating a group of enlightened, co-operative, ethical, manageable and hence useful citizens used the rhetoric of equal opportunity to gloss over class, racial, sectarian and ethnic tensions. Ironically, it also aimed at segregating "different" students as soon as possible from general classrooms. Obviously, this was not always economically feasible; but in Cleveland, at least, "the ultimate in terms of progressive facilities" had been attained, entailing separate schools for the blind, the deaf, the feeble-minded, the epileptic, the crippled and, notably, the tubercular.[34] In emphasizing the importance of education to solve social ills, of course, progressive educators were also promoting their own status and right to social leadership.

Health reformers are quite commonly acquitted of such charges of "social engineering" and conscious promotion of class interests, probably because the picture presented by the turn-of-the-century city, with its high infant mortality, ubiquitous filth, unsafe water supplies, adulterated food, reeking privies, teeming slum districts and raging epidemics is so horrifying to the modern mind. Yet these reformers, often involved simultaneously in several other reform-related activities, were similarly middle-class "new liberals" with a moral axe to grind. Following Weinstein, a useful distinction

may be drawn between "ordinary reformers" and those more concerned with, for example, enhancement of their own professional status. Still, even the "ordinary" variety were often quite concerned with such matters as educating the ignorant poor about the advantages of good nutrition and fresh air and the disadvantages of slovenliness and drunkenness, while commonly making no effort to understand or to change the conditions which led to the lack of these. In accordance with the rhetoric of "equal opportunity", good health practices were surely as accessible to everyone as good schooling. As in education, one social class typically assumed responsibility for the instruction and assessment of another; leadership was the function of a professional group with a great deal to gain in terms of status; and as the anti-tuberculosis and public health machine developed, the situation became virtually identical to that which Wood has described for education:

> The norms of greater efficiency, higher professional standards, bigger and better...plants, extended programs or...services, and an expanded bureaucracy to administer the system were never questioned... Progress meant expansion of the existing system.[35]

In the process, the poverty and class issues which underlay the tuberculosis problem were ultimately ignored as a basis for programme design, and were raised later only in terms of expanding access for the poor to the system as it already existed.

Because the social reform movement revered modern science

and the introduction of corporate-style efficiency as keys to progress, authority in many social spheres was consolidated in "expert" hands rather than being left to the haphazard political process; in this way, as Heather MacDougall notes, public health eventually moved away from its socially-conscious amateur beginnings to become a professional bureaucracy.[36] Remarkable change has taken place in North American public attitudes toward "experts" since early in this century. The modern debate on the proper sphere of experts has been accompanied by a public perception that professional decisions and actions can and sometimes do have harmful social, moral or even physical consequences, and that their autonomous stature reduces or negates their public accountability. Objectives of modern critics range from reform of professional practices to the abolition of all professional privilege, with a range of political opinion from conservative to radical represented in both camps.

In a sense, given the class-based nature of society, the growth of government intervention in public health and the turning over of the problem to experts already presupposed the direction change would take. Magali Larson, for example, has argued that "expert authority" is a construct justifying and perpetuating class privilege, involving the narrow redefinition of the political sphere itself and accompanied by the exclusion of the public from political decisions affecting their well-being, with real decision-making power being

exercised "invisibly" by entrenched bureaucracies.[37e] Larson's "depoliticization" process may help account for the fact that tuberculosis per se never became an overt class issue.

In the eyes of the general public before the 1930s, professionals were very commonly seen as selfless searchers for truth; hence, as Thomas Haskell notes, any power they might have exercised was held to be disinterested, impersonal and, overall, benevolent.[38] This thesis must thus deal with the extent to which reverence for physicians' expertise allowed them to dictate the course of events, their probable motivations in choosing that course, and the consequences for tuberculosis sufferers and their neighbors. Of all groups exhibiting Eliot Friedson's three hallmarks of the "professions" -- a body of expertise gained through higher education, credentialism (exclusivity of membership), and autonomy -- the medical profession is the classic, and rare, example of one which enjoys autonomy in its fullest sense.[39]

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[e] This phenomenon may be of particular interest in Nova Scotia, where the long-lived Liberal government of George Murray (1896-1923) was noted for holding the number of ministers-with-portfolio to a bare minimum in comparison with other provinces. Public health joined agriculture, industries and immigration, rural telephones, public utilities and workers' compensation as "expert"-headed agencies subject, in the words of J. Murray Beck, "only to the most general control by the three ministers". Murray, according to Beck, defended this arrangement on the grounds that since "broad questions of policy did not exist in the limited provincial field he saw little ground for partisanship in the management of local affairs." J. Murray Beck, Politics of Nova Scotia, Vol. 2: 1896-1988 (Tantallon, Nova Scotia), pp. 72-73.

In Nova Scotia, this was a development of the late nineteenth century. Whereas in the mid-19th century Nova Scotian physicians had been beset by competition from irregular practitioners and had no control over who could practise medicine, by 1872 they had achieved full self-regulation, including control over educational standards and licensing not only for themselves, but also for irregulars and midwives.[40] The structural basis for power within society had been solidly laid, well predating the scientific breakthroughs which would give physicians real power over most common diseases. Yet while the structure was there, public confidence in and reverence for regular doctors and their abilities had yet to be won. The bacteriological and other discoveries of the 1880s and 1890s, the growing public and governmental interest in health late in the century, and the social reform drive combined to offer the profession an unprecedented opportunity.

There is no intention here to paint physicians as solely motivated by self-interest; certainly, real concern both for individual patients and for public health in general was exhibited by private practitioners, sanatorium physicians and government officials as well, and is documented in the following chapters. But, obviously, neither was the profession entirely disinterested. More importantly, it was a subsystem, as, in turn, were patients, voluntary workers, public health officials, town councils and concerned citizens, all of which operated within, and as part of, a particular

social system characterized by enduring inequalities in social, economic and health status, and which contained its own self-protective mechanisms. It is this role, and these relationships, which I have borne in mind in examining the history of tuberculosis.

Just as tuberculosis was a square peg in a round hole to early public health authorities, so too it must have seemed to the modernizing medical profession. For most of the 19th century, such factors as filth, "miasms" from swamps, and moral turpitude were regarded by physicians as causes of disease in general. But in the later 19th century the basis of medical practice was transformed. This was the great age of bacteriological discovery, hailed as the dawning of a new era of "scientific medicine", which helped bolster and justify the consolidation of professional structure, and the expansion of research-oriented medical schools in affiliation with large, centrally-located teaching hospitals. As a widespread, chronic, infectious and incurable disease, tuberculosis did not fit easily into a network of acute-care, fee-charging institutions.

This thesis views Nova Scotia's anti-tuberculosis struggle as an ongoing attempt by the medical profession, with public collaboration, to make tuberculosis fit the modern institutional structure, and attempts to assess the consequences. Where no cure existed, one would be invented, beginning with the sanatorium "cure" and progressing through

a variety of surgical treatments. Organizations set up to fund and carry on the anti-tuberculosis campaign increasingly mirrored and supported the centralized, bureaucratic nature of medicine and government. The steady decline of tuberculosis mortality provided continuing justification for this approach, and any attempt at direct social intervention became increasingly unlikely after the First World War. The period of the most rapid institutional growth followed the Second World War, when control of the disease had, for all intents and purposes, already been attained. The goal then became actual eradication of tuberculosis, and the new "cure" became a greatly-expanded public health effort, safely subordinated to the interests of the institutional bureaucracy, with the personnel and funding potential to carry out such massive projects as the regular x-ray examination of every Canadian citizen.

Before the advent of specialized surgery, the concept of tuberculosis prevention by lay and professional public health workers might logically have included both the diagnosis and treatment of disease carriers, hitherto the unquestioned province of the private practitioner; in fact, such a suggestion was made explicitly by Nova Scotia's Chief Health Officer just before the First World War. While laypeople and physicians worked side by side in the early anti-tuberculosis movement, many physicians avoided involvement in such co-operative efforts and there was an underlying tension as fee-

charging private practitioners and salaried or voluntary public health workers struggled to define the boundaries of their respective spheres. The culmination came, according to a knowledgeable contemporary analyst, about 1910, with the emergence of a severely limited ideology of public health.[41] The "new public health" emphasized individual responsibility for prevention of disease through personal hygiene, encouraged a wider role for private practitioners by advocating systematic medical check-ups among the well population, and shied away from any hint of "usurpation" of the private physicians' domain. American medical historian Paul Starr has characterized the situation in this way:

> The defense of private interests set one of the limits to the rational organization of health care in America. Wherever public health overreached the boundaries that the profession saw as defining its sphere, the doctors tried to push it back.[42]

Some historians have argued that this situation resulted in the defeat of the social reform movement. Barbara Rosenkrantz, for example, has contended that "an explicit denial of responsibility for social reform" characterized the transition from the old public health concept to the new.[43] Katherine McCuaig also has noted a major postwar shift away from broadly-based "amateur reform" to a professionally-led movement emphasizing education and bacteriological and technological solutions.[44] The view taken in this thesis is somewhat different. In the context of the anti-tuberculosis struggle, professional leadership was much in evidence during

the years of so-called "amateur" reform; later, neither sanatorium proponents nor modern public health specialists ceased to view themselves as reformers. There was thus an essential continuity between the pre- and post-war periods, at least partly due to the characteristic class bias of the early reformers, who rarely, if ever, advocated truly radical change in society's economic structure to bring about the improvements they sought.

The "sanatorium solution", while it might seem to make little sense from a broad public health viewpoint, thus suited both the modernizing medical profession and middle-class reformers. That consensus, however, meant an increasing limitation of the lay role which, before the First World War, had already been virtually restricted to educational and fundraising efforts aimed toward the establishment and support of still more institutions.

III: The Social Context of Tuberculosis Decline

The decline of tuberculosis, in Nova Scotia as in the rest of the developed world, is more than simply a fact: it was also an important factor in the way society chose to deal with the disease. Put another way, the ongoing decline appeared to justify almost any strategy that was used. While the chapters to follow will show that many anti-tuberculosis activists credited the decline to their own efforts, they will also introduce many who recognized that the question was not

so simple.

The historical literature on tuberculosis has been, and continues to be, divided on the causes for the decline of the disease. Canadian historians have so far tended to avoid the issue, concentrating instead on the dynamics of institutional growth or the changing nature of the voluntary movement.[45] Medical writers and historical demographers have been more insistent on attempting to understand the changing behavior of the disease itself, in relation to societal change. In the first half of the century, several factors were repeatedly proposed to explain tuberculosis decline. These included the effects of treatment and isolation, public education about the disease, less overcrowding, better hygiene and the gradual acquisition of "racial" immunity through long exposure.

The most commonly-mentioned factor, however, was a presumed improvement in the standard of living. Indeed, in every serious study over the years of tuberculosis etiology or of historical decline in mortality, the issue of poverty has surfaced as a major element. Georg Wolff, for example, in his 1938 study "Tuberculosis and Civilization", used the best available statistics from all parts of the Western world to arrive at the conclusion that economic well-being was the decisive factor in tuberculosis decline.[46] Ancel Keys et. al., writing in 1950, offered more direct evidence, largely gained through wartime studies, of the relation between tuberculosis and nutritional status, along with one possible

explanation for the optimism felt by early proponents of the "rest-and-fresh-air" sanatorium regime: the disease is "often," they state, "arrested by the simple measures of rest and good food."[47] Although few writers on the etiology of tuberculosis attempted any precise definition of the concepts of "poverty" and "standard of living", nutrition was generally understood to be implicated.[48]

Medical historians have tended to echo these themes. Some, particularly physicians writing history as a sort of memorial to professional endeavor, have been as eager as early activists to claim that the decline was due to such specific measures as the sanatorium fresh-air regime, collapse surgery and education.[49] But others, like Thomas McKeown in his groundbreaking work on the reasons for the modern rise in population, which he ascribed to declining mortality particularly from infectious diseases including tuberculosis, denied any role to specific programmes and credited tuberculosis decline to a rising standard of living, especially with respect to improved nutrition.[50]

It would seem that if tuberculosis is so intimately connected with living standards, then the study of its decline can potentially offer much of interest to social historians. Conversely, it seems to me indefensible to offer a treatise on tuberculosis within a particular society without reference at least to the contemporary local view of the tuberculosis - poverty connection, and how public policy on tuberculosis

dealt with, or failed to deal with, the economic issues, including both accessibility to available facilities and the provision of relief where warranted. This I have tried to do. But the information which would make the logical next step possible is, unfortunately nonexistent: that is, systematic studies of the historical mode and standards of living of Nova Scotians in the first half of the century.

The lack is not surprising. Until recently, historians have tended to concentrate on political history; even in this vein, much less has been written on the Maritimes than on Canada as a whole, or on more populated, prosperous and presumably "important" regions and provinces. While there has obviously been a great deal of interest among Maritime scholars in issues surrounding the inception and consolidation of regional disparity, certainly no studies of actual living conditions exist to compare with Terry Copp's study of early twentieth-century Montreal, or Michael Piva's of Toronto.[51] Still less is known of life in rural areas. The Copp and Piva studies, impressive and solitary as they are, convince one that the surface has yet to be deeply scratched -- as, I believe, the authors intended. Such studies may be especially significant for the Maritimes, where steadily worsening economic conditions coincided with a tuberculosis mortality rate well above the national average for most of the century. Did economic limitations, for example, primarily affect only the financial resources available for public health

programmes, or did they indeed play a crucial role in increasing the susceptibility of the population to disease and slowing mortality decline? This, moreover, is only the beginning of the problem: there remains the whole complex issue of just which kinds of collectible statistics, if any, constitute a valid measure of "standard of living". Can tuberculosis decline be correlated with specific improvements in nutrition, in housing or in public health programmes? Can intra-regional differences in mortality be correlated with differing municipal living conditions and resources?

The debate regarding standard of living and its applicability to tuberculosis has been complicated by another debate among demographers wishing to refute McKeown's larger thesis that the decline in infectious diseases had been responsible for the modern rise in population. Simon Szreter, for example, has criticized investigators who, like F.B. Smith and S.C. Farrow, continued to cite McKeown's views on tuberculosis and living standards without reference to the 1981 work of British demographers E.A. Wrigley and R.S. Schofield.[52] Their study, however, did not primarily concern itself with questions of infectious disease, but rather with the importance of its decline to rising population which, they claimed, had resulted from increased fertility rather than mortality decline.[53] Citing this study, Szreter argued that McKeown's claim of improved nutrition was vaguely-defined, not supported by evidence, and was in fact a 1970s-style

politically-motivated argument designed to counter a threat of increased emphasis by Britain's National Health Service on "curative technical medicine" as opposed to the "preventive, humanist" variety. Szreter, himself writing in the changed political atmosphere of Thatcher's 1980s, believed that deliberate public health campaigns along with social-welfare programmes had indeed contributed to tuberculosis decline, primarily by reducing the prevalence of overcrowding and sanitation-related diseases which weakened individuals and, by increasing opportunities for infection and lowering their resistance left them prey to the development of clinical tuberculosis.[54] This outlook, of course, presupposes that an important effect of sanitation-related disease was a simple weakening rather than killing of its victims; that is, that acute, fatal enteric disease was not as important as repeated debilitating infections.

Szreter, however, made no claims that specific medical measures had caused the decline. Leonard Wilson, writing in 1990, did. In attacking McKeown's assumptions, he particularly defended Sir Arthur Newsholme's work in 1908 which credited the British decline to the isolation of consumptives in hospitals and sanatoria and which, Wilson wrote, "disproved a connection between the decline of tuberculosis and the standard of living."[55] In fact, Newsholme's study had "disproved" nothing of the sort. While he had found that the degree of isolation was the only single

measurable factor which reliably correlated with British tuberculosis mortality, he freely admitted that a great many other influences were very probably in operation but were not susceptible to simple measurement. Chief among these was poverty, which he recognized as an extremely complex element. Even the measure which he chose, pauperism ("state-relieved poverty"), was itself "a bundle of phenomena" capable of no simplistic interpretation. On this ground, Newsholme refused to draw any solid conclusions, though he found a strikingly high correlation between recorded pauperism and tuberculosis in all three parts of the United Kingdom.[56]

Clearly, the whole question of past standards of living has undergone a great deal of scrutiny by demographers and others concerned with the rising-population question and, while this is not the place to offer detailed analysis of their arguments, an important point which emerges is the one noted by Newsholme: that of finding a suitable measure by which to assess living standard.[57] The level of real wages, commonly used as an indicator of relative poverty or wealth, is at best an indirect and clumsy indicator which takes no account of unemployment levels, family size, access to social "safety nets" or other important components of a group's standard of living. Certainly it can give little real idea of nutritional levels or sanitary conditions which might affect resistance and hence the prevalence of clinical tuberculosis. Arguments such as Szreter's may, in fact, be understood not as

discounting a role for an improved living standard, but as rejecting a narrow financial definition of the concept, broadening it to include such things as improvements in housing and clean-water supply. Even the role of nutrition is not necessarily discarded if Szreter's views are accepted: one may similarly adopt a broadened definition of nutrition, recognizing, for example, that individuals weakened from whatever cause are less efficiently utilizing the nutrients they do ingest.[58] The hygiene-sanitation argument and its relation both to general education levels and specific anti-tuberculosis education efforts is slightly more problematic and deserves more research. It is difficult to believe that, as some writers imply, changing personal habits such as taking more care to cover coughs or sneezes have had a great deal of effect; people do, after all, still catch colds with great regularity, which are spread by droplet infection just as is tuberculosis.

The other commonly-cited arguments were "tuberculization" of "the race" through long exposure to the germ, and lessened overcrowding. "The race" meant white Europeans, or North Americans descended from them. Overcrowding can be readily appreciated as an element in the poverty complex; its common appearance in pre-1914 studies is indicative of the then-characteristic preoccupation with simple transmission of infection rather than the development of clinical disease. "Tuberculization" is similarly a product of its time, which

often descended to overtly racist argument. This was generally a rather vaguely-conceived theory, based largely on the observation that aboriginal peoples and blacks seemed to be more susceptible to tuberculosis than whites, which was often, though not always, understood as a racial rather than an economically-related characteristic. The pattern of tuberculosis decline, much more rapid and constant for whites than for other racial groups, seemed to support the view that whites, gifted with greater immunity to begin with, were merely increasing their lead in this regard. Since neither tuberculosis virulence nor the susceptibility of whites in unfavorable conditions has been shown to change, and since the racial argument was eventually seen as a too-convenient way of denying attention to some very obvious economic and social problems, it has since been discredited.[f]

Although poverty and its related stresses, both physical and emotional, have been a recurring theme in the literature of tuberculosis, there has been a tendency for each succeeding generation to treat the connection as something of a new discovery, and a recent tendency to discount it altogether in

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[f] Interestingly, a survey of dietary habits among northern Manitoba natives led the superintendent of the Indian Affairs Branch and his associates to claim as late as 1946 that malnutrition (especially deficiencies in vitamins A, B2 and C) might be responsible not only for the high level of tuberculosis among them but also for "many characteristics such as shiftlessness, indolence, improvidence and inertia, so long regarded as indirect or hereditary traits in the Indian race". The existence of these "traits" was not questioned. "Survey Sheds New Light on Indian Problem", Canadian Tuberculosis Association Bulletin 24, 4 (1946), p. 8.

favor of more easily quantifiable influences. In the past, when tuberculosis was more of a threat in developed countries, this situation was undoubtedly exacerbated by the fact that our society as a whole had effectively decided to leave those structures in place which perpetuated poverty, and to trust that curative, institutional methods were the best way to address the tuberculosis problem.

Because the social problems surrounding tuberculosis were never effectively addressed, the disease continues to crop up today in situations which could have been predicted by turn-of-the-century observers: big-city slums, underdeveloped countries, and among racial and other groups held to a lower standard of living than the majority. As in the past, it attacks those whose resistance has been weakened by poverty, alcoholism, or, more recently, by AIDS.[59] Decisions which affected the course of tuberculosis in Canada were made out of political and economic imperatives still operative today. Understanding the context in which they were made can enrich our grasp of current issues, as well as our appreciation of the social challenge which this disease presented in the past and the ways in which that challenge shaped society and was shaped by it. This thesis is written in the hope that an expanded study based on a reliable economic picture of Canadians' daily lives will be possible in the future.

CHAPTER 1

THE SANATORIUM SOLUTION

The following sections examine first, the challenges faced by Nova Scotia's first central public health authority; next, the context in which the decision was made to erect a provincial sanatorium, the first of its kind in Canada; next, the first five years and the near-failure of the new facility; and finally, its revitalization and firm entrenchment in the emerging provincial public health programme.

The Provincial Board of Health

The beginnings of official concern about tuberculosis in Nova Scotia coincided with the establishment of a Provincial Board of Health in 1893. Chaired by Liberal Premier W.S. Fielding in his capacity as Provincial Secretary, the new Board also included Attorney-General J.W. Longley and Commissioner of Public Works and Mines C.E. Church. Representing the medical profession on the new authority were the superintendents of the Nova Scotia Hospital for mental illnesses and of the Victoria General Hospital, along with four other physicians appointed by the Governor-in-Council. The bulk of the work, however, was delegated to Board Secretary Dr. Alexander P. Reid, who had long been prominent in the city in a variety of capacities. Born in 1836 in London, Ontario and educated at McGill, Edinburgh and New

York, Reid came to Nova Scotia in 1864 and was a major participant in the movement to open a medical school in Halifax and to press for passage of the 1870 Medical Act, which made the profession in the province fully self-regulating. By the time of his appointment as Board Secretary, he had also served for some years as medical superintendent in each of the major hospitals, as an examiner on the Provincial Medical Board and as an active faculty member of the Halifax Medical College.[1]

The new Board had been created to coordinate the haphazard efforts of a scattering of local boards whose chief concern was the control of sporadic epidemics of smallpox, typhoid and the like. Its appointment indicated that the awakening Canadian interest in public health, spurred by industrialization and unprecedented urban growth, had made itself felt in Nova Scotia. By 1893, provincial health boards had already been established in Ontario, Quebec, New Brunswick and Manitoba; British Columbia's was created the same year as Nova Scotia's, and all nine provinces had followed suit by 1909.[2] The British North America Act of 1867 had envisioned little need for federal involvement in health matters, beyond responsibility for quarantine of incoming ships and provision of hospitals for seamen; accordingly, ordinary hospitals and asylums, which functioned at the time almost exclusively as charitable institutions, were allocated along with other welfare-related activities to the provinces. Public health,

however, was not yet seen as a ministerial function in any province.

It is difficult to gain more than a glimpse of the magnitude of Nova Scotia's tuberculosis problem in the 1890s, since the collection of comprehensive vital statistics was then a long-dead art in the province. A system of recording causes of death had begun in 1864, but with the coming of Confederation this was considered a federal responsibility; however, the national government did a partial job at best, collecting only comparative urban mortality statistics in the 1880s and 1890s. Meanwhile, Nova Scotia's own system had fallen into disuse. Nevertheless, from the occasional reports of private practitioners, almshouses, hospitals and other sources, it was clear to the Board of Health in the 1890s that "consumption" was the chief killer in the province, with "acute lung disease" -- much of which was probably tubercular as well -- running second.[3] In 1901, tuberculosis was estimated to be the cause of 35.1% of all reported deaths in Nova Scotia.[4] It would later become clear that the tuberculosis mortality rate of this comparatively poor province was consistently one of the highest in Canada.[5] Yet, if Nova Scotia was following worldwide trends, it is probable that tuberculosis prevalence had already begun a slow decline which would continue into the twentieth century.[6] As Table A-1 in the Appendix and its accompanying graphs illustrate, decline was evidently well in progress by the time provincial

death statistics were first recorded in 1908.

Although such urgent projects as smallpox vaccination and typhoid control were given immediate priority, tuberculosis was without a doubt the major public-health threat faced by the Board. Public education was an obvious first step. From the medical profession's point of view, the spread of tuberculosis stemmed from the public's failure to understand elementary facts about germ transmission, coupled with an inexcusable tendency to put off seeking professional help. The prevalence of the malady, wrote Board secretary Reid in a typical opinion, was "as much due to ignorance and lassitude on the part of the public as to want of energy of the boards of health."[7]

Indeed, there is evidence that the public at this time did tend to seek doctors' services only for comparatively grave symptoms, often preferring to resort to private "recipes" or patent medicines.[8] People also commonly regarded tuberculosis as an inevitable, inherited affliction about which little could be done.[9] Most physicians had also believed the disease was hereditary just prior to Koch's discovery, and many practitioners still clung to it to explain differing individual susceptibilities to the disease. But if old ideas clouded physicians' theories of etiology, they were also, for lack of alternatives, the primary determinants of therapy. Physicians in the scientific age were re-embarking on a trend of active intervention in disease, such as had not

been seen since the end of the era of "heroic medicine", with its aggressive purging, leeching and blistering.[10] Modern active physicians, of course, centered their hopes around some new laboratory-tested vaccine or antitoxin, but after the 1890 announcement of Koch's own tuberculin "cure" had resulted only in failure and disappointment, practitioners were in a quandary. While a host of specifics was often advised, ranging from creosote and patent "tonics" to the inhalation of antiseptics such as formalin, three time-honored prescriptions stood out.[11] These were fresh air, rest, and the ingestion of immense amounts of nourishing food, especially fatty foods such as milk and eggs. Patients were also typically advised to travel, seeking hospitable climates where the air was pure and invigorating. Such advice had been given since time immemorial, and its success had hardly been striking.[12]

The problem was compounded, in these days before x-rays and sophisticated testing methods, by the fact that early diagnosis of tuberculosis was notoriously difficult. Accurate diagnosis was further inhibited by the state of medical education at the time. With hundreds of ill-equipped U.S. proprietary schools fiercely competing for the North American student dollar, actual clinical experience all too often had to wait until a student graduated. While low standards were admittedly less a problem in Canada than in the United States, students of the Halifax Medical College, which supplied a goodly number of Nova Scotia's physicians, were almost

certainly offered little or no opportunity to observe the insidious signs and symptoms of early tuberculosis.[13] Their clinical training was received at the Victoria General Hospital, which admitted few consumptives, and at the Halifax Dispensary where, according to Dispensary records, "nearly every case is a hopeless one, owing to the bad conditions existing among the poor."[14]

Once diagnosed, the patient who received the usual advice to step up nutritional intake and to seek fairer climes was, if poor, unlikely to do either. Because the outcome of the disease was felt to be inevitable in any case, typical victims might sensibly decide to stay on the job until they could no longer work, and in this way attempt to provide for their families' future.[15] Wealthier patients could resist the sentence of death more actively. By the turn of the 20th century, so many consumptives were travelling to more "healthful" regions that death rates in these Meccas were likely to exceed those elsewhere. By 1904, for example, fully 50% of all deaths in Los Angeles were attributable to people, chiefly consumptives, who had arrived there less than a year before.[16] Many such places soon began to fight back. Only the patient of means, reported Dr. Smith L. Walker of the Colchester Anti-Tuberculosis League in 1904, could now get into a hospital or sanatorium in the United States, while the fate of poorer patients who had, perhaps, exhausted the last of their resources just to make the trip was to die neglected,

"almost hounded from house to house."[17]

For the Nova Scotian patient who could not travel, the choice was either to practise self-help, to pay for the services of a private physician, or to seek help from the health-care institutions of the province, all of which were becoming increasingly reluctant to admit tuberculous patients in the wake of scientific knowledge about germ transmission.[18] If patients could prove indigence, they could seek basic shelter from one of a network of poor asylums in the province: chiefly private homes, which had agreed, for a price, to take in the "harmless insane" as well as the ordinary pauper. There was also the Victoria General Hospital in Halifax, which, as the province's sole public hospital, also took in certified paupers, and, despite its long-standing rule against the admission of contagious cases, provided acute care for an average of 40 to 60 patients with some form of tuberculosis every year.[19] Most of these were chronic cases of pulmonary tuberculosis; but long-term stays in this modernizing institution were out of the question. True, the Victoria General was expanding in this period, but the expansion was aimed at providing special accommodation for paying patients, which the hospital had lately begun to accept in an attempt to help finance its modern new equipment, its planned new specialists' departments and its new operating room.[20]

There was also the Halifax Visiting Dispensary, a private

philanthropic organization which, although constantly underfunded, provided the city's poor with free house calls and prescription drugs, making up in some measure for the lack of an outpatient service at the Victoria General. Outside Halifax, consumptives could turn only to the private practitioner, or to the poorhouse.

The Sanatorium Decision

Discontent was growing among many members of the medical profession with the tuberculosis situation in the years leading up to 1900, particularly with respect to the admission of infective consumptives to general hospitals; once the Provincial Board of Health was well-established, doctors wasted little time in pressing for action. Although there were calls for government measures on many fronts, such as the establishment of a provincial bacteriological laboratory and the betterment of sanitary conditions, physicians were seemingly of one voice in clamoring for an idea which was just then inflaming professional imaginations all over the continent: the idea of a sanatorium.

The sanatorium concept had long predated Koch's discovery of the bacillus, and indeed the whole age of scientific medicine. Hermann Brehmer's sanatorium, established about 1854 in Silesia, was the model for the 20th-century movement. Brehmer's principles of fresh air, rest and overfeeding in a disciplined institutional setting inspired a variety of fresh-

air resorts for affluent consumptives, such as Nordrach in the Black Forest and Davos in Switzerland, of which Thomas Mann gave eloquent testimony in The Magic Mountain. The concept took firm root in Germany under Bismarck's social welfare programmes and, by the turn of the century, a German national network of 'popular sanatoria' was claiming spectacular results. 87.7% of sanatorium patients, reportedly, were discharged either 'cured' or 'improved' after an average treatment period of only 15 weeks.[21] In 1882, Dr. Edward Trudeau established an alpine-style sanatorium at Saranac Lake in New York, and to it -- many as patients -- came a host of eminent American and Canadian physicians, many of whom became converts and returned home to spread the crusade. By 1897, Canada's first private sanatorium had been opened in Ontario. Nova Scotia was not far behind. In 1899 Dr. George DeWitt of Wolfville, apparently motivated by the illness of his daughter, opened his tiny Highland View sanatorium, with eight beds.[22]

Pressure from crusading physicians on the provincial government soon became intense. As early as 1895, the government had received several delegations from individual doctors and from various medical societies on this subject. Calls for a provincial institution came in official reports from the government's own Committee on Humane Institutions, from Board of Health Secretary Reid, from W.H. Hattie, the provincial bacteriologist, and from the provincial medical

association. When the physicians at the Victoria General banded together in 1899 in a strong protest about the admission of infectious tuberculosis cases to the general wards, where they lay side by side with other patients, their call for a state-supported sanatorium was echoed both by the Maritime Medical Association and by a constant stream of comment in the Maritime Medical News. All at once, it seemed, tuberculosis and sanatoria had become the foremost topic of conversation in medical circles. Not counting Dr. DeWitt's short-lived Highland View, there was as yet only one sanatorium in Canada: Ontario's Muskoka Cottage Hospital, founded in 1897 by a private agency, the National Sanatarium Association. In Nova Scotia, perhaps because it seemed to the physicians futile to try to raise sufficient funds locally, all expectations seemed focussed on the government.[23] It may also be relevant that the leadership of the medical profession in the province, in contrast to that in Ontario, formed a single fairly cohesive group based in Halifax which had, for the past thirty years, enjoyed excellent relations with the provincial government.[24]

The Provincial Board of Health and its energetic secretary had not, in fact, been entirely idle. It had established a bacteriological laboratory which was by 1900 helping to diagnose several hundred cases of tuberculosis every year by sputum analysis, and it had produced and distributed a pamphlet about tuberculosis. Though seemingly

minimal, these measures were not at all out of line with what was being done elsewhere on the continent.[25] In fact, more comprehensive action was, for the moment, probably not politically advisable, given contemporary views of many physicians, and perhaps of the public as well.

Clearly, only a segment of the population was enthusiastic about health reform. There are indications that a great many people had come to resist the imposition of public health rules which, they felt, interfered with basic freedoms and "branded" patients. The widespread resistance to smallpox vaccination so characteristic of the time was one example of this concern.[26] So was the general fear of quarantine and disinfection measures, which were often carried to extremes by the vigorous new Board. During one smallpox epidemic in 1902, for example, health authorities' plans included the summary confiscation of patients' houses, the destruction of their belongings, and the shooting of family pets.[27] During the same epidemic, local Health Officers closed post offices and tried to disinfect the mail, but were all too often foiled by zealous postal workers who, under cover of night, would sneak the mail to the nearest open office and send it on its way.[28] Dr. Jost, MHO for Guysborough County, reported in 1910 that he had just successfully prosecuted a group of people under the Health Act for tearing down a diphtheria quarantine placard on their house and refusing to submit to medical examination. In order

to enforce the law in the past, Jost wrote that he had been forced routinely to post watchmen to guard quarantined premises. The court's imposition of a thirty-dollar fine represented the first time to his knowledge that "the law had been tested in this manner", and he hoped it would serve to deter other would-be violators.[29]

But health officials' emphasis on "germs" remained baffling to many: suddenly, and with the greatest apparent urgency, people were hounded by physicians, by the press and by their converted neighbors to boil the water, to stop spitting and to beware the deadly germ lurking in even the tidiest home. As one anonymous bit of doggerel reproduced in the Maritime Medical News put it:

> We have boiled the hydrant water
> We have sterilized the milk
> We have strained the prowling microbe
> Through the finest kind of silk;
> We have bought and we have borrowed
> Every patent health device,
> And at last the doctor tells us
> That we've got to boil the ice![30]

And as late as 1913, the Acadian Recorder commented:

> Germs to the right of us, germs to the left of us....To save us from disease, law-makers would take away from us all our freedom, and even interfere with practices which have become sacred. There needs a vast deal of common sense if what is good is not to become a nightmare. Germs undoubtedly there are, but just now more people seem likely to get sick of them than because of them.[31]

Surely, the last thing many people must have wanted was increased surveillance by public-health experts.

The situation was exacerbated by physicians' current ideas about prevention. Since science had exposed germs for what they were, avoiding disease seemed as simple as avoiding germs: an individual responsibility. Inquiries into the patient's social background, way of life or state of mind were increasingly seen as irrelevant. Instead, effective tuberculosis prevention was primarily taken to mean such measures as safe sputum disposal, meticulous disinfection, and isolation of the patient -- despite the well-known association of tuberculosis and poverty, and despite contemporary studies suggesting that host resistance, not germ avoidance, might be the key factor in tuberculosis control.[32] Such studies were typically taken at the time to mean that even more aggressive germ-fighting measures were necessary. Dust, for example, was an arch-enemy. It could harbor particles of dried sputum just waiting to be swept up and inhaled by the unwary housewife and her family. Thus, wrote A.P. Reid in 1904, mere "housewifely" cleanliness would no longer suffice. "Surgical" cleanliness, a complete absence of dust, and an officially-enforced system of "sanitary architecture" were essential for tuberculosis control.[33] Though such ideas were never realized, they may have succeeded in inducing in some quarters a sort of paranoia about cleanliness.

The idea of prevention by isolation of the consumptive was more immediately effective in arousing paranoia. "Phthisiophobia" -- fear of and prejudice against those with

tuberculosis -- flourished despite the best of intentions as physicians stepped up their high-powered educational rhetoric. The Canadian Tuberculosis Association did not help matters shortly after its founding in 1901 with its well-intentioned but horrifying announcement that an advanced consumptive, just the type least likely to be institutionalized and thus the most likely to be met with on the streets, expelled between 30 and 70 million germs every 24 hours.[34] Although reaction to such statements forced the CTA to reassure the public the same year that it was an "anti-consumption, not anti-consumptive" organization, activists continued to make announcements and recommendations which only served to aggravate the problem. It was recommended at the CTA 1902 annual meeting, for example, that trains and ships supply special compartments for consumptives, simply furnished so that they could be easily disinfected.[35] Nova Scotia Board of Health Secretary Reid, too, though he had spoken against isolation as early as 1904, told a municipal council in 1906 that "a consumptive [was] the most dangerous person to be admitted to a school", and prophesied that the time was near "that all tubercular persons -- teachers and pupils -- would be prevented from attending school."[36] The intention of such statements, of course, was to rouse governments and others to take action, and this did have an effect. But there was a more immediate effect on the public, who had been living rather calmly with tuberculosis among family, friends and neighbors for centuries. People

turned against one another to the point that fear and prejudice threatened to undermine the whole movement. Communities feared to have a sanatorium built anywhere near them; once built, it was difficult to persuade anyone to work there. Patients lost friends; employers often refused to hire them, or rehire them after treatment. Moreover, this prejudice was to prove an enduring one. As one ballad, now referred to as "traditional" in compendia of blues music, goes:

> TB's is all right to have,
> But your friends treat you so low down...
> Don't ask them for a favor,
> They'll stop comin' around.
> TB's is killin' me
> I wish I was buried in the deep blue sea
> TB's, consumption
> Is killin' me.[37]

Such social attitudes must have had devastating effects on individual patients. They also hindered the efforts of anti-tuberculosis activists for years to come.[38]

Another element hampering attempts at tuberculosis prevention, as well as the new Board's efforts to establish general public health programmes, was a deep-seated resistance among many practising physicians to enforced compulsory reporting of infectious diseases. Although the Board's initial mandate required it to analyze "available" vital statistics regarding death and disease, Dr. Reid soon found this meaningless: provincial statistics were kept not for births or deaths but only for marriages, and local health boards usually ignored the requirement to provide information

regarding either deaths or prevalent illnesses. Despairing of working through the local boards, which were usually composed of laypeople appointed in a haphazard way by the municipalities, Reid decided to approach the province's doctors directly; but this, too, proved ultimately unhelpful. When, for example, he sent out questionnaires on disease prevalence in 1897, only 57 out of the 350 doctors surveyed responded.[39] Reflecting the resistance in their ranks, professional leaders were divided on this question. While the president of the provincial medical society had that same year urged compulsory reporting, the opinion of J.W. Daniel, 1895 president of the Maritime Medical Association, was perhaps more representative of his general membership, making Reid's disappointing results more explicable. Although Dr. Daniel felt with respect to the federal Animal Contagious Diseases Act that "to wait for owners to acquaint the minister is to allow the disease to spread woefully", his opinion was different when it came to human disease:

> ...insofar as [the requirement to report] applies to parents, guardians or householders...it is general in its nature and just, and should be obeyed, though it very seldom is; insofar as it places professional work on physicians without remuneration, it is particular in its nature and unjust. Such work...is something more than routine, for it makes [the doctor] liable for the correctness of his opinion in cases in which very frequently it is extremely difficult to make a correct diagnosis, a liability which might expose him under certain circumstances to very serious consequences. ...A similar act to ours was passed in the state of Iowa, but the highest court in the state declared it unconstitutional for the reasons referred to. In view of the immense amount of

> gratuitous work done by physicians, and of the fact that the happy results of increased immunity from disease and increased length of days is a free gift from our profession, such action appears, to say the least, unwarranted.[40]

Naturally, this was an unusually frank opinion aimed at a professional audience, as was the 1897 recommendation of the British Medical Journal that public health authorities undertake "...for the present, a campaign of education only" due to "a marked disinclination...on the part of many medical men toward any interference on the part of sanitary authorities with their treatment of tuberculosis patients."[41] As phthisiophobia spread, doctors were also able to claim with some justice that they were protecting their patients by failing to report or misreporting diagnoses, or even keeping the diagnosis from patients themselves.[42]

But these attitudes were anathema to those responsible for public health. The reporting provision in the Health Act, wrote a frustrated Reid in 1900, was "a dead letter".[43] As his campaign continued and general awareness among physicians of the importance of public health measures grew, subsequent amendments were made to the legislation and reporting, at least for most infectious diseases, grew steadily better. Tuberculosis reporting, however, remained quite unreliable for years, even after the government instituted a Bureau of Vital Statistics in 1908.

The very combination of factors which hindered early anti-tuberculosis planning by the Public Health Board acted in

favor of the establishment of a provincial sanatorium. Mounting phthisiophobia ensured that any proposal to isolate sufferers in some out-of-the-way institution would fall on willing ears, provided it was built in someone else's home town. From the viewpoint of physicians, the sanatorium concept was particularly attractive for several reasons. Brehmer's old ideas now glowed with a thoroughly modern aura. A sanatorium was a specific answer to a specific disease, which it claimed to cure. It promised physicians the satisfaction of offering active treatment for one of the most common and most frustrating diseases they were called upon to face. It isolated patients in satisfaction of the germ theory -- although sanatoria claimed high cure rates only for those in the incipient stages of disease. It also fitted well the modern profession's taste for institution-based medicine, where reliable statistics could be gathered, research performed, colleagues consulted, students educated, the latest diagnostic and therapeutic methods tried, and a solid, specialized core of medical expertise built up. As Dr. Edward Farrell, Nova Scotia's representative at the 1899 Berlin International Congress on Tuberculosis, noted in his report, "There is now a consensus of opinion among medical men that tuberculosis cannot be treated successfully in private houses."[44] The ideas of Saranac Lake's Edward Trudeau had become the ideals of a growing movement which, like him, saw the sanatorium as the crucial weapon in "the three

lines...[of] struggle with the disease...namely, prevention, treatment and study":

> In the town and at the Sanatorium by education of the invalid, by the Health Board's regulations, and the disinfection of infected surroundings, by the intelligent care of the very sick in the Sanatorium Infirmary, and in the boarding houses and at the Reception Cottage, prevention has found its practical application. Treatment has made itself a brilliant field in the development of the Sanatorium methods and the application of these methods to patients in the town, while the study of tuberculosis in its scientific aspect has uninterruptedly gone on at the Laboratory, and to this latter department of the work must we look with hope for increased knowledge to aid us in our struggle with the disease.[45]

In 1900, the Nova Scotian government bowed to the pressure of the sanatorium advocates. The Lieutenant-Governor announced in the legislature that science had shown the way to tackle the tuberculosis menace: the province needed "not only to prevent the spread of the disease, but also to provide for its cure at the earlier stages."[46] The bill to establish a provincial sanatorium, introduced by Liberal Premier George Murray himself, granted $15,000 for construction and, in conjunction with a 1901 amendment, enabled both the provincial government and its municipal counterparts to contribute to any future civic, municipal or private sanatoria which might be built. The act further provided that, although a weekly charge would be levied on patients, nobody would be refused treatment solely on account of inability to pay: the indigent could be admitted, provided they were sponsored by the local mayor or the overseer of the poor.[47]

At the same time, spurred by Reid's revelations regarding the "inoperative" health laws, the government also began the slow process of closing loopholes and expanding its operations in the public health sphere. The local boards remained, but physicians in each municipality were appointed as salaried Medical Health Officers [MHOs], assisted by lay sanitary inspectors, who together were to inspect homes, farms, schools and other institutions, to deal with health hazards and problems as they arose, and to make regular reports to the government. When by 1904 several municipalities had failed to make these appointments, evidently to save the cost of salaries, and Health Officers themselves failed to report on any but the most sensational of epidemics, reform was taken a step further. The provincial Board of Health was reorganized as a "Department" under the Provincial Secretary and Reid was named Provincial Public Health Officer (PHO) to whom MHOs would report.[a] During the next few years, the MHOs devoted themselves particularly to sanitation and municipal water-supply improvements. In 1907, an act was passed requiring licensing and regular inspection of dairies and slaughterhouses and the following year, the government at last set up a Bureau of Vital Statistics. Notification of deaths,

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[a] The terminology may be confusing; this "Department" was one of several functions which came under the umbrella of the Provincial Secretary; it did not become a regular "cabinet department" with its own minister until 1931. In other provinces, the "Board" kept its name until a Minister of Health was appointed, when it was generally termed a "Department" for the first time.

with their causes, was now compulsory. In 1910, tuberculosis officially became a "reportable" disease, along the same lines as smallpox and diphtheria. The government also appointed a factory inspector in 1908, who, noting the alleged high prevalence of tuberculosis among factory workers, addressed himself in particular to problems of dust, ventilation and the provision of spittoons.[48]

The government's commitment to these progressive measures may seem somewhat surprising given the fact that in other areas before 1909, the Murray government was notable more for its resistance to reformers' proposals than its championship of them.[49] This probably indicates a relative lack of controversy surrounding sanatorium establishment and the other health measures enacted when compared to such divisive issues as prohibition. Early health reform may also have been regarded as a relatively cheap way to earn social activists' approbation. That the government felt pressure to satisfy the reformers is obvious from the reform "package" of legislation it introduced prior to its election success of 1911, which included, among other things, provisions for workers' compensation, factory regulations and a contributory old-age pension scheme.[50]

1904-1909: A Question of Authority

The new sanatorium, located on a pleasant forested site near the small town of Kentville, opened its doors in June of

1904, and immediately became the focus of controversy. Most sanatorium advocates, it seemed, had contemplated an institution which would accept any and all cases of tuberculosis, rich or poor, with early or advanced disease.[51] But it soon became clear that the new 18-bed facility, as planned in consultation with a group of leading physicians, had serious limitations. Its size, of course, was a major problem, as was the fact that only patients certified as "incipient" would be admitted. Such certificates, moreover, could only be obtained from one of two official medical examiners, both located in Halifax. Even more controversial was the lack of free beds at the institution and, despite the government's reassurances of its good intentions, there were to be no non-paying patients at the sanatorium for many years. The president of the provincial medical society called the new institution "simply a pay nursing home for the well-to-do", while the Visiting Dispensary staff lamented that the high cost asked for treatment ($8 a week, later lowered to $5) placed the sanatorium "beyond the very class of cases that it would do the most good."[52] Meanwhile, tuberculosis patients were no more welcome than ever at the Victoria General.

It was apparent that Nova Scotia's new sanatorium, despite the plaudits it was receiving from social activists like Annie McLean, could hope to have little real effect on tuberculosis mortality.[53] Nevertheless, many physicians seemed quickly to accept these limitations. A.P. Reid hoped

that, if successful, it would serve as a model for others.[54] H.K. MacDonald, president of the Lunenburg-Queens Medical Society, felt its establishment was justifiable in terms of the indirect education it would provide:

> But you say to me, supposing we had a provincial sanitarium [sic] we could not send all cases there. I say no, decidedly not, but each county could send some cases. Supposing each doctor in actual practice could send one patient every year, I am sure that some would be benefited and some cured. They would return to our county and into that individual doctor's practice, and as a result they would educate those similarly affected in the treatment they received at the sanitarium, and as a result when a physician ordered his patient to stay out of doors so many hours in twenty-four, take a tepid bath in the morning and sleep with his window open, his orders would be carried out and not countermanded by some busy-body with the local reputation of being half a doctor in the neighborhood, as so often happens to be the case.[55]

The exclusion of the indigent remained a sore point with physicians, however, as did another factor entirely: as planned, the sanatorium was to receive only periodic visits from a local physician. The actual superintendent would be not a doctor, but a nurse. Though an unusual and perhaps unique arrangement, doubtless designed primarily to save money, it was probably not entirely unreasonable in the light of current sanatorium practice. As one American tuberculosis expert put it in 1904,

> A sanatorium is really a boarding house with the life of its boarders under medical regulation, and with very little medical service for the individual. This is the idea I try to instill in the minds of the patients. Seeing the doctor is, for the most part, left to their own initiative.[56]

Nevertheless, in other North American sanatoria, as in the

European ones they emulated, a resident physician was regarded as indispensable. Only a doctor could provide overall direction and, as provincial medical society president C.D. Murray put it, "absolute and autocratic authority" over the patients' daily regimen. Murray cited with approval the practice of one institution which deliberately limited admissions so that it always had a long waiting list; the superintending physician was thus "able, by threat of discharge, to enforce his rules upon such as are fortunate enough to be inmates of his institution."[57] Such authority, it was evident, could hardly be exercised by a mere nurse.

The nurse in question was Bertha Elliott, who had had considerable experience at two American sanatoria as well as at the Victoria General. She embarked on her task amid the mounting disfavor of the medical profession, establishing a sanatorium routine typical of the time. Except at mealtimes (five per day) and an evening recreation period, patients spent the full day outdoors, regardless of season or weather. They slept on broad, open verandahs, warmed by blankets, fur rugs and heated earthenware vessels called "pigs". Only on the coldest winter nights did they sleep inside, provided the doors to the verandahs remained open.[58] Visitors were permitted only between three and four p.m. and only on weekdays, which must have meant that some patients, especially those with families living at a distance, received no visitors at all.[59] The sanatorium population was relatively young,

with housewives and students comprising the two largest occupational groups.[60] Since most women of the time were housewives and most tuberculosis patients were young, this occupational profile is hardly surprising; however, the prospect of loss of pay, and perhaps of their jobs, undoubtedly discouraged many regularly-employed workers from opting for long-term treatment. The average length of stay was between two and four months, though Elliott reported that some patients were forced to leave for financial reasons after stays as short as one week.[61]

Elliott's most pressing problem was immediately clear: arriving patients were virtually never in the "incipient" stage which was essential if the sanatorium were to show good results, though all had been certified as such by the medical examiners. In 1908, for example, she reported that over 42% were past the stage when any practical benefit could be obtained from any course of treatment.[62] Some were actually on the point of death when they arrived. Because sanatorium deaths contributed to a sense of hopelessness for all the patients, Elliott made "every effort...to return them to their homes before there can be a fatal termination."[63] But some "failed too rapidly for this", and she was left with an ignominious set of statistics indeed. By 1909, her frustration with the examiners had grown out of bounds:

> It will be seen here that 155, probably 160, out of 319 [seemingly an error: figure from sanatorium statistics is 309] ex-patients are in their graves, fully one-half of all admissions. 98, or about 1/3

> of all cases coming here were far advanced or terminal cases, practically dying of consumption on entrance. Nine patients died at the Sanatorium, and if it had not been for prompt action on the part of the management of course that number would have quadrupled twice over. Many of these deaths took place within three months of the papers being signed to the effect that they were incipient. These figures require slight comment from me. I recommend them to the careful consideration of the profession.[64]

The problem could hardly have been more clearly stated. The examiners, and the physicians who referred cases to them, were either grossly misdiagnosing cases, or flouting the rules. Both are likely. Early tuberculosis, as mentioned, was at best quite unlikely to be diagnosed in apparently healthy patients by general practitioners, especially since x-ray technology was not yet in general use for chest conditions. Moreover, though patients with definite symptoms were likely to have well-advanced disease, physicians could hardly be blamed for trying to secure for them any help the sanatorium might be able to offer. This situation was not unique: sanatoria everywhere found they were filling up with advanced cases. Dr. W.S. Woodworth, the sanatorium's visiting physician, at first ascribed the blame to the ignorance of patients who put off seeking help until it was too late; but eventually even he had a word to say to physicians who, he felt, must have been led to consider the sanatorium as "a place for menaces".[65] But the profession did not accept the blame so easily. In a typical opinion, the Maritime Medical News attributed the failure of the institution to the lack of

professional authority:

> It is a well known fact that the profession never liked the scheme of management which was adopted by the government. It was very generally felt that the authorities were too much influenced by economical motives, and that they did not sufficiently recognize the fact that the personality of a resident physician plays a large part in insuring the success of such an institution and of commanding the confidence of the profession.[66]

When the government, in 1909, at last appointed a physician to replace Bertha Elliott as superintendent, the News hailed the step as indicating "full acceptance by the government of the views held by the profession."[67] The corner, as far as the News was concerned, had been turned; the sanatorium solution could at last function properly.

During these years of disillusionment, reports of tuberculosis deaths were increasing yearly. In 1906, for example, only 158 tuberculosis deaths were reported; this had risen to 990 in 1908, accounting for 13.2% of all reported deaths in the province. In the years immediately following, a slow decline in reported tuberculosis deaths would become apparent; see Table A-1 and accompanying graphs. But for the moment, there was no indication of any such trend.[68] Phthisiophobia had reached new heights, and the plight of the average tuberculosis victim had never been worse. As A.P. Reid wrote in 1910,

> The advanced and helpless case of CONSUMPTION is worse off than the leper. The General Hospital closes its doors to him. The sanatorium either has no room or is too expensive -- everyone gives him the "cold shoulder". The hotel or railway car will

> exclude him if it can do so, the immigration authorities put a veto on his entry into a new country, and even towns and municipalities do not court his presence.[69]

Reid, in fact, had by 1910 begun publicly to challenge the sanatorium solution per se. Although he had been one of the institution's most fervent apologists in 1904, its poor performance, coupled with better statistics on tuberculosis prevalence, had convinced him that the sanatorium "for the thousands who require aid...must fail." He had begun to view tuberculosis primarily as a social problem which would require broad social solutions. "Special nursing," he wrote, was less useful to tuberculosis victims than a program of free home care and "adventitious [financial] aid."[70] Consciously, Reid was distancing himself from the accepted professional wisdom, which stressed earlier diagnosis and the establishment of more and larger sanatoria.

By this time a new factor had emerged in the province's fight against tuberculosis. The Canadian Tuberculosis Association, fully organized itself since 1902, had begun regional organizing efforts and the voluntary movement in Nova Scotia, from small beginnings in 1905, began to pick up steam as the sanatorium slid quickly downhill. In 1909, the same year the sanatorium's record reached its nadir, the number of voluntary groups in the province increased from three to 17.[71] Aside from a resolution to support sanatorium construction as a major goal, the CTA laid down no hard-and-fast rules for its affiliates, and the tactics of these groups

varied widely. Some concentrated on persuading their local governments to build sanatoria, or on raising money for private ones. Others spent most of their time on relief work, and the provision of medical services to the poor in their own homes. Still others aimed at establishing institutions which, unlike sanatoria, would be designed to care for advanced cases. All would educate; all would fight phthisiophobia.

The Halifax League, for example, led by members of the local Council of Women, displayed true crusading spirit. Quickly hitting upon Christmas seal sales as a fundraiser, the League was shortly able to support a visiting nurse, to distribute milk, eggs, blankets and clothing to needy patients, to help find accommodations in the countryside for some slum dwellers, and even to establish its own 15-bed hospital for advanced cases in 1914.[72] Other leagues which attempted direct social work were not so successful. They quickly found their meager resources drained and were forced to curtail activities sharply, or even to disband.[73] Groups such as the larger Tri-County League, covering the counties of Pictou, Antigonish and Guysboro, which was organized primarily by physicians and which confined itself largely to education, seemed better able to stay afloat. Its chief contribution to the anti-tuberculosis struggle was the production and distribution of the book Consumption: Its Cause, Prevention and Cure, published in 1912.[74]

While the movement involved both laypeople and medical

professionals, involvement in direct social service was most evident in those groups with a large lay component.[75] Yet there were also several physicians in the movement who showed themselves quite ready to grapple with social problems and to adopt innovative solutions. Dr. Smith Walker of the Colchester League, for example, was an outspoken critic of the "indifference" of the provincial government to the question of tuberculosis among the poor, and was convinced that some system of home care was the only solution.[76] Dr. S.N. Miller of Middleton, incensed about the "abandonment" of patients by their doctors, reported that he had begun to incorporate sanatorium-style therapy into the home treatment of his patients, encouraging backyard tents and the like.[77] Similar trials of "tent colonies" and home-care schemes were cropping up all over North America, and for precisely the same reasons as in Nova Scotia: lack of funds, lack of alternatives, and a persistent feeling that fresh air and good food could be supplied just as readily in a backyard shack as in an expensive "tuberculosis clubhouse" like the Provincial Sanatorium.[78] While some more orthodox physicians worried that consumptives might be getting the idea they need only "eat, drink and be merry" to get well, and thus might not even bother to consult a doctor at all, there was little cause for concern on this score in Nova Scotia.[79] Except for a few isolated trials, such innovations did not take root.

Voluntary groups, though often directly involved with the

social aspects of the disease, were typically dominated by those who believed medical experts and institutions held the answer to tuberculosis. As the Tri-County League's book stated, the movement's aimed to "cure" every "curable" case of tuberculosis, and, for this purpose, a sanatorium was best. Even the tiny, financially-troubled Amherst League, which spent most of its money on direct aid, dreamed of building its own county sanatorium, feeling it was "useless to alarm the people unduly with regard to the ravages of the 'White Plague' unless we have the proper means for affording relief and ultimate cure."[80] Moreover, under aggressive new management, the provincial sanatorium after 1909 began to enjoy a resurgence of public and professional confidence.

The Path Not Taken

The new sanatorium superintendent, Dr. Arthur Frederick Miller, was a Prince Edward Islander and a 1904 graduate of the Halifax Medical College. Contracting tuberculosis shortly after graduation, he sought help at Saranac Lake, became a disciple of Trudeau, and stayed on to work there after convalescence. Having been approached by emissaries from Nova Scotia in 1909 to suggest a replacement for Bertha Elliott, Trudeau recommended Miller, who arrived in the province to find the sanatorium's reputation in tatters. Miller reported that the people of Kentville rarely approached the sanatorium out of fear of contracting the disease, and local people could

be induced to work there only after "much personal persuasion".[81] Physicians seemed to have lost faith in the sanatorium "cure", preferring to treat their patients at home and continuing to advise them to travel. Miller, a man of dynamic personality with a strong sense of community relations that was to prove invaluable, at once initiated an energetic publicity campaign, insisting that tuberculosis was curable, but only at a sanatorium. Although circumstances eventually forced him to be more flexible, at the beginning of his tenure he firmly refused admittance to far-advanced cases, keeping them just long enough to make arrangements for the return journey and never listing them as official admissions.[82] Essentially, Bertha Elliott had done the same thing with such cases; the difference was that during her superintendency, these patients <u>were</u> officially admitted, and their statistics entered into the record to contribute to the sanatorium's bad reputation. As a nurse, Elliott had not had the authority to refuse admittance to a patient who had been certified as suitable by an official examining physician. The immediate difference, then, was indeed one of "authority", which local physicians had thought so important in the running of a sanatorium. But they had been talking of authority over the patients, while it was authority to refuse the request of the referring physician which was at work here.

To counter proposals for home-care programmes, Miller contrasted the success rates at sanatoria such as Trudeau's

with those of New York's Bellevue Hospital Dispensary. The contrast did seem startling: Trudeau claimed a 93% rate of cured, arrested or improved cases at discharge, a performance which Miller was actually able to surpass in his first year at the provincial sanatorium with his new, carefully-selected patient population. Bellevue, on the other hand, listed fully 66% of its patients as having progressive disease.[83] What Miller did not stress was that a dispensary such as Bellevue cared for far-advanced and non-paying patients as Miller's sanatorium did not, and for far more patients of every kind than a residential institution could possibly accommodate. Even as Miller began his campaign, an ominous note had been sounded at the 1908 Washington International Congress on Tuberculosis. A study of Trudeau's patients since 1896 had disclosed that even those released as "cured" showed a death rate two to three times that of the general population, while "arrested" ex-patients were dying at five to ten times the normal rate. In one general address to the Congress, it was stated that sanatoria had been a negligible factor in the attack on tuberculosis, and this opinion was growing.[84] Nevertheless, sanatoria had become so well-established in North America that such heresy was largely kept at bay. Although far more expensive to maintain than dispensaries or local clinics, sanatoria remained the essential element in anti-tuberculosis strategy. In Nova Scotia, Miller had by 1912 garnered enough support to convince the government to add

two new pavilions to the institution, boosting capacity to 32 beds.

New initiative came from the government in 1913, with an act providing for a network of "district sanatoria" which would admit advanced cases, with county tuberculosis clinics to distribute literature and assist local physicians in diagnosis.[85] But the whole scheme, which the CTA called "the most advanced in Canada", hung on the willingness of the municipalities to assume the brunt of the expense, and not one volunteered.[86] Given their limited resources and a universal reluctance to increase taxes, this situation was not surprising. Nevertheless, the new act allowed the provincial government to bask in acclaim from anti-tuberculosis activists for its progressive stance, while the movement's energies in years to come were largely dissipated in attempts to awaken individual municipal councils to a sense of their duty with respect to tuberculosis. The new legislation carefully avoided government involvement in the morass of social issues surrounding tuberculosis; nowhere, for example, did it provide financial or nutritional relief for patients and their families. These functions were left to the voluntary groups, whose efforts were quickly dwindling for lack of funds.

However, there were still a few loose ends remaining from the government's point of view. One of them was the intransigence of A.P. Reid, whose proposals for change were becoming ever more radical. By 1912, for example, Reid called

for appointment of a corps of lay inspectors to make direct assessment of conditions in all homes and workplaces, to offer any required financial or other relief, and to arrange for free medical care wherever they felt the need existed without benefit of a physician's diagnosis.[87] By 1914, he was quoting with approval the comments of New York tuberculosis specialist S.A. Knopf, who had for some time been espousing such revolutionary measures as immediate slum clearance and guaranteed minimum income levels.[88] Although Reid felt that institutions would always be appropriate for far-advanced and homeless cases, he was convinced that sanatoria as they existed were useless establishments, with "insuperable defects": they unnecessarily broke up families, denied patients the opportunity to work and earn money while they were still able and, in short, had been of far less importance in combatting tuberculosis than general improvements in sanitation and living standards. He recognized that "these statements as regards the sanatorium run counter to accepted belief and practice", but doggedly insisted that society had a debt to its citizens who were "incapacitated by sickness, accident or age." In 1912, he wrote:

> The criticism may present that my contentions lean toward socialism. Yes, of a kind: The socialism I contend for is the one indicated in the Holy Scriptures, "The poor ye have always with you," and they should receive excellent care, as well as recognition...[and] the necessaries of life...it is not a DOLE, but a DEBT, which is payable when the occasion therefor [sic] supervenes.[89]

Reid's philosophy, evidently owing much to the Social Gospel

vision of reform then current among followers of several Protestant denominations, was somewhat remarkable in his case. He was, in fact, a Roman Catholic whose pronouncements during most of his long career had been notable mainly for their conservatism.[90] Nearing the end of his life (he would be 78 in 1914), Reid may well have mellowed his views. At any rate, such statements from the head of its own Health Department could only have been an embarrassment to the provincial government, committed as it was to its master plan for an institutional network. This uncomfortable situation was resolved with Reid's departure from office in 1914, the precise circumstances of which have, perhaps deliberately, been left unclear in the records. Health department annual reports from 1893 up to the 1950s regularly included brief biographical tributes to departing personnel of any stature; even quite subordinate employees, such as visiting nurses, at least drew a mention upon leaving. Reid is the only exception.[b] Since in the course of his long career he had not only been Nova Scotia's pioneering chief of public health for over twenty years but also an eminent leader at the medical school, both large hospitals and in the profession at large, one can only suspect that significant unpleasantness was

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[b] This silence has been maintained over the years. Dr. J.S. Robertson's chronology of public health milestones in Nova Scotia provides collateral information on every chief provincial health officer but Reid. See Canadian Public Health Association, The Federal and Provincial Health Services in Canada (2nd edn.), (Toronto, 1962), pp. 42-54.

involved. Reid was replaced by Dr. William H. Hattie, a Saint John native, an 1891 McGill graduate, and a strong advocate of the government's 1913 plan and of sanatoria in general.[91]

Nova Scotia was now firmly committed to the sanatorium solution, having rejected a variety of alternatives presented from time to time over the last turbulent decade whose champions ranged from general physicians and lay volunteers to officials of Reid's stature. Help for the tuberculous poor remained, at least in theory, a matter for the municipalities; in practice, it was usually left to charitable organizations and anti-tuberculosis volunteers. Several voluntary organizations in the province were hiring nurses and caring for as many indigent cases as they could. But such leagues, though sometimes receiving municipal support, were for the most part dependent on their own fundraising efforts which were generally inadequate for any long-term provision of direct relief. The vast majority of patients necessarily remained at home, but care for them was available only through private practitioners, through visiting or drop-in dispensaries, or through the voluntary leagues. While Drs. Reid and Walker had both called for some system of home care, it seems somewhat surprising that no strong local argument had been made for the establishment of a dispensary network. After all, the Halifax Visiting Dispensary was a venerable institution, caring for thousands of patients each year who would not otherwise have been reached. The government granted

the Dispensary $400 annually; in 1914, by contrast, $17,000 was granted to the provincial sanatorium. Quebec, in contrast, had elected the dispensary option quite early, though it too would later invest heavily in sanatoria. The Royal Edward Dispensary in Montreal was claiming good results, and publicly making compelling arguments about the superiority of dispensary methods at about the same time that the Nova Scotia sanatorium's reputation was sinking. Yet, while Reid presented the Royal Edward's views in his reports, not even he argued strongly that Nova Scotia should follow suit.

Ultimately, the sanatorium decision was the result of a consensus of sorts among a number of interested groups, including the government, the medical profession and the concerned public. The medical profession was, at the turn of the century, a group rapidly growing in prestige and power. Faced with the beginnings of government and lay involvement in questions of disease, practitioners became engaged in a struggle to define the boundaries of the "public" versus the "private" medical sphere. While the elite of the profession, especially those involved in medical education, might well have welcomed the expansion of such training aids as dispensaries, the average private practitioner was more likely to perceive these as a threat. Dispensaries, after all, offered free care to many patients whom doctors must have felt could well afford to hire a private physician. The Halifax Visiting Dispensary made no rigorous efforts to determine

whether patients could pay or not; neither did Montreal's Royal Edward Dispensary, which frankly admitted that "this may, to a certain extent, interfere with private practice."[92] Indeed, given the conditions of dispensary work, such efforts would have been extremely difficult. An institution such as the sanatorium, which treated only a small number of referred patients, presented much less of a threat.

Other evidence helps place the anti-tuberculosis struggle in this context of private physicians' defence of their traditional sphere. Reid's efforts to set up an efficient system of tuberculosis reporting were met with overt resistance. Many physicians also seem to have had little patience with the reformist ardor of the voluntary leagues. The Amherst League, for example, complained that its relief efforts were being hindered by "the attitude of physicians" which, "while not hostile, may be said to be indifferent. Doctors will not give you the names of their patients, let them be ever so deserving of the aid which the League could render."[93] When the Halifax League proposed in 1909 to set up a tuberculosis clinic at the Visiting Dispensary, with the services of a "chest specialist" to be paid for by the League, the Dispensary physicians retorted that they themselves were perfectly capable of handling any chest cases that came up, and that such a clinic would "interfere" with the Dispensary's daily work.[94] The Halifax League also found that only a handful of doctors would refer patients to them. Such

problems were hardly unique to Nova Scotia; volunteers in Montreal reported that only one-third of their case list was so referred.[95] Meanwhile, reports like that of the Amherst League, and complaints made by activist physicians such as S.N. Miller of Middleton, suggest that at least some ordinary physicians were inclined to abandon their advanced cases while resisting the eager efforts of lay activists to help.

The sanatorium concept was a relatively non-threatening one which fitted modern medical practices and goals, geared as it was toward specific, active treatment and offering what was, at the time, the only source of real hope and the best available care for individual patients. The government's original plan, of course, had been unsatisfactory in that the institution had not been placed firmly under professional control; the replacement of Nurse Elliott by Dr. Miller rectified this situation. The 1913 act providing for a network of tuberculosis clinics was explicitly designed to eliminate any threat to private practitioners. As planned, the clinics would merely "distribute literature" and provide technical facilities to assist in the diagnosis of cases referred to them by local physicians.[96]

Professional hopes and fears were, of course, not solely responsible for the outcome. The general public, unused to government involvement in their daily lives, was inclined to be unenthusiastic about public health measures, some of which were indeed restrictive and interfering. In contrast, the

establishment of an institution did not interfere with public freedom in any way. The existence of widespread phthisiophobia was another reason the public leaned toward an institutional solution which would, after all, in some measure help keep tuberculosis cases off the streets. Dispensary or other home-care plans would leave infective consumptives free to wander. And naturally, should they too receive the dread diagnosis, laypeople as well as doctors wanted the best available care for themselves and their families. Voluntary leagues, also, with few exceptions, accepted professional leadership and the orthodox view of sanatoria as the ultimate solution to tuberculosis. The emergence of leagues in Nova Scotia seems, in fact, to have been a reaction to the lack of sufficient institutions rather than to the philosophy of prevention through cure. From the government's own point of view, the sanatorium was obviously a far simpler and cheaper proposition than any attempt at direct intervention to deal with poverty and its companion, tuberculosis. The one course offered ongoing financial drain, social disruption and an administrative nightmare; the other offered low-cost approval from the medical profession and from anti-tuberculosis activists. In these terms, the choice made itself.

Similar choices were being made throughout Canada and the United States. In 1913, the CTA was awarded a trophy at the International Tuberculosis Congress for its outstanding progress in initiating Canada's voluntary campaign, and for

its success in encouraging the development of sanatoria. Extension of the institutional network, encouragement of systematic medical examinations of large groups of the population and education on tuberculosis and the changes in personal health habits required to control it absorbed the energies of volunteers and public health experts across the country for years to come. By the end of the First World War, the preventive sphere had narrowed considerably from many earlier reformers' concerns with poverty relief, slum clearance and "sanitary architecture". Meanwhile, tuberculosis prevalence continued its slow decline.

Some activists were predisposed to view the decline as their doing, and in fact a just reward for their efforts. The Nova Scotian physicians who wrote Consumption: Its Cause, Prevention and Cure believed that the distribution of tuberculosis pamphlets in 1899 had clearly yielded fruit in the relatively low 1911 death rate in Pictou County.[97] When more interventionist therapies augmented the fresh-air-and-rest regime after 1918 and were applied in sanatoria, although the poor were still excluded from them, it would seem in hindsight a vindication of the sanatorium solution, a vindication of modern medicine, and a repudiation of those who, like Reid and Knopf, had wanted to carry reform to more radical lengths. In fact, there was no vindication: the solution simply looked better against a very different background.

CHAPTER 2

THE SANATORIUM: WAR AND POSTWAR

Initially, it seemed that the Great War would only disrupt plans in progress. Most medical institutions found themselves increasingly short-staffed as personnel left for duty overseas. Anti-tuberculosis activists and the Department of Health, intent on trying to implement the 1913 plan, found municipalities more and more reluctant to commit scarce dollars for expanded tuberculosis programs at a time when food and other prices were rising, demands on the public purse were great, and there was uncertainty in money markets.[1] In fact, however, the war provided the opportunity for a much more rapid expansion of tuberculosis activity than had been foreseen. As federal purse strings opened to cope with the treatment requirements of thousands of tuberculous soldiers, developments bolstered the centralized institutional model to such an extent that by the war's end any other seemed nearly inconceivable. A CTA president would later claim that the co-operation between individual sanatoria and the federal government sparked by the First World War, together with the impetus for research thus engendered, had been "no small factor" in establishing Canada's status as one of the world's leading nations in the decline of tuberculosis mortality.[2] His comments were typical of a great many enthusiasts, convinced that the decline was the result of their own efforts. But

such claims should be examined carefully, in the context of the nature, accessibility and results of the treatment offered, and of Canada's general economic well-being in comparison to other nations--especially those nations which suffered the direct effects of world war.

In the first section of this chapter, the significant and lasting changes war brought to the sanatorium are examined, while the second section offers a picture of patient life in the postwar period.

The Sanatorium Transformed

One of the most worrying and costly problems for the Canadian government at war was the breakdown of soldiers due to tuberculosis. While increased disease prevalence had certainly been a feature of past conflicts, the significant difference now was that a "cure" in the form of sanatorium treatment existed and the dangers of spreading infection among the troops was better appreciated. Although army doctors had screened all would-be recruits, over 10,000 of Canada's fighting troops proved, embarrassingly, anything but fit. Of the 3,000 who died of tuberculosis, 10% had become ill just after enlistment, without ever leaving Canada. Others made it to England, and eventually to France, before their condition became evident. It was impossible to determine whether the disease had resulted from conditions in the camps or at the front, or whether it had pre-dated enlistment. To physicians,

it became increasingly clear that routine physical examinations were of little use in detecting tuberculosis. X-rays, which could have given more reliable results, had not been used in the mass screening, partly because doctors still tended to distrust radiological findings, and partly because the necessary equipment was quite expensive, particularly the large panes of glass then used as plates.[3a] Since existing facilities for treatment were utterly inadequate, the government was forced to finance vastly expanded sanatorium-building programs in every province, and to shoulder the ongoing burden of examinations and pensions for chronically

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[a] Early x-rays might give good pictures of bone, but were virtually useless for soft tissue; their use for pulmonary conditions like tuberculosis had to await technological refinement. By 1919, physicians attending the CTA's Annual Meeting were generally very impressed with the x-ray's ability to "see microscopic lesions...[where] nothing was found clinically". But there was still doubt about the relative advantages of results from fluoroscopic x-ray examinations (which used "live" imagery and left no permanent record) and stereoscopic ones, which used the cumbersome, expensive and infuriatingly fragile glass plates.

There was also concern that persons trained in radiology might pose a threat to regular clinicians, especially if they overstepped their bounds with regard to diagnosis. The career of Charles Puttner well illustrates the situation in the early days of radiology: actually a pharmacist, he was also employed concurrently as professor of Materia Medica at the Halifax Medical College, "electro-therapeutist" at the Victoria General, and, in 1917, as the hospital's "Radiologist" [JHA, 1917, Appendix 3 (B).] At the 1919 CTA meeting, applause followed one commentator's remark that the X-ray "is to be considered only as an aid in the diagnosing of tuberculosis and in giving us some idea of the probability of the patient's return to health". Yet there seemed general agreement that sanatoria, in particular, had an absolute requirement to be well-equipped in this regard. Both the CTA and the Nova Scotia Sanatorium installed their first X-ray equipment in 1919.

disabled veterans. Some 3,000 new beds had to be provided, along with treatment, pensions or both for 7,500 soldiers.[4] Some twenty years later, federal tuberculosis expenditures resulting from the Great War, including new-bed provision, treatment, and pensions, had totalled an estimated 150 million dollars.[5]

Tuberculous soldiers began returning home in noticeable numbers in 1915. By 1916, the trickle had become a deluge, creating a full-blown crisis far beyond the capacity of the existing military hospital network and civilian institutions combined. In all provinces, young returnees were hastily crowded into convalescent homes, hospitals, asylums -- almost anywhere a bed might be found. Yet all these facilities were already suffering an acute shortage of competent staff. Male orderlies had rushed to enlist early in the war, followed by nurses and laboratory staff.[6] The Victoria General Superintendent noted that nurses and other staff had departed in droves for military service, leaving the nursing world in "an unsettled and disorganized condition."[7] By late 1916, 20% of Nova Scotia's physicians had joined the troops overseas.[8] At the sanatorium, Dr. Miller reported that while all available tuberculosis beds in Canada had been placed at the disposal of the military it was "impossible to make room for half the number applying for admittance". In the year ending September 1916, only 130 patients had been accepted out of 248 applicants; it looked to Miller that year as if September

applicants would probably have to wait until January. Only 57 tuberculosis beds, counting those at the Hazelwood Hospital in Halifax as well as the new pavilions at the Provincial Sanatorium, were available in the province where, he estimated, there were some 3000 cases--with more returning from overseas all the time.[9b]

In the summer of 1916, the federal Military Hospitals Commission (MHC) approached the administrators of Canada's sanatoria and the CTA for help in dealing with the problem. By 1917, a formal deal was struck whereby the sanatoria, with the help of voluntary organizations, would be expanded at federal expense if they would take on the responsibility for the treatment of soldiers, and agree to live with a measure of federal co-ordination and planning. After the war, the new Department of Soldiers' Civil Re-establishment (DSCR) became the federal watchdog over sanatorium administration and treatment of ex-military patients, and published its own statistical reports as an appendix to the regular sanatorium annual reports. Veterans, if still disabled upon discharge, then came under the auspices of the Canadian Board of Pension Commissioners, and their disability status was regularly reviewed by re-examinations at the appropriate sanatorium.[10]

The profound transformation which war brought to the Nova Scotia sanatorium actually began quite modestly, with plans for a couple of additional open-air pavilions to house

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[b] See Table C-7.

ambulatory patients, a 24-bed infirmary, a recreation hall and a workshop to train convalescent soldiers in various crafts; in all, accommodations were projected for some 100 military patients.[11] But almost immediately the slow pace of construction was outstripped by events. In 1917, the MHC suddenly learned that a hospital ship was en route to Halifax, intending to discharge "within a few days" a much larger group of tuberculous veterans than had been anticipated, and for whom accommodation did not yet exist. Within the next 18 days, the sanatorium somehow managed to provide housing -- of a sort -- for over 100 returning soldiers and a number of new medical staff. A "colony" of hastily-erected tents provided full facilities for toilet and washing, dining and recreation, with a heating and lighting plant and a sewer connection independent of those for the main buildings. Despite a severe August gale which flattened the tents as effectively, wrote Miller, "as if there had been an aerial bombardment from the sky", the tents provided an effective stopgap while permanent buildings were under construction.[12]

Both the new buildings and the numbers of ex-service patients far exceeded all earlier expectations. By the end of 1918, there were two infirmaries, eight pavilions, a recreational building, a vocational workshop, an administration building, an isolation annex, service building, nurses' home, orderlies' quarters, a superintendent's residence and a laundry and powerhouse. Staff consisted of

five physicians and twenty-four nurses, two dieticians and clerical workers. Nova Scotia's once-tiny sanatorium could now accommodate over 350 patients, a sevenfold increase since 1914. But these were only the most obvious changes. The institution had also changed in fundamental ways, occasioned perhaps by wartime exigencies, but destined to become part of its permanent character.

One abrupt change concerned the sanatorium's reluctance to admit advanced patients. Thanks to the influx of new money enabling the addition of infirmary facilities, tuberculosis cases at all stages of disease became welcome. Initially, the change was reflected more in rhetoric than in reality. Before the war, Dr. Miller had carefully selected his patients as best he could; but the available pool consisted so largely of advanced cases that it had been impossible to exclude them entirely. In addressing the Nova Scotia Medical Society in 1914, Dr. Miller had called, without much hope at the time, for the erection of a "Hospital Infirmary" to "do away with the only disagreeable feature of our work--the refusal of advanced cases for treatment."[13] During the war, there could be no question of refusing treatment to any military case. The soldiers had nowhere else to go, and the federal government was footing the bill. Dr. Miller, who had accepted a commission as captain in the armed forces, and was personally involved in federal tuberculosis planning, now accepted, as he was certainly expected to do, moderately and

far advanced cases almost without question. During the actual years of the war, however, the change was not dramatic. According to its annual reports, the sanatorium in 1914 admitted 71 patients, of whom 24 (29.6%) were classified incipient, 55 (67.9%) moderately advanced, and 2 (2.5%) far advanced. In 1919, of the 284 military patients discharged during the year, 44 (15.5%) had been classified incipient on admission, 217 (76.4%) moderately advanced, and 23 (8.1%) far advanced. Yet it would be dangerous to take these figures at face value to indicate that little change had taken place in admissions policy. Soldiers, as a class, were far more likely than civilians to get treatment as soon as symptoms became apparent, and this fact, not continuing exclusionary policies, accounted for the low numbers of far advanced cases. By 1923, by which time civilians had again begun to predominate in the sanatorium population, the long-term trend toward increasing admission of advanced cases was unmistakable. Dr. Miller classified 26.4% of patients as "early or minimal", 35.9% as "moderately advanced", and fully 37.7% as "far advanced".[14]

Yet what, in fact, did the wartime sanatorium have to offer patients with advanced tuberculosis? Not affordable treatment, surely; and advanced tuberculosis patients were still unlikely to be successful breadwinners. Neither, for most of the war, could it offer advanced diagnostic techniques: the Nova Scotia sanatorium did not receive its first X-ray equipment until 1919. Nor were there reliable new

treatments. Although many sanatoria, including this one, had begun to experiment with collapse therapy, most notably artificial pneumothorax, it was as yet far from reliable, especially without x-ray support. For ambulatory soldiers, the sanatorium offered much the same fresh air, rest, and good food regime that it had always done. For more serious cases, the infirmaries were analogous to a palliative-care isolation wing in a regular hospital.

Presumably, then, any medical institution could have done a comparable job with federal largesse. The choice of sanatoria to do the job is indicative of the success these institutions had had in establishing their credibility as special places whose staff possessed special expertise and wherein patients stood the best chance of cure. It is also indicative of a need for institutions which would offer facilities for long-term care and follow-up in the wake of the regular hospitals' renunciation of this role.

Expansion also made the sanatorium far more expensive to maintain and operate. Indeed, expenses had begun to rise sharply as early as 1916, due at least partly to rising food prices; but this was not an immediate problem during the war since federal compensation for military patients even before the comprehensive federal/provincial deal was made had added to revenues "more than anticipated".[15] When the agreement was finally signed, it included the understanding that, once the need to care for soldiers had passed, the vastly expanded

facilities would be available to civilian patients and would thus be a permanent asset for the province, a federal gift it could ill afford to pass up. But there was no clause regarding ongoing federal contributions, and how the province could afford to keep such a mammoth enterprise running was a question left unaddressed--for the moment.

Another lasting change the war wrought at the sanatorium was a new commitment to therapeutic research and statistical study, with publication of the results in medical journals. Research had become the sine qua non of the modern, centralized medical school, and research was thus a key activity for those trying to make tuberculosis work a true specialty field. As Allen Krause, tuberculosis specialist at Johns Hopkins in Baltimore, pointed out in 1921, there were several obstacles in the way.[16] For one thing, physicians in other specialties apparently did "not entertain a particularly high opinion of the medical knowledge and ability of the professed practitioner and student of tuberculosis". He felt that only foundations to finance departments of tuberculosis in modern (i.e., research-oriented) medical schools attached to general hospitals could possibly change this state of affairs, attracting the best students and capable instructors from all areas of medicine. To centre tuberculosis studies in sanatoria would, he felt, be wrong. Sanatorium physicians who were also active investigators and publishers were rare. Krause thought there might be several reasons for this. For

one thing, their role as "business managers and stewards" left them little time; for another, the location of sanatoria in isolated spots "cut [them] off from that close association with their confreres which is so...necessary, if intellectual stagnation is to be avoided". Krause also suggested that because sanatorium physicians were often sufferers from the disease themselves, the resulting "weakness" might hamper not only their day-to-day functioning but often had also hampered their education, to the point that they were intellectually, as well as physically, weak.[17]

Dr. Miller, though he did indeed suffer from tuberculosis, and did operate in a rather isolated spot, certainly did not seem to merit charges of intellectual stagnation or weakness. In his 1914 call for a "Hospital Infirmary", he had clearly envisioned a facility which would do far more than simply treat patients. Such a building would need "modern conveniences for scientific study and treatment of tuberculosis", including a research laboratory and a radiological department "for early diagnosis" and the study of the disease in all its stages. The war offered not only many of the needed buildings and equipment for this project, but a large pool of "clinical material" as well. The expanded patient population, mainly ex-soldiers who were relieved of money worries by the DSCR and further required to return regularly to ensure continuance of their pensions, comprised a much more reliable and trackable group for statistical study

than a voluntary and transient patient pool could ever have been. One of Dr. Miller's first demands immediately postwar was $20,000 for the construction of a proper laboratory, which had been left out of the federal blueprints.[18]

Based on their studies of the military patient population, Dr. Miller and his like-minded colleagues at other sanatoria began systematically to investigate the reliability of their own diagnoses, to inaugurate new techniques, to experiment with new therapies, and to publish paper after paper in a wide variety of medical journals. In the process, sanatoria found justification for their own existence as research centres and providers of specialized tuberculosis therapy, losing their embarrassing vulnerability to the charge that "backyard shacks" and subsidized nutrition could accomplish everything they could, and far more cheaply. The sanatorium, in Nova Scotia as elsewhere, would remain the institutional centre of tuberculosis work. Dr. Krause, however, may well have felt vindicated in his opinion, for tuberculosis never did attain the standing of a "real specialty" in medicine.

More than research, however, would be needed to keep sanatoria alive and dominant in the postwar age. The inauguration of pneumothorax therapy was seen as a vital step; for the first time something specific could be offered to advanced patients who, it had long been known, were poor candidates for the classic fresh-air-and-rest "cure". It was

the development of specific treatment for tuberculosis which would ensure the continuance of the sanatorium, with the character of the institution changing in the process from that of a spa to that of a hospital.

Artificial pneumothorax is a procedure involving the introduction of gas into the thoracic cavity, between the pulmonary pleura and parietal pleura, to collapse a lung.[c] By squeezing together the walls of bacteria-filled tuberculous cavities and reducing or eliminating lung motion, the operation was designed to promote healing and render the sputum non-infective. Since the gas eventually disappeared by absorption into the tissues, patients had to report for "refills" every week or so. When first introduced, artificial pneumothorax was used only for patients with one relatively "good" lung which could assume the whole burden of respiration; it was more widely applied later. But satisfactory collapse was often prevented by the existence of adhesions, caused by the inflammatory process itself, which produced scars holding the lung lining to the chest wall and preventing lung collapse.

This procedure was first tried in Nova Scotia's sanatorium in 1913, in an emergency hemorrhage case; the patient, a man from Yarmouth, survived and recovered.[19] There was no X-ray support, and hence Dr. Miller was working

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[c] Figure B in the Appendix demonstrates various lung-collapse procedures and how they worked.

"blind", relying only on physical signs to choose the more diseased lung to be collapsed and to estimate the degree to which adhesions, if any, had prevented collapse. Because the procedure was still experimental, only a patient who "had about given up hope of recovery without it" could be persuaded to take the risk.[20] In some cases, the patients were in such poor condition that no hope was held for any permanent improvement, and the operation was conducted simply as a bid to alleviate the worst of the symptoms.

Patients were selected for the treatment on the basis of one to six months of observation confirming their failure "to respond to the usual hygienic-dietetic or rest-cure treatment" and the results of a complete physical and radiological examination to rule out contraindications. Half an hour before the operation, the patient received "codeine or heroin", supplemented by Novocain for local anesthesia at the injection site. The chest was punctured at the side between the ribs, and a quantity (200 or 300 c.c.) of filtered air introduced. The patient then rested for twenty-four hours. The entire procedure was then repeated every second or third day for the first few weeks; after the third week, patients received increased quantities (up to 500 c.c.) every four to seven days "until the collapse is complete"--or, at least, as complete as adhesions and other problems would allow. Following this, refills were given "at intervals of twelve to twenty-one days as long as the patient remains under

observation."

The procedure was not without its risks. For one thing, it was not always clear which lung should be collapsed, even after introduction of the sanatorium's first x-ray in 1919.[d] Thus, while some patients with histories of hemoptysis[e] experienced "truly dramatic" improvement, results in other cases were "disappointing", "either because of inability to produce sufficient compression, or because of the impossibility of determining from which lung the bleeding came."[21] Dr. Miller published his first report of his methods and results using artificial pneumothorax in 1921.[22f] Pleurisy with effusion[g] was the most common complication, occurring in 16% of the cases reported on. In a 1935 study, he reported the rate of this complication at 36% "for the past six years", with 8% going on to become purulent--that is, to develop tuberculous empyema.[h] By 1939, he was reporting that "70 to 80% of pneumothoraces are followed by effusions of a mild or serious nature".[23] 8% of patients also experienced bilateral extension of the disease following collapse therapy,

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[d] This first x-ray, donated by the Red Cross, was replaced with a more modern one in 1927.

[e] The coughing up of blood; see Introduction.

[f] See also Tables B-1-a and B-1-b in the Appendix.

[g] Inflammation of the pleura, giving off fluid.

[h] The production of pus by the inflamed pleura.

and 5% adhesive pleuritis.[i] Other complications included hemothorax -- bleeding into the chest cavity (0.4%), and surgical emphysema, the escape of air into surrounding tissues (0.4%). Another danger involved the uncontrolled tearing of adhesions due to gas injection; if this happened adjacent to a cavity in a lung, the result could be spontaneous and dangerous lung collapse due to cavity rupture, with escape of germ-laden material into the thoracic cavity.[24] Many other possible complications are mentioned in the literature. The tissue of the lung itself could be injured by inadvertent penetration by the needle, resulting in abscess formation. Should the needle point lie in a blood vessel, fatal embolism, either by air bubbles or by dislodgement of pre-existing clots, could occur. Injury to the pleura or to the pneumogastric nerve could cause problems ranging from pleural shock, which could be rapidly fatal, to dyspnoea (distressing and sometimes permanent "air hunger", or shortness of breath) and loss of speech.[25]

Often, there were practical problems as well. While the time needed for healing before lung re-expansion could be allowed differed from case to case, the minimum was variously estimated as between twelve and eighteen months. But general practitioners were as yet not equipped to give the all-

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[i] Adhesive pleuritis was the process responsible for creating adhesions. It commonly followed tuberculous empyema, and involved the formation of tough, fibrous connective tissue sticking the lung to the chest wall.

important periodic refills; patients had to return to the sanatorium. For many, this was impracticable or unaffordable; the result was the abandonment of treatment. Even at the initiation of treatment, according to Dr. Miller, despite the procedure itself being free of charge, civilian patients "usually" could not afford the long stays essential to a "good arrest" of their disease.[26]

Despite these problems, artificial pneumothorax would quickly become the most widely-used specific therapy in sanatoria. Because of the perceived benefits of lung collapse in successful pneumothorax procedures, several surgical techniques would later be developed to produce collapse where adhesions or other conditions made pneumothorax unadvisable or inefficient. Before the mid-thirties, when the sanatorium itself acquired surgical personnel and facilities, any recommended surgical intervention was done at a nearby general hospital.

Collapse proved "impossible" in about 15.3% of the cases Miller had attempted in 1921. Of the remainder, 74% were in the far advanced stage of disease, and 26% moderately advanced. In 72% of these patients, the disease was bilateral; they were still, however, regarded as suitable for artificial pneumothorax treatment by virtue of the disease being "inactive" and "confined to a small area" in the "better" lung.

In view of the fact that 21 of the 50 patients reported

on in 1921 had been treated in the pre-x-ray era, that in 70% of the cases only a partial compression could be achieved, and that treatment was sometimes undertaken with only a palliative result in view, Dr. Miller was well pleased with the results, which he rated as follows:

Excellent	4	patients	8%
Satisfactory	16	"	32%
Fair	11	"	22%
No change	19	"	38%

In an effort to gauge long-term results, Miller also rated the present condition of pneumothorax patients who had been treated from one to seven years previously (since the beginning of his adoption of the procedure), and found that 17 (34%) were "well and working", 16 (32%) were "living but not working", while 17 (34%) had died. Because this and most subsequent studies concentrated on such things as immediate post-treatment results, or death rates among all patients who had had a certain type of illness or a certain degree of collapse, but did not relate these to elapsed time, no appreciation of whether these procedures actually influenced life expectancy can be gained. Occasionally, a little information on this point can be gleaned from Miller's efforts to prove other points. For example, in a follow-up study conducted in 1932-3, it was desirable somehow to divorce the poor results of artificial pneumothorax patients treated before the x-ray became available from the better ones of subsequent patients, thus indicating the importance of careful case selection by x-ray. It was discovered that 70% of all

patients who had received artificial pneumothorax before 1919 had died.[27] These, of course, constituted a sizeable proportion of the patients whose "encouraging" results, presented in the 1921 study, served as a spur for the increased use of this procedure.

No complementary figures exist to show that patients treated in 1920 or 1921 had done any better by the time of the later study; it was, apparently, simply presumed that they had. Though Dr. Miller often wrote of the sanatorium's annual mail-out of questionnaires to keep tabs on the condition of ex-patients, these relied on patient-supplied information alone, and further relied on comparing ambiguous categories such as "well and working" with simply "living"; these could mean little in practice, since a "working" patient was not necessarily in any better health than a "living" one who might work at home, who might have chosen not to work, or who could not find any but unsuitable labor. Nor did Miller himself appear to put much faith in these yearly returns. When he conducted his study of 460 artificial pneumothorax cases, published in 1935, he acknowledged the difficulty of effective follow-up:

> It seems hardly necessary to mention the difficulty we had in tracing those who had once been under our care. Some patients were still to be found at their original home address, while some had moved elsewhere in the province, and others to different parts of Canada or to the United States. A number had also died without our knowledge. With patience, much correspondence, and following every clue at our disposal, we were eventually able to gather sufficient material to enable us to proceed

with the preparation of the graphs...[28]

In the absence of concrete evidence for the procedure's long-term benefits, Miller was encouraged by the fact that symptomatic improvement often followed even partial collapse, and that the treatment worked dramatically in many cases to stop life-threatening hemoptysis. Thus, although 38% of Miller's treated patients had received no benefit from the procedure, and over a third were dead by the time of the study, he concluded that there had, overall, been a net benefit:

> ...taking our pneumothorax experience as a whole, we are inclined to agree with other workers that this operation holds out a hope to many tuberculosis patients who, without it, seem unable to recover. We are using it more frequently every year, and we intend to continue its use.[29]

The question remained, however, whether these patients would have done as well or better with no treatment at all: to have studied this issue directly by comparing these results with those of an untreated control group would, of course, have been ethically objectionable.[30] Certainly, despite his desire for good results, Dr. Miller did not withhold treatment from desperate patients who seized upon the new procedure as a last chance, even when their cases were otherwise "unsuitable".[31]

What was the logic of collapse by artificial pneumothorax and later, more drastic methods? By alleviating distressing symptoms and reducing the risk of other forms of tuberculosis resulting from the swallowing of one's own contaminated

sputum, collapse was felt to be, and perhaps was, of great benefit to individual patients. Still, it was not applicable to the vast majority of patients. The ideal case for artificial pneumothorax--the unilateral case of pulmonary tuberculosis without adhesions--was not often encountered, more than 80% of patients having bilateral lesions.[32] Dr. David Stewart of the Manitoba Sanatorium remarked in 1920 that this therapy was applicable only in about 10% of cases; but improved technique, particularly the introduction of thoracoscopy which allowed the safe division of adhesions, later allowed its use to increase somewhat. Still, by the early 1930s, Dr. Miller felt that it was suitable for "not more than twenty per cent"[33], and had already begun to use more radical measures such as thoracoplasty and phrenic paralysis in cases which did not respond to artificial pneumothorax.[j] Until the mid-1930s, such surgery was performed outside the sanatorium, with the patient returning there for follow-up treatment.[34] For the many patients considered unsuitable for collapse therapy, sanatoria still offered fresh air, good food, rest, congenial company, and the peace of mind gained from knowing one was in the hands of experts. As late as 1932, Miller would write that "rest in the open air is still the outstanding measure to restore a patient to health."[35]

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[j] These procedures are discussed in detail in Chapter Four; see also Figure B in the Appendix.

Even in suitable cases, the benefits of artificial pneumothorax were all too often temporary. The work of Miller and others with the ex-soldiers soon made the great frequency of relapse frighteningly clear: patients were "continually returning for re-treatment, usually in a much worse condition than that of their previous illness."[36] Of the 1338 ex-service patients treated before 1924, nearly a third (430 patients, or 32.1%) had returned, "many of them several times". And this, it must be remembered, was a uniquely privileged patient population: "Civilian patients," wrote Miller, "cannot usually afford the extended period of sanatorium treatment necessary to a good arrest of their disease, few remaining longer than six months; and civilians have no government support for themselves or their families during the post-discharge period and no regular examinations after discharge."[37] Overall, re-admissions accounted for between a fifth and a third of all admissions at the sanatorium in the twenties and thirties, but the rate was much higher -- about two-thirds -- among ex-servicepeople, probably because their recurring problems were diagnosed and treated at government expense. For this reason, the higher rate is probably much closer to the true frequency of relapse.

To add to these problems, it had quickly become clear during the war that reliable diagnosis of tuberculosis was a far more complicated and demanding process than had been thought. The failure to detect tuberculosis in the physical

examination of so many recruits had driven home the importance of radiological examination as nothing else could have done. Further, it was discovered that a great many patients whose symptoms and histories would have led to a definite diagnosis of tuberculosis before the war in fact were not tuberculous at all. Of 1200 consecutive ex-service cases reported on by Miller in 1923, 27.7% were found to be non-tuberculous.[38] With the importance to the government of saving pension dollars, physicians began to worry quite as much about diagnosing too many cases of tuberculosis as too few. Chest pain, for example, was found by Dr. Miller to be a symptom of negligible importance in diagnosis, being present in 90% of all cases reporting for examination, tuberculous and non-tuberculous alike. Studies on the value of hemoptysis as a symptom were showing widely varying results, leading Miller to speculate there must be some factor causing more frequent occurrence of this symptom in civilian groups compared to military ones.[39] Percussion and microscopic examination of sputum were both much less reliable than had been formerly thought, as were histories of cough, expectoration, weight loss, and weakness--the latter two being actually more common among non-tuberculous patients. The great influenza epidemic of 1918-1919 had also forcefully pointed out the problems in differential diagnosis. Lurking in the background, though usually unspoken, was the disturbing question of how many prewar "cures" wrought by the classic sanatorium regime had

actually occurred in patients who had not had tuberculosis at all.[40] "While we can still expect much, and have by no means lapsed wholly into pessimism," commented David Stewart in 1920, "still the disease seems more difficult in its several phases and complications and more obstinate in its course than we considered it to be. The real good results in cases of definite disease are possibly even less the rule than the exception."[41]

Artificial pneumothorax and its kindred therapies had another role, quite apart from their purely physical effects on patients: they gave sanatoria a function which could not practically be duplicated anywhere else. No busy general hospital was yet equipped to offer repeated in-house monitoring and "refills" to patients who must be watched carefully for as long as eighteen months. There was also, undoubtedly, a "psychological element", such as Dr. Stewart perceived for the now-discredited "specific", tuberculin:

> Something a little beyond his [the patient's] comprehension, beyond imitation in his own home, a rite or ceremony as impressive as the subcutaneous administration of Tuberculin tied many a patient to "the cure" who would otherwise, with only ordinary modes of treatment in sight, have lost faith and gone home. Instruction of patients is good, but something <u>impressive</u> should remain, and Tuberculin had a secondary usefulness in that it was impressive.[42]

So also, surely, was artificial pneumothorax.

Collapse therapy was also intended to benefit the public health in general, by rendering patients' sputum free of bacteria and hence making them non-infective. Still, by the

1920s public health workers throughout North America were well aware that infection per se was not the driving force behind the tuberculosis problem. Wrote U.S. tuberculosis specialist Allen Krause in 1921,

> Infection, of itself, is relatively unimportant... The problem of preventing the outbreak of frank disease in the legions of the infected is the crux of the programme of prevention...
>
> It is when we come to follow this phase of tuberculosis that we gain some realization of the true place of tuberculosis in our daily affairs and the delicate interrelationships between it and society. More or less poverty in a community will mean more or less tuberculosis: so will more or less crowding and improper housing, more or less hygienic occupations and industry, more or less occurrence of other diseases... Under the circumstances, our duty...is plain and permits of no equivocation. It is to contribute to the attainment of civic decency and cleanliness; of light, space and food enough for all...[43]

And Dr. Miller quite agreed:

> The development of tuberculous disease in the adult and older child is a question of general health and vitality. Everything that bears upon the latter bears upon the former. If we are going to strengthen the chain of our endeavor to overcome tuberculosis and supply the missing links, one of the first moves must be to turn some of our attention away from the "germs" we have been chasing or avoiding and turn it toward the promotion of individual and public health.[44]

However, despite such rhetorical recognition of the social element in tuberculosis and the necessity for broader-based preventive work, the efforts of physicians and governments largely remained focussed on the sanatorium "cure".

The Patient Experience

Besides changing patient-selection policies, adding to

expenses and increasing staff involvement in research, the war brought about a transformation in sanatorium life. By 1918, the institution had become a virtual military hospital. Despite the tremendous expansion which had taken place, fewer beds were available to civilians in 1918 than in 1914. This was offset only slightly in 1921 by the addition of 48 tuberculosis beds in Halifax's newly-opened Morris St. Hospital, so named to avoid use of the dread word "tuberculosis", though its more commonly-used name was the Halifax Tuberculosis Hospital.[45] In essence, this was a replacement for the Halifax Anti-Tuberculosis League's Hazelwood Hospital, taken over by the city in 1919.[46]

The character of sanatorium life depended on whether one was a bedridden infirmary patient or well enough to be housed in one of the pavilions. Pavilion life ostensibly proceeded with military discipline and clockwork precision according to the following schedule:

7:00 am: First bell. Patients rise, bathe, dress; temperatures taken.
8:00 am: Breakfast.
8:30 - 9:00 am: Sputum boxes changed, beds made, rooms cleaned.
10:30 am - 12:15 pm: Exercise as prescribed.
12:15 - 12:45 pm: Rest in chairs, reading permitted. First bell: prepare for dinner.
1:00 pm: Second bell: Dinner.
2:00 - 2:30 pm: Rest in chairs; no talking allowed. Lunch hour temperatures taken.
3:30 - 5:15 pm: Exercise as prescribed.
5:15 - 5:45 pm: Rest in chairs. First bell: prepare for supper.
6:00 pm: Second bell: Supper.
7:00 - 8:00 pm: Rest in chairs; temperatures taken.
8:00 - 9:00 pm: Recreation, music, etc.

9:00 pm: Bed.
9:30 pm: Lights out; talking not allowed for any purpose.[47]

Besides the daily bell-ringing regimen, there was a host of supplementary rules to govern patient behavior. Patients were "forbidden" to talk of their disease, their symptoms or any related topics during meals, and this sort of talk was "discouraged" at all times. Meals must take at least twenty minutes. Visitors must be received in the reception room. There was to be no beer, no gambling, no swearing, no loud laughing or other boisterous conduct. Patients could not visit the town without permission, and permission would not be forthcoming for excursions after 7:00 p.m. No two patients of opposite sexes were to meet on or off the grounds without the presence of a third party, and there would be no visitation between men's and women's pavilions.[48]

Naturally, things were not really so well-ordered. The sanatorium, hitherto a quiet, secluded retreat, had suddenly grown into a bustling small town, populated for the most part by spirited, if ailing, young men with time and money to spare, whose immediate past histories and uncertain futures perhaps contributed to a resolution to live for the moment. To some extent, the new facilities catered to the perceived need for wholesome amusement. There was now a recreation building for the evening "recreation period", which provided a succession of "picture shows", concerts, and other entertainments. It also hosted Protestant religious services

every Sunday; Roman Catholic veterans were less well provided for by Masses celebrated only on the first and second Mondays of each month. A vocational training program was also available for those whose health could be expected to limit future job prospects. Eventually to become one of the paramount areas of concern for sanatorium administrators, the vocational programme was perceived at this period as something of a luxury, ultimately expendable. At its peak, the programme employed ten instructors in such areas as general education, commercial training, motor mechanics, woodworking, and other crafts. All but training in carpentry and in the duties of "ward aide" had been dropped by the time of the 1922 annual report, due to "great expense and small attendance".[49]

The presence of "our boys" had helped to improve the public image of the sanatorium, attracting the attention of patriotic and benevolent organizations who contributed still more diversions. Red Cross volunteers, the Knights of Columbus, the International Order of Daughters of the Empire, and the YMCA paid frequent visits and sponsored regular "socials". Groups or individuals donated books, cigarettes, a greenhouse, a car, a library, musical instruments including a piano, and many other gifts. A patients' orchestra was formed, and military patients in 1919 brought out a sanatorium newspaper, The X-Ray, renamed Health Rays in 1928. The paper featured health articles contributed by sanatorium staff or reproduced from similar magazines across the continent, along

with local news, humour and gossip under such names as "Squirrel Food" and "San Skandal".[50] Patients also engaged in productive work. The "garden", wrote Dr. Miller in 1920, had grown "amazingly", producing tens of dozens of bushels of turnips, thousands of pounds of squash, and tons of hay. It was hoped, indeed, that expanded farming would make the sanatorium self-sufficient in milk, eggs and vegetables.[51]

But there were times when wholesome amusements failed to amuse sufficiently, and incidents occurred which would have been unthinkable at the prewar sanatorium. On one memorable evening in 1917, for example, Dr. Miller was thrown from a window by a group of drunken young veterans. The ex-soldiers also delighted in saluting the doctor as he drove his temperamental Maxwell up a particular hill on the grounds, knowing that, as a captain, he would have to salute back and chances were excellent that the car would stall, necessitating another "run" at the hill.[52] Miller is said to have enjoyed the veterans, and to have taken such antics with good grace. Still, one can sense the earlier tension and almost feel his relief when he reported in 1920:

> It is a pleasure to be able to report that the general discipline at this institution has greatly improved... This is probably due both to the fact that the spirit of unrest left over from war time is being overcome and the men are settling down to take their civil life problems seriously, and also to the growing conviction among our patients that they are being met with just and fair treatment... [They now] appear to be contented and desirous of doing their best for themselves and for their fellow patients...[and of entering] into co-operation with the management.[53]

Improved discipline was surely due as much to the decreasing proportion of ex-military patients by 1920 as to their sudden contrition. In the same year The X-Ray, citing the shrinking number of veterans, accepted its first civilian associate editor. Veterans themselves contributed to a growing demand that more civilians be admitted to sanatoria, reflecting a pervasive postwar call for government involvement in social progress, along with the perception, on the part of both patients and the public, that sanatoria saved lives. As had been foreseen by the sanatorium founders in 1904, grateful ex-patients were acting as "ambassadors" for the institution. Further, thanks to the war, they now existed in vastly increased numbers, and were in a position to be listened to. Wrote one ex-military patient in a local newspaper,

> In the year ending November 1918, there were in round numbers 800 deaths in Nova Scotia from tuberculosis and the main effort to combat this death rate in the civilian population was 40 beds in the Nova Scotia sanatorium. [There were, in contrast, more than 300 beds allotted to ex-soldiers] ...We say, treat the people or, lacking the courage to do this, ask that the BNA Act be amended and request and permit the federal government to take over the fight against tuberculosis. ...We ourselves are being cured and saved from tuberculosis because of war services, but we have fathers, mothers, sisters, brothers, sons and daughters. What shall be their fate? ...If there was one particular thing we fought for, it was to make the world better to live in...We demand that action be taken.[54]

The numbers of ex-soldiers dwindled gradually over the 1920s; but for several reasons the beds they vacated were often not immediately put to use for civilians and for the

first time most of Canada's newly-expanded sanatoria experienced a bed surplus. Economics was certainly an important consideration. Although there was no shortage of individuals with tuberculosis, civilian patients were expected to pay their own way and had no opportunity of earning an income while they did so. Secondly, the beds being vacated by soldiers were, for the most part, pavilion beds suitable for ambulatory or convalescent patients. But sanatoria, with their newer therapies, were now holding out hope for more advanced cases; and this meant that the existing sanatorium plan, recent as it was, had already become obsolete. As Dr. Miller wrote in 1924,

> Our infirmary is constantly filled, and more infirmary beds in demand, although the decrease in the number of military patients has left an entire pavilion empty. It is a fact well established that an institution accommodating 280 tuberculous patients, in which only 87 infirmary beds are available, is not properly balanced. The proportion of infirmary or hospital beds to pavilion beds should be at least 50 per cent, preferably higher. ...We have come to advocate the admission here of all except those in practically hopeless condition. If we intend to do this, we should have 75 per cent of our accommodation infirmary beds.[55]

The sanatorium, in other words, should become more and more a regular hospital. Why, then, should not the regular community hospitals, more numerous and more favorably situated to minimize the adverse effects of patient isolation, take on that part of the job, allowing patients to return home between refills or examinations, and leaving the sanatorium to continue its lengthy fresh-air rest cure for those few who

could afford and benefit from it? No reasoned justification was forthcoming, but the influence of inertia seems evident. For reasons already considered, the sanatorium had won acceptance as the institutional heart of the anti-tuberculosis struggle, and the tenets on which it had been founded -- the need for institutional discipline and a changed way of life -- seemed to have been regarded as a given. As a chronic, difficult and frustrating disease to treat, tuberculosis remained outside the mainstream of medicine, and physicians in general seemed well-content to leave it to those who claimed special expertise. Besides, thanks to the federal government, the expanded and refurbished sanatorium was now worth over a quarter of a million dollars,[56] and had beds to spare; after years of campaigning for more and more tuberculosis beds, it would have been unthinkable to let them go to waste. As things stood, the sanatorium was safe. However, the relative lack of infirmary facilities constituted a bottleneck, and pavilion beds remained empty until the infirmary could "graduate" sufficient patients to fill them again.

In 1923, the first year in which civilian patients again formed a majority, eighteen-year old Anna Tufts Ross [1905-1950] entered the sanatorium. Anna ["Nan"], the eldest daughter of Herman Bartsch Ross, a Pictou jeweller, and his wife Bessie Forest Graham, loved to write. From January to December, 1924, she kept a journal containing stories, poems, descriptions and musings on the people and the "world" of the

sanatorium. It is a vividly-written and fascinating account.

In the year covered by Anna's reflections, 401 civilians and 231 ex-service people were treated, The X-Ray was celebrating its attainment of a circulation of 1,000, and Dr. Miller published his first studies of the high relapse rate among ex-service patients. Artificial pneumothorax was the treatment of choice for moderate to far-advanced pulmonary tuberculosis patients whose condition did not preclude it; other forms of tuberculosis, including bone-joint and intestinal, were being treated with heliotherapy, ultra-violet rays. Newly-entered patients spent a mandatory period of time in the infirmary for diagnosis, observation and, if artificial pneumothorax or some other procedure was contemplated, for the procedure itself. They returned there in case of emergency or worsening illness. Once patients were assigned to the open-air pavilions, however, their treatment was hardly distinguishable from that of 1904. All non-infirmary patients "cured" for many hours daily in the fresh air, eating and resting according to direction. Nurses ensured observance of the rules (hygienic and social), enforced rest and dining schedules, and weighed patients once a week. Aside from "pneumo" refills and examinations associated with them, pavilion patients like Anna had little contact with staff doctors. Anna's journal, her companion during many long hours of enforced rest and quiet, touches on these aspects of the "cure". But, above all, it forces one to

the realization that the sanatorium was indeed a self-contained society of its own; that within its walls and on its grounds the young people who always predominated in the sanatorium population grew up, learned about life, formed friendships, quarrelled, fell in love, married, and sometimes died; and that a recovery was not always a welcome thing nor a relapse unwelcome to patients who had come to accept this world as their home.

The unit of social life at the sanatorium was the "porch", or pavilion section. Pavilion III, Section IV was home to Anna and the other young members of her group, self-dubbed "The Dirty Eight": "Mike" Kaiser, Lee Herman, Mary Sheehan, and four others whose surnames are not mentioned: "Mary Mac", Gertie, Beryl and Peggy. For the "Dirty Eight", life was an endless round of "curing" together in numbered rest chairs; reading; visiting the library or acquaintances in the infirmary; attending occasional classes in shorthand, Christmas wreath-making and the like; receiving their own treatments at varying intervals; shopping or driving about on weekly "town days"; touring the grounds in the evenings or going to the Reception Room where patients gathered for bridge and whist parties, concerts, lectures, movies and general socializing; gossiping about other patients and chatting about the future; laughing, crying, promising undying friendship to each other, and generally looking for fun. In the interest of the last-named pursuit, it was naturally understood that

dietary, rest and bedtime rules were made to be broken:

> I nearly froze to death in my rest chair this morning. ...Last night we were all in bed on good time on account of planning on a lunch of tea and toast after the nurse passed thru. The nurse did not come until after ten o'clock so we were late getting up and eating. The toast was lovely when we did eat it though.[57]
>
> The girls from next porch came in the Reception Room afterwards and we had a hilarious time. ...[We] all carried on during the short rest hour. At about twenty or twenty-five to six Mac came running in and told us that Dr. Miller was coming. Well, it was funny to see the bunch of us all scurrying to chairs and beds. Mac, of course was only fooling us thus making our hearts beat faster for nothing.[58]
>
> A new patient, in love, will keep their letters of sentiment in the top drawer; but, at the "San" home made lovers are soon forgotten and the rule books and "War on T.B." which they prayed by every rest hour, are soon deposited in the top drawer with the old letters, while the patient takes the cure from 7:30 - 9:30 in "Yo-Ho" [part of the sanatorium grounds, often-mentioned: apparently a secluded place, where patients could enjoy themselves away from watchful eyes].[59]
>
> Perhaps we had a nerve after the girls in next porch having been reported...but we went about and did it... Secluded in the little office, just off the Section III corridor, we had one splendid party and feast after ten o'clock on the night, April eighth, nineteen hundred twenty-four A.D. ... Ethel [Hyson] was going away, so in loving memory of a few preceding midnight festivities a light diet of lobster, buns, ginger snaps, cake, tea and fun was held... We got into bed on good time and after the nurse passed thru took good care we got out on good time. ...Stealthily creeping down the corridor, in the dark, bumping into one another, armed each with a cup, glass, or mug, some with the useful sputum cups... Two blankets covered the windows in the two little offices...We thought the light a little too bright in the room we sat, so, our guest of honor [had] the idea of wrapping her towel around the light. Ethel did not prove as brilliant as we thought because her brilliance nearly was the means of one of us ringing the fire alarm and another one

> of us ringing the hemhorrage [sic] bell; because had there been a fire some one would be certain to hemhorrage... [We soon discovered] that the towel, or what was left of it, had been blackened and burnt in many places from the heat of the electric light. ...The office had become filled with the sweet aroma of cigarette smoke. This odor of smoke, I think, helped toward the intestinal disturbance afterwards. The party broke up around twelve thirty... the last four of us, Mike, Peggy, Beryl and myself, had a never to be forgotten party in the bathroom after the others were on the road to sleep. I went into the bathroom to find Peggy had the "whoops" or in other words a "good bye to the lobster". She had been caught suddenly after she went to bed and started to cough. ...Mike arrived in time to catch a 'whiff' of the pleasant aroma and as the remembrance of lingering cigarette smoke fondled her nostrils, she didn't take long to join the same brotherhood as Peggy. Beryl arrived on the scene; and as there wasn't a place of exit to sewerage beyond, left for her to release the inner organs in, she made necessary the ever ready sputum cup. Peggy...stood with nothing on but a little shirt, hollering for a clean nightdress. I procured one; but every time I thought I had an opportunity to pass it to her, she would have to fly to the place of exit again, Mike following, and Beryl running down the corridor snapping the cover of her sputum cup...[60]

Anna and at least one of her friends (Mike) was receiving artificial pneumothorax treatment, indicating that they were suffering from at least moderately advanced disease. Depending on the success of the procedure, which varied, Anna's refills were usually done at intervals of one to three weeks.

> This is the first anniversary of my gas tank. I can't really believe that it is a whole year since I started gas. Time passes so quickly.[61]

> Had gas this morning or pretty nearly had it. I tell you it was something. It took Dr. Corbett nearly twenty minutes to only get about 75 c.c.'s in. He doesn't know yet what is the matter. He phleuroscoped [sic] me afterwards and still doesn't

> know what is the matter. I have to have it again next week.[62]
>
> I had gas and got along alright. Dr. Bayne said the trouble last week was the apparatus.[63]
>
> Heaven only knows where my gas disappears to but some how or other it evaporates to places unknown, hence my embroidered lung expands [an apparent reference to healing tissue]. So it happened...when...I arrived back to Kentville for a refill and had to lengthen my stay in order to get the embroidery work back to where it belongs.[64]
>
> This morning had gas. Hurt like the devil. Pushed plural [pleura?] in. Good collapse.[65]
>
> Dr. Corbett tried about three or four times to give me gas but couldn't get in. Has to try Monday.[66]

Though these patients were young and, according to the journal, usually cheerful, bad news was always a part of the sanatorium experience:

> Such a newsy day. Since we got into our rest chairs this morning, we heard nothing but deaths all day and hemhorrages [sic] too. We heard that Miss Martin, the nurse that was here is dead and buried. Also Mrs. McNamara, we heard, died Saturday. When Mrs. Moxon came into our porch before the before dinner rest she told us Effie Gallant had a hemhorrhage over in the canteen. We saw them taking her to the infirmary afterwards. We stayed in our chairs nearly all morning. Had an exam by Dr. Corbett in the afternoon. Played bridge in evening. Mike and I against Beryl and Spencer.[67]
>
> Effie Gallant died Thursday night.[68]

In April, Anna was feeling well and wrote to her mother:

> ...I will stay just as long as you wish but this is April and the weather is fine and I've been taking gas a year so I think its [sic] the best time now to give up gas and take the plunge. The longer I take it, the more I will dislike to give it up. I would go home right away after my last refill and would like to come back for an exam in the fall or

> towards the later part of the summer. I had an exam yesterday and Dr. Bayne said it would take about three months for my lung to expand and he seemed to think that I wouldn't have to take as good care of myself as I thought when the lung was expanded. I just can't explain but I have a good idea what I would have to do... Now I want you to <u>understand</u> this that taking gas a year it is not putting me in a condition that I won't have to gaze upon a rest chair again. If I get clear from a rest chair, altogether, as long as I live, which won't be long, I will do well.[69]

Anna ended her second stay in the sanatorium on May 22, 1924, returning to the family house in Pictou where her great-uncle James had constructed a fresh-air sleeping porch in anticipation of her homecoming. Her writing now became sporadic. She did not stop "taking gas", however, and found that the poetic urge often struck on her periodic refill trips back to the sanatorium, when she was overwhelmed with memories, and missing her closest friends, who were sent home over the summer, one by one. At home in July, seemingly torn between the two worlds she had known and feeling truly comfortable in neither, she tried to express her feelings:

<u>The Only Life</u>

> There have been times when I cursed the only life,
> The only life for one --
> Who has to sleep out in the cool night air,
> And spend his days in the sun;
>
> Oh! there were times when I grew tired of this life,
> When discontentment within me raged,
> I wanted a life, another life,
> With people who were not "caged".
>
> I longed for a life, a carefree life
> With ambitions materialized,
> The nearest thing to a perfect life
> There is no such thing, I now realize.

'Tis a change, I find, to live with those,
Whose lives I have wished were my own,
But their lives can't be mine, they never can be,
And it's harder to fight alone.

To live with those day by day,
With disappointments, even as I,
With all one aim -- "to try and get out",
And thinking we will -- bye and bye;

Alike in troubles, alike in joys,
Sharing a life, lazy and free,
Where there's many things in common,
And the most common is -- T.B.[70]

While the isolation from family and friends is an obvious feature of institutional life, it is seldom acknowledged or realized, until one reads notes like Anna's, how isolated the fresh-air regime could make one feel even when one was at home. "Curing" in all weathers in her special porch, perhaps sleeping there at night, Anna could take little real part in family activities; her isolation was both physical and psychological. It was also a life over which Anna herself had little control. On a routine visit to the sanatorium for a "refill" in August, she discovered that her life at home was once more at an end. Her writing, hitherto flowing, became almost telegraphic:

August 16. Couldn't get in. [A reference to an unsuccessful refill attempt.]

August 17. Was shocked to hear that I had to stay.[71]

By August 21, the shock had apparently worn off. She filled page after page that day with breathless accounts of new friends and new adventures, back at the sanatorium and around the town. But, as a sanatorium veteran, Anna longed

for all to be as it had been.

> When I read this little book over and think of all that happened a few months ago it seems like years. Those days last spring... Why did I not appreciate them so much. I feel different now than I did then. Little did I think when I was so anxious to leave that I would be here so soon again just wishing for the good old days... Things have changed. I have changed. Everything has changed. This time last year I was having one of best times of all my sojourn at the "San"... Perhaps next year I will even love these days. A joyous summer of three months, now back here for nearly a month now. Can I believe it? ...With all the new patients things aren't the same. I'm not the same. Last night I had a letter from Mike. Dear old Mike; what good times we had together. I hope she will be back...

Relapses, when they came, could be joyful occasions, reuniting the sufferer with long-lost pals:

> Was up to the Reception Room... The usual crowd were there. If I could just say the usual crowd and have it mean Beryl, Spencer, Mike [a long list of names follows]...
>
> ...Oh! Take me back to yesterday,
> When I could see him once a day...[72]

> Oh! Joy Mike is here. This morning could not keep still...[73]

> [Mike] went up to the matron's office and Miss Shields gave her the necessary supplies such as thermometer, gauze, etc. Of course there was the expected greeting awaiting her when she arrived at the pavilion; the kissing, hugging, laughing ordeal to go through. To show her that we love her still her new thermometer was broken, her hair pulled by roots and finally we left her quite unpresentable by trying on all her new clothes...[74]

Relapses, according to Anna's journal, seemed to follow an odd pattern that is not immediately evident from medical and statistical reports. It is interesting, however, as being typical of the pattern described in some "pre-scientific"

medical writings, from the time when climate and temperature were considered of prime importance in the development and treatment of tuberculosis.[75] Anna, and many of her friends, seemed to improve in late spring and be released over the summer, only to be back in the autumn. For most of them, apparently (and in Anna's case, certainly), money to pay for a summer stay was not the problem. During 1924, Beryl, Mike, Lee and Anna herself had all been discharged before mid-July; by the time Anna returned in August, all the "Eight" were gone and there was only one among her new friends who had previously been mentioned in the journal. But in the winter of 1924-5, all but three of the original "Eight" were back (Gertie, Mac, Lee, Mike and Anna) and once again rooming together, this time in Pavilion III, Section I. Once the reader is alerted to this seasonal pattern, hints of it begin to appear in the sanatorium's formal reports; waiting lists, for example, were frequently described as especially long in the winter. No "scientific" explanation was attempted, however.

If relapses could bring joy, so could health bring pain. As another poem of Anna's ["The Shattered Romance"] chronicles, Mike's promising love affair was 'nipped in the bud':

> ...The gallant that loved her had no T.B.
> And was discharged for home quick as could be;
> There are disappointments in every life
> And a man with good lungs lost a one lung wife.[76]

Overall, the picture Anna presented of the sanatorium in the 1920s is reminiscent of a rather strange boarding school, filled with active young people confined to "curing" in rest

chairs or "hanging around" the grounds, whose long days were enriched by friendships and flirtations but marred by monotony, by enforced idleness, by a sense of aimlessness, of deferred ambitions that might never be realized, of waiting for change that might never come. Continuing illness and relapses were expected. Even when at home, sanatorium life dominated the thoughts of patients who had to continue there the monotonous "rest and fresh air" regime; for only at the sanatorium could one live among people who truly understood just how it was to suspend one's life in search of the elusive "perfect cure". Thomas Mann, commenting on his own novel, The Magic Mountain, wrote of sanatorium life as "this charmed circle of isolation and invalidism":

> ...a sort of substitute existence...[which] can, in a relatively short time, wholly wean a young person from actual and active life. Everything there, including the conception of time, is thought of on a luxurious scale. The cure is always a matter of several months, often of several years. But after the first six months the young person has not a single idea left save flirtation and the thermometer under his tongue. After the second six months in many cases he has even lost the capacity for any other ideas. He will become completely incapable of life in the flatland.[77k]

Anna put it more mildly:

> Down o'er the hill, we'll go to part
> From friends so dear, and find at home
> Love that's strong and faithful still,
> Yet we'll be alone -- alone,

---

[k] The "classic" sanatoria with which Mann was familiar were located on mountaintops.

Down o'er the hill, yes, all alone,
Because alone we'll have to face,
Monotony that we've all shared
With comrades gained by God's good grace.[78]

Anna's sudden death at the age of forty-five in 1950 was apparently unrelated to her tuberculosis.

CHAPTER 3

THE NEW AGE OF VOLUNTARISM

Charged with the responsibility for public health administration for the whole province, Provincial Health Officer Hattie had begun to worry about the postwar period long before it arrived. Certainly, in his view, strides had been made with the expansion of the sanatorium and the 1913 plan for a more rational administrative setup; however, the one had been due to an infusion of federal dollars which was hardly likely to be continued, and the other had run into insurmountable obstacles due to wartime disorganization. Municipal commitments, once made wholeheartedly, had now seemingly degenerated into meaningless platitudes; the hiatus of the war, it appeared, coupled with the changed circumstances at the sanatorium, had all but destroyed the plan. Yet, it appeared to Hattie, the need was greater than ever. Since the lives lost in the war were those of the "best" genetic stock, he wrote, Nova Scotians could expect the next generation to be "less well-endowed by inheritance"--a situation which, it went without saying, would leave the population even more vulnerable to diseases like tuberculosis.[1] As if to vindicate his views, tuberculosis death rates did indeed rise during and after the war in Nova Scotia and in all western countries, especially in Europe.[2] Reflecting the return of the sick soldiers and perhaps wartime

hardship among civilians as well, Nova Scotia's pulmonary tuberculosis death rates for 1916 showed "a sharp recrudescence";[3] they rose again in 1917.[a] Physicians and medical health officers were still recalcitrant about disease reporting; local boards of health were still isolated, disorganized and only "awakened", according to Hattie, when some dangerous infectious disease appeared.[4] Infant mortality, though more fluctuating than tuberculosis death rates, was felt to be excessive and worsening; while 114.5 of every thousand live births died before one year of age just before the war, the 1918 rate was 117 per thousand -- a ratio of one in eight.[5]

Further, the disastrous Halifax Explosion and the great influenza epidemic which closely followed it were crushing blows to an already weakened system, though both would later appear to have been blessings in disguise. Hattie predicted, quite reasonably, that the explosion in particular had created new public health problems that would be felt for many years to come, since the crowding of the homeless into inadequate and unsanitary temporary shelters would surely lead to a rising tuberculosis rate.[6] With Halifax still reeling from the disaster, pestilence struck. There had been 94 Nova Scotian deaths from influenza in the year ending September 30, 1918; in the three months remaining to the end of the year,

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[a] See Tables A-1 and A-2, Graphs A-1 and A-2-a in the Appendix.

1,295 lives were lost. The peak had clearly passed by January, 1919, but hundreds more would die before it subsided completely. The death rate from influenza in 1918-19 reached 520/100,000 in Halifax County, 420 in Cape Breton and 410 in Shelburne; the pulmonary tuberculosis death rates for the same year in these places were 190, 150 and 180 respectively. Of the 1,769 Nova Scotians who died in the epidemic, 815 or nearly half were between the ages of 20 and 39 -- the very group which normally accounted for most tuberculosis mortality.[7] By killing so many young adults, and doubtless many other weakened individuals who would have otherwise succumbed to tuberculosis, the 'flu "cleaned the slate" to the extent that the immediate postwar rise in pulmonary tuberculosis mortality fairly abruptly reversed itself in 1919-1920. Naturally, this effect was not immediately apparent. Instead, it seemed clear that if the sanatorium and provincial public health programs -- and hence, it was implied, the well-being of the province's people -- were not actually to lose ground once the war was over, novel ways would have to be found to finance them.

In the following section, the newly-expanded sanatorium's efforts to justify continued provincial support are examined. The next section deals with the Massachusetts-Halifax Health Commission which, in the wake of disaster, helped set the pattern for future development of the anti-tuberculosis programme, while the concluding section investigates the

expansion of that pattern to include the province, under the auspices of the Nova Scotia Tuberculosis Commission.

What Is To Be Done?

While Hattie worried about keeping the tuberculosis-fighting system afloat, others seemed to feel the system itself was the problem. A letter published in the Halifax Herald in March of 1924, signed simply "M.D.", claimed that the provincial government, and Premier Armstrong in particular, was trying to take all the credit for anti-tuberculosis measures while in fact doing "little or nothing":

> He did not [announce] that he exacts $10 a week from each patient[b]...and protects himself by having each and every one furnish a cast iron guarantee that the money will be forthcoming...The tuberculous poor receive absolutely no help from Mr. Armstrong and his government...These are the very cases that a government institution should provide for. No man in ordinary circumstances can avail himself of the service offered by the government sanatorium...Last year the province of Quebec instituted a campaign against tuberculosis. The legislature voted an appropriation of $500,000 to be used exclusively for the above purpose during a period of 5 years -- $100,000 being consecrated each year. The population of Quebec is 2,341,199. We in Nova Scotia have a population of 523,837, yet the cost of upkeep and maintenance of the Kentville Sanatorium last year was $263,582.46, of which $88,439.85 was for salaries.
>
> I venture to assert that the needy tuberculosis cases are far better looked after in Quebec than in Nova Scotia. The cost per patient per day at Kentville is higher than in any sanatorium in Canada. An enormous sum of money is

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[b] This was the infirmary rate, generally applicable to all entering patients until they were judged fit to enter the pavilions; the letter acknowledges this, but argues that most patients fit this category.

> spent in maintaining this institution, and Dr. Miller says: This will only be a partial remedy and will care for comparatively few.[8]

Temperatures rose even higher following an August Herald article in similarly critical vein, this time leaving no doubt about identities. The occasion was a speech to the Union of Nova Scotia Municipalities by none other than Dr. W.D. Forrest, the Medical Health Officer for Halifax County, in which, according to the paper, he "roundly condemned" the government and the sanatorium, declared (wrongly) that sanatorium treatment was being "abandoned" in favor of tuberculosis colonies in England, Germany and the U.S., and giving it as his opinion that "there was no place worse for tubercular patients than a sanatorium."[9]

The trouble with sanatoria from the patient's point of view, Forrest felt, was that they were no substitute for general hospital care for the infective, advanced cases which comprised the majority of their inmates. Families resisted sending loved ones "to die among strangers -- far away from home"; only by substituting general-hospital care could patients be treated close to family and friends. While the ostensible problem with this was usually understood as fear of spreading tuberculosis infection within general hospitals, Forrest quoted Dr. Miller himself as assuring the public there was no more danger from an educated and careful consumptive than from "a man with a wooden leg."

But Forrest treated this as a secondary point. His major

argument against sanatoria was the evident expectation that the municipalities should pick up the tab for expensive sanatorium care of their indigent cases -- care which, according to Forrest, was lavishing needless and even harmful luxury upon "this inefficient class". While the whole idea of public health and welfare might be "a new and remunerative field" for physicians and nurses, in too many instances it was "short-sighted philanthropy," a "free road to health" which "penalizes the thrifty and the self-respecting elements to coddle the charity-seeking and the improvident." Times were difficult, Forrest pointed out; and taxpayers, already saddled with responsibility for the maintenance of convicts, reformatory inmates, and paupers, along with being billed for services to the insane at the Nova Scotia Hospital and the "indigent sick" at the Victoria General, could support no more municipal taxation.

Tuberculosis was "too big a problem for the municipality," and it was thus, thought Forrest, most unreasonable to expect that sanatorium bills should be submitted to municipalities in the same way as for Victoria General and Nova Scotia Hospital patients. For one thing, sanatorium care was far too expensive. For the advanced and destitute case, the municipality "would...be obliged to pay his transport to Kentville. It would pay $10 a week so long as he was a bed case. To this would have to be added $2 a month for gauze and laundry; $5 for each X-ray plate, and the

clothing, etc., which the patient is requested to bring with him could not be purchased for less than $60.00." Not only that, but according to sanatorium rules, "patients are requested to have a dentist examine their teeth and put them in good order before coming to the sanatorium." Nova Scotia was spending far more per capita on tuberculosis than Quebec, and for less result, felt Forrest, because of its insistence on the present inefficient and extravagant system of sanatorium care.

Besides, concluded Forrest, the system just didn't work, regardless of how much money was thrown at the problem. He quoted "a well-known medical authority" at the beginning of the tuberculosis campaign:

> [He said] if anyone would give him 3 millions of dollars he would wipe out tuberculosis in one generation. Billions have been spent on this work and it does not look as though the end were in sight yet. The method of attack will have to be changed if tuberculosis is ever going to be stamped out.[10]

In short, both Forrest and the anonymous writer of the March letter agreed that, since the province paid 2/3 of the real cost of sanatorium care, the institution was already an unconscionable burden on the government. It was extravagant and unnecessary. And herein would seem to lie the common factor in these arguments: a distrust of the enlarged role of the state, which was spending or promising to spend more than ever before on health matters. Many physicians had similarly entered the debate on the scope and cost of postwar health

services. The federal government had not only subsidized additions to hospitals and sanatoria which now became the property and responsibility of provincial governments, but had also made its entry into health affairs permanent with the formation of the Dominion Department of Health in 1919. This had been parallelled the same year by the organization of the Dominion Council of Health, composed of federal and provincial public health officials whose ever-growing plans, surveys, clinics and staffs of peculiarly independent nurses seemed to be taking on a life of their own, outside of professional control. Other governments, it appeared, were getting just as meddlesome. The CTA Bulletin published a "remarkably frank" British physician's opinion in 1926, attacking sanatoria and settlements equally because

> throughout all the reports that we have examined there runs the thread of State assistance and subsidy; and it is interesting to note that when governments embark on large schemes of social amelioration each successive plunge in welfare schemes brings with it fresh difficulties....The granting of [assistance] by the State naturally involves some voice in the management of the venture; and the position is reached in which some begin to advocate absorption by the State...[11]

While Forrest's critique was a similar rejection of "government interference" in matters best left private, his phrasing was not quite so restrained. Sanatorium accommodation for the poor at municipal expense, he wrote, would merely be the latest addition to the welter of do-gooder programs such as "child welfare, maternal welfare, family welfare, baby welfare, in fact, more or less free fare" which

coddled the shiftless at the expense of their neighbors. The sanatorium should either be replaced with cheaper "colonies", or patients should simply be accommodated at existing general hospitals.

Dr. Miller could not afford to ignore this front-page attack on his institution; nor did he. It took him two weeks to reply in print, since he first had to gather statistics from the U.S. National Tuberculosis Association disproving Forrest's claim that sanatorium treatment was being "abandoned" there. It was, in fact, expanding every year. Further, according to his contacts, there were "no successful colonies" to date.[12] Besides, colonies could only be useful for those patients whose disease had already been successfully arrested.

It was, wrote Miller, "unfortunate that a member of the medical profession should 'darken counsel' and supply ammunition to the enemies of progressive health measures".[13] The problem was that the sanatorium, which he had indeed always insisted was properly only "one link in the chain", was being expected by a naive public to do the whole job itself. He claimed to have investigated the colony idea as early as 1919 by consulting Dr. William C. White, Director of the American Red Cross, who had replied that "...my chief objection to the colony scheme is that infection with the tubercle bacillus is not a sound basis for segregation of the human family, and goes contrary to higher laws governing our

social fabric." Besides, added Miller, colonies would be far more expensive than Forrest anticipated. A board of five sanatorium consultants (which included Miller), appointed in 1920 by the federal government to make recommendations on treatment programs for ex-service personnel, had studied as part of their mandate a proposed British 10-colony scheme for ex-servicemen and their families, and found that it had been abandoned after the projected costs had far overrun the original estimate of five million dollars. Nevertheless, Britain did have several other colonies, apparently operating successfully enough; these were connected with sanatoria and cared for arrested ex-patients. On the strength of this, the board had recommended to the Canadian government the "cautious development" of a small industrial colony near a sanatorium in Hamilton or Ste. Agathe, but the plan had been dropped when neither government nor private philanthropists proved willing to underwrite the "great cost" of establishment. Meanwhile, all modern agencies active in the tuberculosis field -- the Rockefeller Foundation, the Milbank Fund, the Metropolitan Life Insurance Company, the Red Cross, and the American and Canadian governments -- were united in supporting sanatorium expansion rather than colony establishment.

As for the Nova Scotia Sanatorium itself, it had been rated by the same board as "one of the best-organized and most efficient in Canada". It had no secrets; its accounts were public, and Miller personally would "welcome an

investigation", though, he implied, Dr. Forrest's competence to launch one was perhaps questionable, considering that he had "never" been seen at the sanatorium at all. Further, its costs, $2.95 daily per patient in 1923, were not out of line with those at other Canadian sanatoria, which averaged $3.00 per patient per day the same year. True, costs at hospitals like the Victoria General were lower. But they benefitted from the unpaid work of student nurses; they did not have to pay their staff premium wages for working with an infectious disease; they did not have to tempt their patients' appetites with a variety of nourishing and palatable dishes, nor pay the skyrocketing heating bills which resulted from constantly-open windows. True, advanced patients needed bed treatment, hospital care; but what institution was in a better position to provide this than the newly-expanded sanitorium, even now furnishing additional infirmary beds with recently-allocated provincial money? True, proper sanatorium care cost money; but would Dr. Forrest prefer to unleash infective patients, "untrained and unsupervised", to "roam the streets, or infect all their families in their homes?" (In fact, Forrest had not proposed that at all.) Would the provision of an adequate visiting-nurse service to oversee home care not be every bit as expensive as paying a portion of the cost of sanatorium treatment?

Moreover, if the sanatorium were to be criticized for its lack of long-term results, would it not make economic sense to

optimize those results by providing proper after-care programs and suitable employment opportunities for ex-patients? Miller quoted Dr. Allan Krause of Baltimore, the editor of The American Review of Tuberculosis, in support of his argument that after-care was the most important step which could be taken to consolidate the good work of sanatoria and prevent relapses. Krause put it best in the original:

> It is...within everybody's province to toss off a sweeping condemnation of sanatoria as places for the relief of tuberculosis...I find myself reading more and more about their uselessness. Now, anyone with a taste for numerical literature and hardened in the reading of sanatorium reports, will soon appreciate two outstanding facts about sanatorium patients. The first is that they do extraordinarily well while in sanatoria. The second is that, after about twenty years after they have left the institutions, most of them have died of tuberculosis.
>
> To me this combination of circumstances proves only two things, namely, that sanatoria are excellent places for consumptives and that the world outside of them is the very reverse....[If] we had more sanatoria, enough to keep patients for a much longer period than the customary six months of residence, many more would survive the shocks of everyday life to which they return...Better care and supervision of old patients is a situation which must be met and will be met.[14]

Thus, concluded Miller, the sanatorium must remain central. Any proposed "colony" should take the form of a farm or workshop, in intimate connection with it. But, more importantly, the medical community must stop its internecine bickering once and for all, and decide together on a practical, comprehensive campaign against tuberculosis.

How can we analyze these arguments? Forrest's worries

about increased government involvement have already been considered. In terms of the sanatorium itself, his criticism is representative of an interesting shift in opinion. Before the war, the sanatorium's attackers were most likely to be those arguing for far-reaching, and usually far more expensive ways of attacking the whole problem of poverty. As long as its small size and long waiting list allowed it to offer hope only to a few in the early stages of disease, cries for municipalities to pay for sanatorium care did not occasion any real panic. Now, with its new buildings, expensive equipment, expanded staff, and hospital-style therapies it had become a taxpayer's nightmare. It welcomed advanced cases; it offered specialized therapy which could not be duplicated in a backyard; and it could accommodate hundreds of patients at a time. For the first time, the possibility of Nova Scotia's legions of paupers demanding the care afforded to others -- or other "do-gooders" demanding it on their behalf -- had become frighteningly real. It was a threat that people like Forrest took seriously. While many grateful ex-soldiers and most tuberculosis activists accepted the sanatorium concept without question and urged the necessity of ongoing federal support, it was the institution itself, grown fat on taxpayers' dollars, which drew the main thrust of conservative attack.

Yet Forrest's argument did have some legitimate points to make, albeit almost as afterthoughts. Sanatoria, by their nature, did isolate sufferers from their relatives and

friends, not to speak of a livelihood. This was especially so in Nova Scotia, where there was but a single large institution in semi-rural surroundings -- ignoring for the moment the small Morris Street facility in Halifax. Colonies could at least allow convalescents to work productively while living with their families and receiving ongoing care; a great many jobs would actually be created. Miller's argument about colonies' high costs focussed on initial outlay and said little or nothing about ongoing operating expenses, the Achilles' heel of the sanatorium, or about the possibility of eventual economic self-sufficiency.

Neither did Miller succeed in refuting Forrest's point about treatment of advanced cases in general hospitals, closer to their homes. His only argument was that, as matters stood, the sanatorium was well-equipped to provide such care, and would become even more capable of this as time went on. Yet why, Forrest might have retorted, should taxpayers' dollars continue to fly quite literally out of sanatorium windows in order that it could more successfully emulate facilities which already existed, or which could be acquired just as easily by local hospitals as by a large, central sanatorium? There seem only two possible answers to this, neither of which Miller raised. First, the expanded sanatorium was a <u>fait accompli</u>, armed with a respectable reputation, hundreds of grateful ex-patients, and a tireless, vocal, influential and very expert superintendent. Surely it should not simply be cannibalized

to supply smaller hospitals -- not just as it was beginning to save lives hitherto thought lost. Secondly, the sanatorium was, as it had always been, prepared to offer what no other institution could: the classic, lengthy "fresh-air cure" alone or in conjunction with other treatment.

Yet Miller quite agreed that, without some comprehensive support network, sanatoria could hardly be expected to solve the problem on their own:

> When we consider that sanatoria are only one means employed to combat tuberculosis, and that only a very small percentage of consumptives ever receive sanatorium treatment, it can readily be seen that, standing by themselves, they cannot greatly reduce the spread of the disease.[15]

What Dr. Miller thought would be ideal would be a system modelled after the famous "demonstration" at Framingham, Massachusetts. That project, initiated in 1916 by the Metropolitan Life Insurance Company of New York with co-operation from the National Tuberculosis Association, the United States Public Health Service, the state department of health and a variety of voluntary groups, helped make health truly popular as a philanthropic "cause" and served as a model for much postwar activity. From 1916 to 1924, the demonstration in this "typical" industrial town of 17,000, 21 miles from Boston, tested the effect of universal periodic medical examinations, intensive case-finding efforts, and treatment of all tuberculosis cases with dispensary facilities and sanatorium and hospital beds provided as required. It embodied a network of public clinics, full-time medical

examiners and health officers, and county or district public-health nurses; and it expressly provided for the free care of the tuberculous poor. While tuberculosis was not the only focal point of the demonstration, it was necessarily one of the main targets. During the last year of the demonstration, a 68% reduction in tuberculosis mortality had occurred compared with the average for the ten years preceding 1916. It was also found that some 50% of advanced cases had previously gone unrecognized.[16]

Such tightly-co-ordinated "demonstrations" by private organizations in the health field were a characteristic feature of the postwar decade: a deliberate attempt to prove that wonders might be accomplished in the modern age with optimum cost efficiency and modern medical know-how. Subsequent demonstrations such as the one at Bellevue-Yorkville, New York, begun in 1925, and the Cattaraugus County study in rural New York, begun in 1923, picked up on these ideas, and instituted new ones including school inspection programs, district health stations, open air camps, and sanatorium enlargement to provide "the recognized standard of one bed for each annual death from tuberculosis"[17]. In Canada, the Three Rivers Demonstration in Quebec was begun along similar lines in 1923, a co-operative effort initiated by the Canadian Red Cross and the Canadian Tuberculosis Association with aid from the Sun Life Assurance Company, the federal government and the Quebec Board of Health.

Demonstration results were generally reported in a standard format: in terms of numbers of new cases found and treated, or in terms of declining mortality rates which, it had to be admitted, were on the decline anyway, especially following the war and the great influenza epidemic. All these projects were the result of private initiative; all were careful not to usurp the role of private physicians, preferring to enlist them in the cause by massive publicity and provision of free diagnostic consultations and treatment services; all relied mostly on private funds, but operated in as close co-operation as possible with official agencies. Further, all recommended a major role for sanatoria. Dr. Miller wrote admiringly of Framingham in 1921, of

> the hearty cooperation of...governmental agencies, town government, private civic organizations, charities, churches, clubs, schools, physicians, industrial employers and individual citizens....The doctors and public health workers cannot do it alone. They must teach and lead and be prepared to aid in organization, but, when the chain is complete and all its links strengthened, there will have to be a strong pull and a long pull and a pull all together.[18]

Miller was soon to get his chance to help with a similar venture locally. By the time he wrote the above, Nova Scotia's emerging "chain" was already growing tighter and stronger. Its first link had been forged by the Halifax explosion in the terrible winter of 1917.

Disaster and Opportunity

When the munitions ship Mont Blanc collided with the Belgian relief ship Imo in Halifax harbour on December 6, 1917, some 1,600 people were killed outright and many more, left without shelter or adequate clothing, subsequently died of trauma or exposure after a severe snowstorm the next day. The north end of Halifax had been reduced to smouldering rubble; buildings in many other areas of Halifax and Dartmouth sustained severe damage; and a great many houses, otherwise spared, were left windowless in a stormy December. Rescue workers, including soldiers and volunteers from both cities, found many streets all but impassable for days due to broken glass, fallen trees and debris.[19] Ironically, this cloud had a silver lining: the calamity triggered what was to become one of the financial mainstays of Nova Scotia's health care system.

The war had already caused a severe shortage of medical personnel and hospital space and, after the disaster, it was impossible to provide immediate attention to all who were injured or sick. The Halifax Visiting Dispensary, the usual source of help for poor residents of the north end, had itself sustained severe damage, yet continued to treat patients and provide shelter for the homeless; other Halifax hospitals, including the Nova Scotia Hospital for mental diseases, discharged as many patients as possible, yet were quickly

filled to overflowing and dealt as best they could with the dying, the injured, and the uninjured searching frantically for missing family and friends.

Among the many sources from which relief poured in after the explosion was the state of Massachusetts, itself the home of many emigre Nova Scotians. A Massachusetts-Halifax relief committee was established to administer the fund and to co-ordinate the activities of American relief personnel who arrived to work in post-explosion Halifax; one of the committee's most significant areas of activity was the provision of furniture for new housing erected by the Halifax Relief Commission, which had been established at the initiative of the Dominion government. The Halifax Relief Commission was also responsible for the opening of the Parker Hospital in Dartmouth to house tuberculosis patients following the explosion, including those who had been inmates of the now-defunct Hazelwood Hospital; these patients would later be moved to the Morris Street Hospital upon its opening in 1921.[20]

So well-funded was the Massachusetts-Halifax committee, as it happened, that there was considerable money left over after the necessary emergency work had been accomplished; and the city's health situation, which appeared to be going from bad to worse, was an obvious target for action. F.L. Fowke of the Halifax Relief Commission was quoted in 1919 as saying that he "had seen people living in places [in Halifax] where

he would not house a dog".[21] He tied this situation to "the trouble and unrest in the world today", and ascribed it to "lack of thrift and poverty", themselves traceable to the traffic in intoxicating liquors. The Massachusetts committee, whatever may have been its thoughts on root causes, went to work to design a health plan for the city in 1918, and, with $250,000 of its own and the aid of further grants from the Halifax Relief Commission and all three levels of government, formed the Massachusetts-Halifax Health Commission (MHHC) the following year. Its funds allowed it to continue operations until 1928, when it gave its remaining $13,600 to Dalhousie University for preventive health work.[22] Following the departure of the American relief workers, the Massachusetts-Halifax relief operations and, later, the MHHC, were administered by a committee of Halifax residents while the headquarters of the fund was maintained at Boston. Provincial Health Officer Dr. Hattie was a member of the executive committee which included other prominent physicians and lawyers, including Judge W.B. Wallace; Dr. B. Franklin Royer served as the chief Executive Officer.

The MHHC, which would help set the postwar pattern of health care, was founded at the beginning of a severe economic depression which was to last for an entire generation in the Maritimes, and which would leave a significant legacy for generations to follow. Prior to the war, Maritime industries had increasingly come under outside control, leaving them more

vulnerable to cutbacks and plant closures. By 1923, moreover, the dwindling Maritime share of Canadian population, reflected in its relative number of Commons seats, had left the region with insufficient political clout to prevent loss of the preferential east-to-west freight rate structure which had, under the National Policy, allowed it to compete with central Canadian businesses. In addition, the crucial steel industry was suffering from the effects of technological change, a slowdown in railway expansion and rising production costs; and the war-related disruption of international trade patterns brought increased competition for Maritime fish and lumber products. As hard times began in earnest, Nova Scotia began to sustain significant population losses as more and more people left the province in search of a better life elsewhere.[23c]

The disastrous economic situation could well have meant postponement, or, at best, stagnation, in plans for further development in the public health area. As Halifax MHO Dr. Forrest put it in 1924, "Scores of people have left Nova Scotia to go to the United States; we cannot further deplete our population by excessive taxation."[24] But, following the war, there was a boom in health-related spending by very large philanthropic and other private agencies such as the Rockefeller and Carnegie Foundations, the Red Cross Societies,

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[c] This situation is reflected in the population statistics given in Table C-7.

and international life insurance companies with a vested interest in curbing mortality among young people in particular. In financing an expanded health care system in the province and elsewhere, these agencies also helped set a firm pattern for the future.

The MHHC ideal of a centralized, efficient and rational system of health care was not significantly different from that which had inspired the provincial government with its 1913 plan for a clinic network; but the new agency was now in a most favorable financial position to take concerted action. From the outset, it eschewed the idea of establishing an independent service which would surely duplicate, if not interfere with, the efforts of others, and which could become a white elephant once MHHC funds ran out, as they someday must. Instead, it pledged to work in co-operation with existing health organizations, such as the voluntary anti-tuberculosis leagues, the medical school, and the Visiting Dispensary, and to forge workable, permanent links between them. In the process, various elements in the city's health network profoundly changed in character. From the point of view of Nova Scotia's patients and the public who would ultimately finance the system, the results of modernization were mixed.

The way had already been paved locally by the 1910 collapse of the Halifax Medical College in the wake of Abraham Flexner's report on North American medical education for the

Carnegie Foundation for the Advancement of Teaching The Flexner report was instrumental in establishing the expensive, urban university-school-hospital-research complex as the only "respectable" model for North American medicine to follow.[25] Though the school had already been reforming along its own lines to accommodate the great advances in medical understanding before and after the turn of the century, the modest goals of its practitioner-professors -- to educate competent general practitioners at a reasonable cost for service in a relatively sparsely-populated region -- were fundamentally at odds with the aims of the rising North American medical-academic elite. Like other small schools, which "collapsed right and left, usually without a murmur"[26] in the tide of alarmist publicity following the Flexner report, the HMC found its reformed operations belittled, ignored and even denounced as dangerous to the public in the name of the "right" kind of progress. No longer was it respectable to argue that research was a specialized function, best left to those organizations and individuals with the money and talent to do the job right, while others concentrated on teaching. Flexner and his supporters had succeeded in entrenching the doctrine that good research and good teaching were inseparable. The stage had now been set for the consolidation of the new model, for replacement of the old medical elite by a new breed of full-time academics, and for the establishment of expensive research programs as an

essential part of the system. The implications were profound. Career opportunities for research-oriented, full-time medical academics increased drastically. Hospitals, their care-giving function now inextricably joined to research and education-related imperatives, would henceforth be tied to medical schools and staffed primarily by students; soaring costs placed a medical education far beyond the reach of low-income students; and, while overall health-care costs rose drastically, rural areas would find basic services increasingly inaccessible as graduating doctors flocked to the cities.

The MHHC played an important enabling role in accelerating this modern drive for consolidation, helping smaller organizations adapt to the growing network, and branching out into new services. Dr. T.M. Sieniewicz, a Nova Scotian and the Commission's full-time Tuberculosis Examiner, also served as consultant to the City Tuberculosis Hospital and as a member of the Dalhousie medical faculty, bringing the hospital's patients into the modern era by using them as "clinical material" for the training of students. Together with his part-time assistant, Dr. Mildred Resnick, he instituted regular tuberculosis day-clinics at the MHHC's two health centres, the main one in Halifax, in the North End Admiralty Building on Gottingen Street, and a second in Dartmouth; provided referrals via these centres to the sanatorium, the Victoria General, and the City Tuberculosis

Hospital; opened three open-air schoolrooms, one each at St. Joseph's and Bloomfield Schools, with a third on Morris Street, possibly in connection with the Dalhousie Clinic or one of the hospitals; and contributed to public education by distributing copies of Dr. Miller's War on Tuberculosis among his clientele. Public-health nurses and visiting housekeepers, recruited and paid by the MHHC, were concerned "largely with tuberculosis work"; volunteers from the League supplied milk to the open-air classrooms, and to the nurses for distribution to tuberculosis patients; and "nutrition classes" were held at both health centres for undernourished children. The MHHC also paid the salary of an assistant at the provincial laboratory, who conducted all MHHC health-centre related work as well as diagnostic tests for the needy patients of local physicians.

MHHC efforts at consolidation in the city were part of a postwar pattern followed elsewhere in the country and in the province. No longer would comprehensive programs await the willingness or ability of the provincial government to establish them; private organizations of various kinds quickly took over the initiative. The equipping of the new Dalhousie medical school, along with its new Public Health Clinic, and the transformation of the Victoria General into its allied teaching hospital was accomplished largely with money from the Rockefeller and Carnegie Foundations. Other well-funded private philanthropic organizations, such as the MHHC and the

postwar Red Cross, would plan and implement well-coordinated "demonstration" programs, with a view to proving their worth so that, later, government would be forced by public opinion to keep them going.

Much of the MHHC activity had hitherto been the province of the provincial and municipal governments, the Halifax Visiting Dispensary, the Anti-Tuberculosis League, and a largely-uncoordinated assortment of charitable organizations. For his part, Dr. Hattie fell in with MHHC plans without a murmur, indeed serving on its executive committee. The Halifax Anti-Tuberculosis League, already accustomed to following expert leadership, welcomed the MHHC's Dr. Sieniewicz and his chief nurse as active members of its executive, and increasingly restricted itself to auxiliary activities such as raising money to pay for milk, or to subsidize hospital or sanatorium bills for certain individual patients, while leaving direct visitation duties and decisions on aid distribution to the MHHC professionals. The radical nature of the change which was taking place, however, was much more obvious in the case of the Visiting Dispensary, whose autonomy and old-fashioned charitable orientation were virtually lost in the process.

By 1920, the drive for rationalization and co-ordination of services had clearly affected the Visiting Dispensary. Its building on the corner of Brunswick and Prince Streets, refurbished after the explosion with the help of the Halifax

Relief Commission, was housing, besides its own facilities, a baby and child welfare clinic and the Halifax Welfare Bureau. The Dispensary offered its usual visiting and drop-in service, prescription service, and dental service with the help of a Victorian Order nurse. At the behest of the Anti-Tuberculosis League, the Dispensary also afforded room for a Relief Commission and League-sponsored Thursday-morning tuberculosis clinic, but only after it had been assured by the Massachusetts-Halifax committee that this would not unnecessarily "duplicate" the work of their proposed health centres.[27] By 1919, the city's health services had been so effectively coordinated and rationalized that it was felt prospective patients needed a published directory, which the Dispensary thoughtfully provided on the back cover of its annual report:[28]

> To get free treatment (medical, surgical, dental, eye, ear, nose and throat):
> ...Call the Halifax Visiting Dispensary
>
> To get the services of a visiting nurse:
> ...Call the Victorian Order of Nurses
>
> To report infectious diseases:
> ...Call the City Board of Health
>
> To get free antitoxin and vaccine:
> ...Call the City Board of Health
>
> To consult school nurses:
> ...Call the School Commissioner's Office
>
> To get diagnosis of suspected tuberculosis:
> ...Call the Halifax County Anti-Tuberculosis League
>
> To get services of voluntary helpers:

...Call the St. John Ambulance Brigade

To get prepared food for the sick:
...Call the St. John Ambulance Brigade

To get into the Children's Hospital:
...Call the Superintendent

To get into the Victoria General:
...Call the Superintendent

To consult the Massachusetts-Halifax Health Commission:
...Call the Massachusetts-Halifax Health Commission

Shortly rationalization took another step forward. The MHHC's Dr. Royer, at a Dispensary meeting in February, 1920, had already contrasted the Dispensary's past operations with "the newer idea: which is to carry on educational work with the aim of preventing disease."[29] In July, the Dispensary executive met to consider a proposal from Dalhousie that it move its entire operation from the North End to the site of the new medical school in the far more prosperous South End, there to provide the outpatient and prescription-dispensing services of the Dalhousie Public Health Clinic and become the effective outpatient department of the Victoria General, located nearby. The proposal, according to Dalhousie, would be of obvious mutual benefit. The modern ideal of medical education stressed "hands-on" experience, and plenty of it, for students. This had been extremely difficult to get in the days of the Halifax Medical College; most hospitals, like the Victoria General, considered it their duty to provide patients with experienced caregivers. They traditionally saw teaching

as a minor part of their operation, and had always enforced restrictions on student activities. Part of the burden of providing clinical experience had thus fallen on the Dispensary, which had for some time been accustomed to the presence of local medical students, if only as observers. It was Rockefeller and Carnegie money which had shaped the postwar Victoria General into a truly modern teaching hospital; Dalhousie's students would now provide most of the active patient care, and the hospital and the university could combine facilities and services, and finance new ones, to their mutual benefit. If the Dispensary now decided to follow suit, it would be relieved of the expenses of building maintenance, would benefit from the expertise of Dalhousie's medical and surgical staff, including nurses, and would occupy a far more attractive location, conveniently close to the burgeoning hospital and medical-teaching centre of Halifax. Finally, the Dispensary was promised that it could retain its integrity as an organization, which, in fact, it nominally did until the mid-1960s.

There was, in fact, only one potential problem, which was duly raised at the meeting held to consider Dalhousie's proposal: would the new location be accessible to the poor, the class which, after all, the Dispensary had been founded to serve? In the event, when the Dispensary moved to Dalhousie's premises in November of 1924, it soon found that its accustomed clientele had not followed it as expected. The

administrators explained how the decision had been taken:

> At the time [1920] it was felt that the expansion of Halifax and the establishment of the railway in the south end would bring many of the poor into the new neighborhood. The subsequent contraction in our population has falsified any such expectation.[30]

Although the Maritimes were losing people during the hard economic times of the 1920s, it was hardly true to say that expectations of a pauper migration to the south end had been "falsified" because of it. In fact, before making the decision to move, the Dispensary administrators had consulted with someone who was "presumably an authority on such matters": Dr. Royer of the MHHC.[31] Royer was in full accord with the proposed move. He had consulted members of the Rockefeller Foundation before giving his opinion, and found them also in agreement. The city of Halifax, he wrote, was split north and south into halves; the city had become too large for a single outpatient service; and an MHHC public health clinic already existed in the North End. The South End of the expanding city was thus the logical place for a second service. This reasoning obscured the fact that, if such were the case, the MHHC clinic had been the "second" one and thus had presumably been misplaced. The MHHC North End clinic was also temporary, although it was hoped the city would take it over in the future. In the event, by 1926 the MHHC budget had already shrunk by a third; the nursing service was appreciably curtailed and only four tuberculosis clinics were being held each week, two in the North End, one of these an

evening clinic for workers, and two at Dalhousie's Health Clinic.[32]

Royer went on to give more credible reasons for his support of the Dispensary move. Only by this relocation, he explained, could the Dispensary develop into "a full, active health center, the modern successor of the old-fashioned dispensary". Further, its location would be an important factor in its ability to continue to attract endowments. This was probably quite true, if it was Rockefeller or Carnegie largesse which was being hoped for; both foundations, along with their lesser philanthropic disciples, were committed to the Flexnerian ideal of the large central medical complex.[33] But, as Royer felt constrained to point out, the ultimate beneficiaries would be the poor themselves, whether they realized it or not:

> There has been perhaps very far back in my mind the thought that both of these centres located in open sections of the City with trees, beautiful grounds and sanitary conditions obtaining all about them, that these influences should be stimulating to those who live in the slums who might come to the centre for treatment...that from their visit and the follow up in their homes by the health nurses they might see the advantage of more beautiful surroundings. The educational influences of such surroundings upon the necessitous of the City are worth a great deal in a campaign of preventative medicine.[34]

Evidently, the Dispensary accepted this reasoning; the move was made. By 1925, when the MHHC budget had shrunk to about 1/3 of its original value, the Dispensary had become a support service for the Dalhousie clinic, filling

prescriptions and using its funds to supply gauze, drugs and laboratory reagents. It was still unsuccessfully trying to sell its old building, which it did not manage to do until 1930. Its newfound financial security, however, allowed it not only to continue its visiting work, but also to go halves with the Victoria General to buy $15,000 worth of radium for cancer treatment. Before the move to Dalhousie, it had also decided to join the new Community Chest. While it soon discovered this venture had not been as remunerative as it had expected, the Dispensary in 1927 was able to accept the situation calmly thanks to its increasingly self-sufficient financial status. Yet complaints about undeserving and "ungrateful" patients, which had been increasingly evident in Dispensary minutes and reports during times of scant revenues after the turn of the century, began to resurface in earnest:

> ...like the woman who remonstrated with the doctor because he had not come as soon as she thought he ought, and told him that he was well paid by the government to serve such as she.[35]

This time, though the institution's more comfortable financial situation hardly seemed to warrant it, decisive action was taken to weed out "undeserving" patients. In September of 1929, for the first time in its history and at the dawn of the Great Depression, the Visiting Dispensary began to charge for its services. Depending "on the size of the bottle", patients were asked from 10 to 25 cents per prescription; all were asked to pay as a matter of policy,

though it was, according to the annual report, explained that payment was not compulsory if circumstances did not permit. The Dispensary staff was gratified to find that the patients -- at least, the "deserving" ones -- did not mind this at all:

> People do not all pay but a great many do and all have been quite willing. The children are quite pleased to present ten cents or so if they have it, and it is no doubt a good thing to get them into the habit of paying a little and not expecting to have everything given them for nothing, as so many of their elders have got into the habit of expecting.[36]

Still, many did not pay, and this was galling:

> The fact of not having to pay for medicine or medical services probably permits some at least to call on our doctors when otherwise home remedies could or would be tried... Recently the doctor was asked to call on a family who were pretty well recovered from measles. He did not get there as soon as the mother thought he should have, and so she wrote us a very sharp note demanding his immediate call and saying they might all be buried before the doctor would arrive. As a general rule that is not at all likely to happen in such a case.[37]

Such complaints about the patient ingratitude had not been an uncommon feature in Dispensary reports from earlier years. Yet, undeniably, the new pay-prescription policy represented a real departure and a harder line toward "charity" service. The new complex was not designed as a charitable enterprise, but as a centre to centralize, "rationalize" and consolidate city medical services and to accommodate a greater number of patients with optimal efficiency. The Dispensary's move away from the city's poorest district meant that the truly needy comprised a diminishing proportion of the total caseload, a

situation that the new "pay" policy could only have exacerbated. And as the Depression wore on, more and more of the Dispensary's patients came from the "better" classes, with which the staff found it much easier to identify. "These", wrote the administration in 1932, "are the people one feels for".[38] Now, calls which, in the staff's judgment, "may not have been absolutely necessary" were handled with understanding and sensitivity. But the suspicion felt toward those groups experiencing hard-core, grinding poverty in good times and bad had seemingly become permanent. Reported the administrators in 1957:

> ...we have received more calls from Africville than for several years combined. This may be due to the fact that there are clinics being held out there now. These calls take a lot more time and as road conditions are not too good, we hesitate to ask a doctor to go unless we are reasonably sure that the call is a legitimate one.[39]

The city's poor had long relied upon the Visiting Dispensary. Their reluctance to enter hospital, even for serious ailments, lingered on well into the twentieth century; they were far more comfortable with the Dispensary's visiting doctor and his prescriptions.[40] They could count on its convenient location, its experienced, professional help[d] and on its stated aim to provide aid to the poor in their own homes "without humiliation".[41] But after the 1920s, the Dispensary had become part of the much larger, more costly and

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[d] The Dispensary's old policy prohibited students from operating or prescribing.

bureaucratic, but more efficient and thoroughly rational machine of modern medicine. While the public-health system as a whole was reaching more people than before, at least one group, and that the most helpless in the community, was arguably much less well-served than in the past.

A similar pattern was evident elsewhere in Nova Scotia during the 1920s. In their drive to be useful in peacetime, Red Cross Societies from Britain, France, Italy, Japan and the United States called a conference of "the most eminent health experts in the world" at Cannes in 1919, and pledged to dedicate themselves to "stimulate, support and aid" governments in health-related work.[42] The Nova Scotia branch of the Red Cross offered to fund scholarships for a new public health nursing course at Dalhousie, which was started in 1919, and to pay the salaries of one public health nurse in each of the province's municipalities for the first year of their operation. In subsequent years, it was hoped that the municipalities, having had the benefits of the service clearly demonstrated, would pick up the tab. Co-ordinated with the nursing service were two Red Cross "Health Caravans" which travelled throughout the province, to provide examinations, treatment, educational demonstrations and talks with the help of doctors, dentists, ambulance drivers, and the Boy Scouts. The provincial government was only too relieved to design its own postwar program around this generous scheme. Its official 1919 plan divided the province into three geographical

divisions, each with a Divisional Medical Health Officer (MHO) subordinate to the Provincial MHO. A Superintendent of Nursing Services was also appointed to supervise the new Red Cross nursing contingent. County health clinics, meeting defined provincial standards, were to be established and maintained by the municipalities and were to provide both medical and dental services as required, with the Red Cross caravans looking after the more outlying areas. In addition, with rising national concern about the spread of venereal disease which had been stimulated during the war years, the federal Department of Pensions and National Health had offered to contribute half the cost of establishing venereal disease clinics, and by 1922 these had been set up in Amherst, Halifax, Lunenburg, New Glasgow, Sydney and Yarmouth, with people slowly beginning to come in for treatment. The federal government also began in 1921 to compile national mortality and other health-related statistics from provincial returns, and had taken upon itself the functions of enforcement of maritime quarantine regulations, medical inspection of immigrants, and the administration of food and drug legislation.

By 1921, all counties but Inverness, Shelburne, Cape Breton and Queens had a Red Cross-supported public health nurse; but when the Red Cross funds ran out, it became apparent that few of them had been convinced, or were able, to accept the burden. As early as 1922 Cumberland county had

dispensed with the Red Cross nurse's services. By 1926 only the counties of Antigonish, Cape Breton, Hants, Pictou and Yarmouth, and the municipality of St. Mary's still employed their public-health nurses; these areas, according to the Department of Public Health report, contained about a third of the provincial population "...and are naturally the ones most easily able to bear the expense of the services."[43] By 1928, there were only four. Furthermore, since only a single divisional MHO had yet been appointed, the planned "divisions" existed only insofar as they were staffed by nurses. Coverage was augmented by nurses appointed independently, mostly by cities and towns for work in the schools; these did not come under Department of Health auspices, and their number fluctuated. In 1926, there were four full-time nurses in the city of Halifax, and one each in Sydney, Amherst, New Glasgow, Truro, and Queen's County, while Canso, Dartmouth, Digby and Wolfville each supported a part-time nurse. A few towns also backed up the nurses' work in the schools by subsidizing follow-up treatment by private physicians and dentists.

More and more, public health workers were becoming involved in people's daily lives.[e] They were also taking a

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[e] In bringing their medical precepts and middle-class values directly into Nova Scotian homes, the new corps of visiting nurses was assuming much the same role that lay volunteers had done in the past. Such visits, however, had never been an unmixed blessing. As one 1911 letter to a Canadian magazine put it,

> It is all very fine...that our experts are so willing to investigate...but prying into people's houses and scaring the women half to death,

special interest in children's health, upon which there was a growing emphasis during the 1920s; soon, the image of a "typical" public health nurse was one who worked almost exclusively with children. This was due in part to the recent understanding that adult tuberculosis typically resulted from the reactivation of primary tuberculosis contracted in childhood. Health Department nurses visited 1,743 classrooms in 1922, inspecting a total of 42,170 children and uncovering no fewer than 52,138 "defects", chief among which were dental caries (26,180), enlarged or inflamed tonsils (11,821), "nutritional defects" (4,729), defective vision (4,063), and "scalp disease" (2,082), which was almost certainly pediculosis (head lice). Nurses' "general" activities were almost wholly concerned with children as well: notifications

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> throwing the doors wide open and marching through the house with an air of, "We have come to deliver you out of the house of disease and poverty"...will not help them....
>
> [The health visitor] does not sleep on an old mattress or dirty bed in a room with four or five others; she does not do without her daily bath; she does not have to get up in the morning and, with a cup of coffee and a chunk of stale bread, hurry away to the sweatshop. To understand such conditions is to feel them, smell them, breathe them and live them....
>
> [Tuberculosis patients are not always well-advised to throw open the windows.] It is far better that they are...closed tight, for to open a window is to get a whiff of the gentle breeze from the slop box....Why come and repeat these same things to [patients] -- have they already not enough pangs?

The answer according to the writer, "Fiat Justitia", was to leave the people alone and "get after the property owners...the employers", and the letter was reprinted approvingly by A.P. Reid in his Department's annual report.

to parents of defects, health talks, "tooth brush drills", and "child welfare work", along with "home visits" and "tuberculosis work", and, the following year, 1,865 hours of "bedside nursing".[44]

The Canadian Red Cross had initiated surveys of school-age and younger children in British Columbia, Quebec and Ontario, and diagnostic and treatment services were expanding in those provinces. By 1924 Nova Scotia's Public Health Department, under the direction of Dr. Arthur C. Jost since Dr. Hattie's retirement the previous year,[f] had indicated interest to the CTA in conducting something along similar lines; and in 1926 the province's most ambitious program yet became a reality with the founding of the Nova Scotia Tuberculosis Commission [NSTC], a "voluntary organization" in the thoroughly modern sense of the word, and one of the first "demonstrations" anywhere which was intended to cover more than a single town or county.

The Nova Scotia Tuberculosis Commission

The idea of a comprehensive plan against tuberculosis had apparently taken shape in the minds of Drs. Miller and Jost a year or two before this. When in 1926 the CTA received a grant from the Canadian Life Insurance Officers' Association

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[f] This was the same Dr. Jost who had been MHO in Guysborough County in 1910, and who had been first to bring violations of the Health Act quarantine provisions before Nova Scotia courts.

[CLIOA] and set up the Maritime Tuberculosis Educational Committee to carry on a five-year anti-tuberculosis campaign in the Maritimes, the Nova Scotians saw their chance and convinced the CTA to grant them $5,000 per year of the CLIOA money for personnel, while allowing them to plan and manage a program independently of the other provinces. In return, they undertook to set up a representative commission to do the work, to seek an annual renewable provincial grant of $10,000, and to raise at least $15,000 more each year from the general public. The latter amount, it was pledged, would be used solely for support of indigent tuberculosis patients in hospitals and sanatoria.[45]

Nova Scotia quickly put together what was by far the best-organized campaign in the Maritimes. While the other two provinces relied largely on direct CTA involvement, Nova Scotia set up a committee with prominent representatives from the provincial government and a broad range of professional, health and community service organizations including the provincial medical society, the V.O.N., the Women's Council, the IODE, the Social Service Council, the provincial Farmers' Association, the Women's Institutes, the Dental Society, the Underwriters' Association and the Union of Nova Scotia Municipalities. The CTA's delegate was Dr. T.M. Sieniewicz, who had been MHHC Tuberculosis Examiner and a Dalhousie faculty member; and the Red Cross was represented by W.H. Dennis, publisher of the Halifax Herald and the Evening Mail,

who was elected Commission Chair. Dr. Miller was also a Commission member, oddly billed as representing "Tuberculosis Interests of the Province". To have named him a direct representative of the provincial sanatorium might have seemed to be giving too much prominence to government representatives, which included two physician MLAs and PHO Dr. Jost himself. There was also an advisory committee, including Dr. John Stewart and Mrs. Hattie Schon of the Halifax Anti-Tuberculosis League.

The program was at first a little fuzzy. CTA/CLIOA funds were used immediately to provide two visiting nurses for tuberculosis work; a second tuberculosis diagnostician in addition to Dr. Miller, a bacteriologist and office staff personnel were appointed with the provincial offering of $10,000. Sermons calling for support were written for distribution to every clergyman in the province, accompanied by a request that they be read on a particular date; a "Bovine Committee" circulated petitions in an effort to have the province declared a Restricted Area under the appropriate federal regulations for fighting bovine tuberculosis; another committee was dedicated to the provision of adequate tuberculosis bed accommodation. Arrangements were made to raise funds through an annual provincial Christmas Seal Sale, using seals provided by the CTA. The Halifax League, which had long been doing this on its own, agreed to submerge its work in that of the whole organization, accepting a lump-sum

payment as its share of the profit. Later, fundraising was decentralized to give more leeway to the host of local organizations such as the VON and Kiwanis and Rotary clubs which, since the prewar demise of most dedicated anti-tuberculosis leagues, had participated in the Seal Sale. Under the new arrangement, the groups kept 75% of their proceeds to spend as they saw fit, with 10% going to the NSTC for administration and 15% to the CTA for Seal Sale-related expenses. In areas without co-operating organizations, seals were mailed to the schools and the children enlisted as salespeople. Publicity was arranged with the able help of Chairman Dennis, though Dennis proved to have been a somewhat embarrassing choice for this position when controversy flared over the contents of a regular syndicated column in Dennis' Herald. In an angry letter to the Commission, Dr. Smith Walker, general secretary of the provincial medical society, quoted a recent "Health and Diet Advice" column authored by "Dr. McCoy" on the subject of tuberculosis:

> [There is] abundant evidence to show that these serious diseases [tuberculosis and cerebrospinal meningitis] are really the result of a bodily toxicosis, and that no specific microorganism is responsible.[46]

According to Walker a mere chiropractor, the mysterious "Dr. McCoy" went on to advise fasting and the use of laxatives for tuberculosis. To make matters worse, his column for the next day explained, in answer to a query from "M.K.T.", that

> The cause of bone tuberculosis is practically the

> same as that of tuberculosis in any other part of the body. There is a long period of enervation and a gradual building up of a poison state of the blood.[47]

Denouncing McCoy's work as "absurd and dangerous", Walker reported that the October executive meeting of the medical society had passed a resolution chiding the Commission. Commission members reacted angrily in defence of their Chair; such syndicated columns were, after all, a regular feature in newspapers "across Canada and the United States", and one could hardly hold the Commission responsible for the Herald's editorial decisions. Dr. Rehfuss, provincial government representative on the Commission, called the medical society's protest "foolish and childish", and took the view that Mr. Dennis was owed an apology.[48] Whether he got one or not is not recorded.

By 1927, the Commission felt the need to set firm objectives and to come up with a step-by-step program. In the health field of the 1920s, there was one obvious place to go for advice. Dr. John Ferrell of the Rockefeller Foundation replied to the Commission's query about the adequacy of its plans by offering to fund a U.S. visit and a cross-Canada tour for the Commission's "executive officer" to observe the "good work" being done there. Gratefully, the Commission hurriedly invented the office of "Commissioner" and appointed Col. Joseph Hayes, M.D., to study at first hand the American world of demonstrations, mass surveys and "preventoria".

Published by the Commission at the end of 1927, Hayes' report summarized the work being done south of the border in Massachusetts, Virginia, Washington D.C., and in New York, largely underwritten by the Milbank Memorial Fund. In Canada, he noted developments in Ottawa, Montreal, and in Quebec province where assistance had been provided by the Rockefeller Foundation. In particular, he noted the rapidly rising interest in children, especially in establishing school health inspections and institutional facilities for those children who had either been in contact with infective tuberculosis cases, or who were considered at risk by virtue of undernourishment or general poor health. There was a general drive to provide a standard of one bed per annual tuberculosis death, and to institute better "bookkeeping" methods to record, track, isolate and treat known cases. A standard of sorts was also emerging by which to estimate morbidity: in Framingham, eight cases per annual death were known to examiners following an intensive case-finding effort; in Cattaraugus County, there were seven, and the notion was taking hold that one could expect that between five and ten living cases existed per annual death.[49] Hayes noted that never in the history of Nova Scotia had as many cases as deaths been reported in a single year. According to CTA statistics, in 1927 there were 640 tuberculosis deaths in Nova Scotia, indicating by these measures an expected total of between 3200 and 6400 living cases.[50] Less than 600 of these

had been reported.[51] Further, Hayes noted:

> The most outstanding [need] is for the care of those who can not pay. The act, as at present, provides only for pauper patients; i.e., those who have absolutely no tangible assets; while the patient who has some property but has become penniless through tuberculosis must first be pauperized by sacrificing his property. If this work is to succeed, aid must be given to such cases by their respective towns or Municipalities. What little property they have will be more valuable to them than to anyone else, and be a good investment for the state to leave a better chance for rehabilitation on their discharge.[52]

The Commission's final proposal for Nova Scotia involved the division of the province into five clinical areas: Central, Eastern, Western, Cape Breton, and Halifax. In all but the first, a full-time travelling diagnostician and nurse were to be based, to hold regular case-finding clinics and work "in consultation with the attending physician".[g] In the Central area, the Kentville sanatorium was expected to meet all needs. Next, assuming the success of the case-finding effort, additional hospital accommodation would be needed. Appropriate goals were set in advance based on local population and tuberculosis death rates; the new beds, it was hoped, could be provided in as practical a way as possible by lobbying towns and municipalities to finance tuberculosis

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[g] In September, 1927, the Commission approved as policy the idea that its diagnosticians should not inform patients directly of their diagnosis. The information should instead go to the family physician, whom the patient would then be advised to consult, incurring the cost and time loss involved in an extra visit. The idea was to preclude interference with the doctor-patient relationship, and hence the opposition of private physicians. Nova Scotia Tuberculosis Commission Minutes, Sept. 9, 1927.

annexes to existing hospitals. The municipalities would also be urged to assume "definite responsibility for the hospital treatment of every indigent tuberculosis case". Later, the Commission revamped its five-division plan, and provided three "divisional" nurses who supplemented the four remaining county public health nurses. While both the Framingham and the Cattaraugus County demonstrations had included financial aid to the poor, especially to patients' families, as an integral part of the program, the Commission evidently felt such a recommendation would be far too ambitious in view of its limited means. The Commission also called for "a systematic examination of the entire school population", with automatic follow-up and referral to the doctor "on the first suspicion of trouble"; special instruction in the schools, country halls, churches and elsewhere via placards, lectures, press releases, moving pictures and lantern slides; the merger of local tuberculosis organizations into county-wide associations so that the towns, more successful at fund-raising, could subsidize more remote districts; and a program against bovine tuberculosis. Children's summer camps, preventoria and the like were to be fostered by individual local associations, using their share of the funds raised.

Almost at once, power relationships within the Commission began to clarify. So too did its striking readiness to make decisions which might have seemed more properly to belong in the governmental sphere. For example, although the Commission

was ostensibly a private organization, merely "encouraging" municipalities to set up tuberculosis hospital annexes, its committee on new beds (which consisted of Drs. Miller, Jost and Hayes) drew up a master plan for the province, targeting specific locations in order of priority, and agreed that the specific arrangements of these annexes must pass the muster of Dr. Miller, undoubtedly a government employee. It carefully manipulated public opinion through publicity, and through its case-finding efforts which, by adding to waiting lists for beds, created increased demand and public pressure as required in targeted municipalities. The Commission recognized this ambiguity. Offered the Chair in 1928, Miller declined, and William Dennis agreed to continue in the position only on condition that "the position of the Commission and its relation to the Department of Public Health" be definitely established.

Who controlled tuberculosis work in the province--the Department or the Commission? There was such overlap in personnel that the question at times seemed academic. "Complaint", said Dennis, "has been made to me as Chairman that while one half of the field force is under the control of the Commission the other half is under the control of the Health Department and as a result there has been no complete harmony and the effective work of the Commission has been curtailed."[53] The presence of the Provincial Health Officer, the Provincial Sanatorium director and two MLAs in crucial

planning positions on the Commission executive certainly did not help to clarify matters. When the educational committee proposed that their work be turned over to the Department of Health to avoid duplication of effort, the suggestion was turned down on the grounds that this would necessitate the surrender to the government of that portion of the funds earmarked for education, resulting in "the disestablishment of the Commission".[54] The Department was also urged [Jost urging Jost?] to contribute a third of the cost of providing additional tuberculosis nurses, on the grounds that "there can be no practical separation of the General Health Nursing Service of a Public Health Department from that [of]...an auxiliary body such as this Commission."[55] The Commission was, besides, a tireless source of drafts for proposed amendments to legislation, among other things successfully eliminating the remaining technical obstacles to provincial operating subsidies for municipal tuberculosis annexes, and ensuring that any municipally-supported sanatorium patients would not be officially classed as "paupers" and thereby lose their right to vote. And it was around Commission tables that the establishment of a provincial Ministry of Health, which became a reality in 1931, was first debated.[h] Meanwhile, as the provincial department frankly reported in 1929, the portion of tuberculosis work carried on by it directly was

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[h] The point was first raised by William Dennis, NSTC Chair and Herald publisher, on Feb. 16, 1928 (see NSTC Minutes).

very small; the major part had been handed over to the Commission in 1926.[56]

If one takes the view that the Commission was, indeed, a private organization, it undoubtedly possessed a strong contingent of government-connected partisans who hoped, by mustering as much visible public support as possible, to get their way in the Assembly. If, on the other hand, it is regarded as at least quasi-governmental, then its ostensibly private status would have been very useful -- even crucial -- in its fund-raising drives and hence in much of the work that went on. One can well imagine the success an official government body would have had in promoting a "Seal Sale" by providing clergymen with prewritten sermons for an annual "Public Health Sunday", in convincing 1920s labor unions to host and promote its lectures on tuberculosis, in encouraging civic clubs to raise money for summer camps and in collecting children's spare pennies for the benefit of indigent tuberculosis patients without incurring the demand that such things ought to be done as a matter of course.[i]

In the event, quite a lot did get accomplished. Petitions were solicited to make Nova Scotia a "restricted area" under the federal government's plan to combat bovine tuberculosis. As early as 1896, the Dominion government had offered free tuberculin testing of cattle to farmers who

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[i] All these were specific components of the Commission's 1928 plan of action.

requested it; but little action resulted. In 1902, following an initial upsurge of interest among stockowners, the plan was revamped to give free tuberculin to veterinarians who agreed to report their results. The following year, the export of cattle who had reacted to the tuberculin test was prohibited; and in 1905, a Supervised Herd Plan was inaugurated which offered free and regular testing of whole herds. Since the plan was entirely voluntary and offered no compensation for cattle which had to be destroyed, it never enjoyed much support among stockowners. More effective measures had to await growing consumer demand for safe milk and meat, and this began to heighten following the inauguration of the Meat Inspection Service in 1907, and its revelations of disease in food-producing animals. Municipalities who wished to legislate against infected meat and milk, however, were hindered by opposition from farming interests.

The 1914 Municipal Tuberculosis Order, designed to encourage the passage of such bylaws, was the first both to compel slaughter of reacting cattle whose products were intended for sale in municipalities, and to offer compensation for such losses to stockowners. Still, it was a little premature. In 1916, it was revamped to allow sale of milk from untested herds, provided the milk had been pasteurized. Many municipalities then passed suitable bylaws, and general demand for safe meat and milk continued to grow. Enforcement, however, was often lax. In 1917, Dr. Hattie blamed a recent

rash of infant deaths in Halifax partially on an unsafe milk supply, and complained that, while many towns had adopted milk bylaws in the course of that year, many were "still backward" in enforcing inspection of milk and meat.[57] The Accredited Herd Plan of 1919 was an attempt to overcome the deficiencies of earlier plans; it offered certification of herds which passed a series of government tests, required slaughter of reactors, and paid compensation. At this point, consumers were assured of tuberculosis-free milk and meat only if they bought from a particular herd they knew to be accredited, or if they lived in a municipality or town with the appropriate bylaws and conscientious enforcement.

The Restricted Area Plan of 1922 was a further refinement, aimed at eliminating pockets of resistance and guaranteeing safety in discrete geographic areas. Once two-thirds of the stockowners in a given area had petitioned to invoke this plan, it became compulsory on all owners operating therein.[58] The NSTC began at once to circulate the necessary petitions, along with 60,000 copies of an information pamphlet dealing with the problem, among Nova Scotian cattle owners. The effort was remarkably successful. By 1929, most cattle in mainland Nova Scotia had already been tested, with a little over 2% of some 192,000 head reacting to tuberculin. Their owners received 2/3 of their appraised value in compensation.[59] The testing thus promoted by the NSTC, and related activities by the Maritime Tuberculosis Educational

Committee, were crucial in placing the Maritimes in the forefront of the campaign against bovine tuberculosis. In 1945, it was noted that 87% of Nova Scotian cattle and 100% of those in Prince Edward Island and New Brunswick had undergone testing, while only 80% in Quebec, 60% in Ontario, 50% in Manitoba, 45% in Saskatchewan, 26% in British Columbia, and 12% in Alberta had done so.[60]

The Commission also particularly emphasized preventive work among "subnormal" children, who were identified as such by visiting nurses or health-clinic physicians. In 1927 the Commission initiated and helped finance two children's summer camps, one near Yarmouth and another at Mira Bay near Sydney, to be run under the auspices of local Kiwanis Club branches. Another camp at Rainbow Haven was inspired and run by "Farmer Smith", the children's editor at the Halifax Herald. The Morning Chronicle followed suit with its "Camp Sunshine" in St. Margaret's Bay. Such camps offered children judged to be "undernourished" or otherwise at risk for tuberculosis a couple of weeks of sex-segregated, supervised outdoor activity wearing a minimum of clothing, accompanied by good food and constant monitoring of weight. At first, NSTC nurses were recruited to help supervise these summer camps; since there were only three nurses, and they were expected to afford visiting coverage to the whole province, this involved an unconscionable loss of time which was not remedied until the Commission, in 1930, definitely refused to spare its nurses

for camp duty and suggested that camp directors try to involve the Boy Scout or Girl Guide organizations instead.

Nevertheless, and despite their lack of automobiles, the visiting nurses managed to cover quite a bit of territory. In 1927, for example, they made a total of 783 home visits to tuberculosis patients.[61] The case-finding effort in general was successful, disclosing by 1930 "more than six" known cases for each annual tuberculosis death in the province.[62] Although the CTA, in its enthusiastic review in 1926 of the proposed program, had hoped "...in two years to have the same results in Nova Scotia as we have in the Three Rivers Demonstration area, -- eight cases known to the tuberculosis workers for each death during the year from the disease", the actual result was quite respectable.[63] To judge by sanatorium records, demand for treatment had also gone up. In commenting on the year 1927, Dr. Miller noted the usual waiting list for admission had consisted of "some 30" people; in the fall and winter of 1928, this rose to "some 50".[64]

Results were also good in the drive to persuade municipalities to vote money for construction of tuberculosis annexes to general hospitals. The opening of three of these was imminent, and several more were in the planning stages when the funded "demonstration" ceased, as planned, at the end of 1930. Future direction was clear: treatment, for all stages of the disease, would become more accessible and less isolating, less mysterious and perhaps less frightening, more

a part of mainstream community life.

The direct support of indigent cases, on which the bulk of NSTC funds was supposed to have been spent, was not nearly so successful. Following the 1928 decision to allow local organizations to keep 75% of Seal Sale proceeds for their own projects, NSTC coffers were rapidly depleted. At the end of 1928, the Commissioner reported that only four sanatorium patients were currently being cared for at NSTC expense, which was paying $29.50 per week for each of them.[65] The major effort of the central body was devoted to lobbying the municipalities and incorporated towns, once again, to "assume their responsibilities". When the town of Canso declined to hold a meeting on the issue, pleading that the care of poor tuberculosis patients was a national responsibility, the NSTC took strong exception, and replied that care of the tuberculous was no different than care of any sick, indigent citizen -- a municipal affair:

> This responsibility is not and never has been a national affair, as it is purely a provincial and community matter.[66]

The recent federal involvement in tuberculosis was clearly already being regarded as an aberration.

In October, 1930, it was noted that the Commission had only sufficient funds to care for those patients currently on its list, at a total expense of $67 per week. This could not have accounted for more than two or three patients. Further, it was moved and carried that assistance for patients who had

already received "an adequate share of Commission funds" should be discontinued, subject to the advice of Dr. Miller.[67]

Had its original intention to spend $15,000 per year on direct patient subsidies been carried through, some $288.00 would have been available for this purpose weekly. What had happened is that, in decentralizing its funds, the Commission had relinquished any real control over how they were spent. Some local organizations which participated in the Seal Sale preferred to spend their money on educational materials; others eagerly narrowed their focus to support the current children's health trend, and established summer camps or tried to raise money for year-round "preventoria". This is not to say that no help was provided to the poor; in fact, it was, to a greater extent than ever before. A free sanatorium bed, maintained by a fund contributed by former patients, was continuously occupied and cared for 6 patients in 1925 and 4 in 1926; the 1927 sanatorium annual report mentioned that the IODE also maintained a free bed, without specifying for how long, or the numbers of patients it had served. These constituted, evidently, the only financial support available. But by 1929, it appeared that the Commission campaign among the towns and municipalities had really begun to bear fruit. In a gesture of gratitude which was doubtless also meant to keep up the pressure, Dr. Miller began to list the names of contributing towns, municipalities and other organizations,

along with the number of patients which had been assisted by each in the course of the year. The number so helped rose fairly steadily in the next three years:[68]

TABLE C-2: SUBSIDIZED SANATORIUM CARE, 1928-1931

Year ending Sept.	Patients subsidized: By towns/municipalities	By others	Total
1928	34	58	92
1929	24	60	84
1930	--	--	126
1931	71	77	148

In the same period, the number of contributing municipalities rose from seven to 19, and contributing towns from four to 11. The campaign was working; obviously, this was no time to relax the pressure. Reported Miller, "While a few of the municipalities...are doing their best...the majority of them are not assuming their responsibility in this respect".[69] And the Commission as a whole agreed:

> Now the great need is means for the treatment of the poor. Up to the present time there is no adequate provision for this. While 26 of the 34 incorporated towns have passed resolutions favoring aid or treatment of the poor to the extent needed to get adequate treatment, and 18 of the 24 municipal corporations have done the same, the service falls far short of what is needed in this respect.[70]

And so it did. But the Commission's report placed "treatment for the poor Tuberculous" last on a list of its four immediate objectives, the first three of which were:

> 1. To prosecute our educational work.
> 2. To supervise the annual seal sale.
> 3. To direct the disbursement of proceeds of the Annual Tuberculosis Seal Sale:

a) Pay the expense of the Annual Seal Sale.
b) Participate in the cost of the treatment, and the hospitalization of poor Tuberculous children, child contacts, undernourished and underdeveloped children.
c) Aid Summer Sunshine Camps.[71]

The Commission's seeming disregard for the adult poor was, in part, a reflection of the current fashion for a child-centred movement. But it was also, partly, a reflection of the satisfactory results that had already been accomplished by the campaign among the towns and municipalities, and the group's confidence that the provincial government, which had just formed a new Ministry of Health, would carry on the work it had started. Finally, the Commission was looking forward with trepidation at this time to an uncertain future, with its funding greatly curtailed.

What was the legacy of the twenties to the tuberculosis campaign? It has been pointed out by Katherine McCuaig that the postwar anti-tuberculosis campaign in Canada represents a remarkable survival and adaptation of the early social-gospel inspired reform movement. Although its tactics changed from an attack on social misery as the cause of disease, to a technological attack on the disease as the cause of social misery, its ultimate goal did not change and its crusading spirit never faded.[72] I would agree with that conclusion; however, I would argue that the switch in tactics was hardly as sharp as all that. David Stewart's 1930 characterization of tuberculosis as "one of the greatest of all makers of

poverty" was hardly a striking reversal, as McCuaig would have it, of "the old social reform doctrine that poverty bred tuberculosis"; the Halifax Visiting Dispensary had made the same observation as Stewart in 1908.[73] Further, the "technological attack" was an inherent part of the movement from the beginning, as was the conservatism which would preclude any radical social change.

The reliance on experts and institutions, the movement toward medical centralization and efficiency so characteristic of the twenties had been assured after Abraham Flexner's crusade; the modern miracle of collapse therapy was no more eagerly seized upon than had been the tuberculin therapy of the 1890s, or the "magic bullet" of the sanatorium fresh-air regime itself. Nor did one era focus on the need for prevention significantly more than the other: the challenge was never whether to prevent, but how best to do so, and the answers to that challenge -- education, isolation, earlier detection -- were often strikingly similar. Lessons had been learned during the war; with the x-ray, diagnosis was far less hit-and-miss than it had been; the crucial importance of after-care and suitable job training to a patient's prognosis was being realized. But the system as it had evolved had not come to grips with the social issues surrounding tuberculosis. There is striking similarity between the Commission's 1932 declaration "Now the great need is means for the treatment of the poor" and the comments of physicians and others in 1900

who hoped that the sanatorium would be a means of providing treatment for the poorer classes who needed it most. There is also a striking similarity in the actions taken in both decades: the reliance on education, the lack of direct financial assistance to families, and the aiming of programmes at relatively "easy targets": "incipient" patients who could pay their own way and anti-spitting laws in one era, summer camps and school "Health Game" lessons for well children in the other. In both eras, programmes aimed at the isolation of open, infective cases; the only difference was that, thanks in large part to wartime federal largesse, this had become a somewhat more attainable goal in one decade than in the other.

Much, however, had indeed changed by 1930. The continued decline in deaths, coupled with an unfamiliar abundance of beds, meant that, for the first time, there was some point to case-finding exercises. There was a new postwar availability of funds from immense philanthropic enterprises. Taken together, these meant that it was now possible to tackle the problem of poor, infective consumptives: to alleviate their suffering, to educate them in their responsibility to the wider community, and to eliminate them as far as possible as a source of danger.

Another important feature of the 1920s was the continued focus on government as the prime mover in health provision. Despite the obviously increased activities of private organizations in the health sphere, the ultimate aim was

always a time-limited program to convince government at some level--provincial or municipal--to meet what was seen as its responsibility. It also became clear, despite the nominal formation of a federal Department of Health, that, in the absence of national emergency, the federal government neither intended nor was expected to involve itself directly in health matters. In like manner, the province left things largely up to the municipalities. Thus was inequality guaranteed for the moment. The role of the existing elite was also consolidated and strengthened as influential businesspeople, politicians and medical experts worked in concert to raise funds through public donation for the implementation of what would become official policy. Just as influential private professionals involved themselves more in the public sphere, so too did public representatives increasingly barricade themselves behind efficient bureaucratic walls. This knitting together of the public and private ensured a much stronger, less assailable structure.

Women were one group which lost considerable influence through this development. Before the war, they were the driving force behind much popular concern about social conditions, and behind the formation of many health and social-reform leagues. After the war, their role became much more strictly auxiliary, and their work more invisible. While women may have run the Amherst Anti-Tuberculosis League, they did not run the Kiwanis or Rotary clubs; still less did they

run the Rockefeller Foundation or the Massachusetts-Halifax Health Commission. Their increased role as public-health nurses, secretaries and voluntary canvassers was taken on at the expense of any leadership function they may once have had. Increasingly, women implemented decisions which were made in their absence.

Another aspect of women's postwar situation was the confirmation, once the vote had been won, of their primarily domestic function, and the increased emphasis on children's health at this time must be seen in this context. This was seen not as a regression, but as progress: for the modern homemaker, like almost everyone else, must become an expert, a "professional" in her own "specialized" sphere. Modern mothers, and hence whole families, could most successfully be reached by an emphasis on the health and future of their children. Their competence on the job was now subject to the expert scrutiny of the school nurse, the enlightened teacher, the visiting nurse, the travelling clinician. There was a right way to live: a right way to budget, to buy food, to manage money, to keep house, to raise healthy children. A poor home environment was often indicted as the cause of initial sickness or relapse; the home environment was clearly the responsibility of the homemaker; ergo, sickness in the family was very often the result of maternal incompetence. If the children were undernourished or "subnormal", then, thanks to modern efficiency, they could be moved off to a "Sunshine

Camp" while Mother was trained to see that good, plentiful, nourishing food and clean surroundings were better than scant, adulterated food and filth. If she had to travel across town to receive this advice, so much the better--she could only be edified by the attractive surroundings. If she had to pay for services hitherto free, this would be a valuable lesson in thrift and responsible living.

Thus did the campaign align itself to prevent disease: by preferentially screening and "treating" (with the familiar regimen of sun and fresh air) children who seemed at risk, by education in personal hygiene and nutrition, and, where it was feasible within the existing structure, by isolation of open, infective cases, with a view to rendering them non-infective if possible. As sanatoria became more hospital-like in their treatment, the decision to open cheaper and more accessible hospital annexes was pragmatically and sensibly made. True, the children could stay away only for a week or two; true, prolonged sanatorium or hospital stays only tended to impoverish families further; true, families did not like to be fragmented. But, insofar as living conditions were responsible for tuberculosis, modern society was getting better every day -- though this did not mean the fight could relax. As Allen Krause put it in 1921:

> It must be evident...that increase of comforts, of leisure, of food, of space, of the individual means to obtain these, can come only from increased wealth which, whether we approve or not, results only from increased productiveness. ...There are not a few men who have been so impressed by the

> decline of tuberculosis, which parallels in time the birth and development of our industrial era, with its marvelous expansion of wealth and comforts, that they will allow nothing to intentional efforts to reduce the inroads of tuberculosis. ...Yet it does seem curious that our larger life insurance companies...are continually calling attention to the reduction in mortality that has been brought about by organized endeavour.[74]

Naturally, the "marvelous expansion" of wealth had been rather uneven. So had the "organized endeavour". But the continuously falling tuberculosis mortality rates offered mute assurance that great progress was indeed being made.

Nevertheless, the NSTC began the thirties in an atmosphere of profound worry. As a March, 1930 article in the CTA Bulletin pointed out,

> Nova Scotia has the lowest index of cases treated to advanced cases in the province except Quebec and also the lowest index of patients treated at the expenses of the treasuries of the province and municipalities and presents our most distressing problem in Canada today because Quebec is making such wonderful advancement in sanatorium construction and county health units.[75]

But just at a time when it seemed that Nova Scotia must race to keep up, the Commission was about to lose its funding.

With the provincial government planning to form a new Health Ministry in 1931 and the CTA Maritime Tuberculosis Education Committee money, which funded the NSTC, due to be lost the same year, the Commission tried hard to make the transition smooth and to ensure its programmes would not be lost. It had approached the government as early as 1929 with suggested plans by which the state could take over Commission

clinical services. The government responded by consulting the provincial medical society on the proposed reorganization, leading one medical society representative to remark wryly that "this was the first time the government [ever] appealed to [us] for advice".[76] The new plan was in the works when Commission members began to notice that the provincial government, hitherto quite chummy around the NSTC executive tables, seemed abruptly to stop collaborating, leaving little doubt it would henceforth be in the driver's seat. It stopped sending representatives to Commission meetings; it wanted it understood its $10,000 annual grant would also be withdrawn, and -- although, of course, it fully appreciated the Commission's past endeavours and sincerely wished it luck in the future -- no compensating support could be expected. Also, through Dr. George Murphy, soon to be Minister of Health, the government expressed its strong opposition to Commission plans to incorporate before the new ministry could complete its re-organization plans.[77] Even Dr. Miller, hitherto a mainstay, began to attend meetings less and less frequently. Clearly, the power base had shifted.

Thus shut out, the Commission nevertheless saw an obvious reason to stay in existence. If it did not do so, and if no other organization took over, the whole revenue of the Christmas Seal Sale, which had been a national CTA endeavour since 1927, would be lost to the province. In most years, this had represented more than the government grant. Besides,

there was an obvious need. The Commission had expected that the government takeover would relieve it of responsibility for care of the consumptive poor.[78] But in 1932, a communication "from the Department of Health and some of the towns" to the Commission showed that, after all had been said and done, "no one felt their actual responsibility to pay for the treatment of the poor".[79]

To carry out its new program, which had apparently been adopted at the suggestion of the new PHO, Dr. T. Ives Byrne, the Commission made great efforts to find other sources of funds: it held benefit concerts and membership drives, canvassed community groups, organized publicity and convinced the CLIOA to part with an annual $1500 for the cause. Later, the government offered another $1500.[j] Still, the shortfall, compared to previous income, was inevitable. As early as May, 1930, the funds had reached such a low ebb that an application by Divisional Health Officer Campbell himself, on behalf of a patient seeking help in paying for a single pneumothorax refill, had had to be turned down. By 1933, things had become desperate. Though the government had relieved them of nurses' and a doctor's salary and expenses for which its grant had originally paid, they were still left short of money to pay any staff at all or to cover Seal Sale expenses, and were

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[j] These grants had apparently been withdrawn by 1937, when a Commission representative told an interviewer that Seal Sale proceeds were the sole source of revenues for the organization; NSTC Minutes, Nov. 18, 1938.

evidently further expected to do the whole work of providing for treatment and help for the sick poor in the face of a rapidly-worsening depression. In February of 1934, the Commission went into a state of suspended animation under a skeleton committee of two; regular meetings were not held again until June, 1937. Following the annual Seal Sales, the proceeds were distributed "as equitably as possible" among contributing counties when applications for patient assistance were made. The disbursements for 1936-7 give a grim picture of the state of depression-era Seal Sale donations, and the amount of local help the once-mighty Commission was able to give:

Tuberculosis aid.....	$32.09
Supplies.....	2.50
Telephone.....	14.74
Remittance to CTA.....	471.26
Support for sanatorium patients.....	150.00
TOTAL.....	670.59[80]

A 1937 letter from the local tuberculosis council in Amherst ironically placed the Commission in almost precisely the same position as the tiny, failing Amherst Anti-Tuberculosis League had been in the years before 1914. The successors of those Amherst activists who had once dedicated their scant resources to "succor of indigent, isolating cases" begged the Commission to allow them to keep the whole of their Seal Sale proceeds (as opposed to their regular 75% allotment) to help provide furniture for the municipally-funded and

provincially-supported 20-bed tuberculosis annex to the Amherst hospital. Now it was the Commission's turn to demur; this would, it wrote, not only be far beyond its means, but such a donation would depart from the original intention of the Seal Sale. Help for the sick poor, it seemed, was destined to be at the top of the agenda only of those organizations which had themselves fallen on hard times. By 1937, many of its former affiliates, including those in Halifax City and County, New Glasgow, Truro and Sydney, had split off from the Commission and dealt directly with the CTA, leaving the Commission representing "practically no large centres of people".[81]

Revenues began to rise again after the Seal Sale of 1937-8, and times got steadily better. By 1940, the Commission was in a position to give grants to the Divisional Health Officers to be used for the treatment of needy cases; in 1943 it extended the privilege of requesting financial help for special cases (hitherto enjoyed only by Dr. Miller) to all DHOs; in 1944, it was able to give a $10,000 grant to the government for the equipping of a mobile x-ray unit.

But during the hardest years of the depression, it necessarily fell to the provincial government to carry out the major share of anti-tuberculosis work.

CHAPTER 4

A POLICY FOR THE 1930s: TO SEEK OUT AND SEGREGATE

With the appointment in 1931 by the Harrington Conservative government of the Honourable George Murphy as Minister of Health and Welfare, Nova Scotia's Health Department actually became a full-fledged government "department" for the first time, in the sense that other provinces used the term. New Brunswick had taken this step as early as 1918, and Alberta followed suit the next year; but Saskatchewan, Manitoba and Ontario waited until the 1920s to appoint Health Ministers, Prince Edward Island until 1931, and Quebec and British Columbia until the 1940s.

To the new Department, tuberculosis "seemed to be the most outstanding problem"[a], and the public health annual report for 1930 foreshadowed the direction which the new plan would take.[1] Both G.A. MacIntosh, who had succeeded Dr. Jost as PHO, and P.S. Campbell, DHO, emphasized that the home must be the battleground in the fight against tuberculosis.[b] Pointing out that the province had at least 3,000 cases of

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[a] Although, for the first time in 1929, there were more (16 more) deaths from cancer in Nova Scotia than from tuberculosis. From this point on, though it was not yet obvious, tuberculosis would never again reign as supreme killer.

[b] MacIntosh served as PHO until replaced in this position by T. Ives Byrne in 1930. After the new Ministry of Health was created, Byrne's title became Deputy Minister of Health and Deputy Registrar General.

tuberculosis but only "about 350 institutional beds" for them, Campbell arrived at the rather obvious conclusion that "there still remain 2650 cases that must be cared for at home."[2]

Further, the indigent were a special problem, since their powers of resistance were jeopardized by their housing conditions and "general manner of living". The proposed method of attack depended on a field nursing team, which would educate and supervise poor patients in their homes; and this, stated MacIntosh, was as legitimate a claim on the budget as those "curative" efforts -- such as those provided at the sanatorium -- on which previous campaigns had focussed. Because tuberculosis preferentially attacked those whose resistance had been lowered in some way, he wrote, what was needed was a broadened effort aimed at healthier living and the prevention of disease in general, through an efficient program of sanitation, improved diagnostic capabilities, an enlarged nursing staff, and a centralized departmental policy.

In short, the strategy was first to identify and classify tuberculosis cases, and secondly to segregate in homes or hospitals the open, infective cases which were of greatest danger to the community. "The tendency now," wrote Dr. Campbell in 1937, "is to deal with tuberculosis as with other contagious diseases. When a person is found to have it, he should be prevented from passing it on to others by appropriate isolation, education and treatment."[3]

This represented a major departure in the intention of

tuberculosis control: for the first time, hunting down tuberculosis cases was a realistic goal; so was monitoring and segregation of patients, either in their homes or in the familiar hospital setting. This situation was a direct result of the decline in the disease which had already taken place. Because there were fewer cases, it was no longer preposterous to hope that hospital beds might be found for them all in the foreseeable future; for those who refused institutional care, could not afford it, or were recuperating after treatment, a nursing team might hope to monitor them all in a supervised home-care scheme without enormous difficulty. It was now, at last, possible to talk seriously about quarantine for the remaining tuberculous, much as it was practised in cases of smallpox.

Clinicians and visiting nurses, then, would work primarily at case-finding, classification, and monitoring. The next step, segregation of open, infective cases, would be assigned to the sanatorium, and to special tuberculosis annexes attached to existing general hospitals. Segregation, in a growing number of cases, meant not just confinement to an institution, but surgery: the transformation of "open", or infective cases into "closed", non-infective ones. In this sense, patients (or, at least, their tuberculosis germs) would remain "segregated" even after they left the institution. Home care, optimally, would be reserved for "safe" closed cases who could recuperate under the watchful eye of the

visiting nurse; or for open cases whose home environment was such that they could be trusted not to wantonly spread their contagion to their families and neighbours. The traditional sanatorium regime could be approximated at home with open windows, or back-porch lean-tos, and the nurse would prescribe, though not provide, plenty of nourishing food. Tuberculosis annexes and, to some extent, private physicians, would be equipped to provide support services such as checkups and artificial pneumothorax refills for those continuing the "cure" at home.

In the following sections, the somewhat complex issues involved in this two-pronged "seek and segregate" plan are explored. The segregation concept depended both upon available therapies, which are covered in the first two sections, and upon available beds, which are dealt with in the third. The fourth section investigates the operation of the public health department's case-finding and home-monitoring programme during the years of the Great Depression.

Segregation: A Lack of Alternatives

Overwhelmingly, the thirties and forties were a kind of "golden age" of tuberculosis surgery, aimed at collapsing the lungs of tuberculosis patients wherever possible and, increasingly, transforming the traditional rest regime into a mere observation and recovery period before, after or between operations. Surgical therapies, and surgeons, proliferated;

procedures were continually modified, studied, and refined again; sanatorium costs soared as operating rooms, surgical staff, and infirmary facilities were added; and sanatoria began to look more like mainstream hospitals than esoteric "rest homes".

Reliance on surgery was at least partly determined by the continuing failure to find something better, as "breakthroughs" and "cures" continued to come and go. The latest crop contained several contenders of the usual "quack" variety along with others which may look more promising in hindsight than they did then to tuberculosis specialists, grown wary through long experience. Sanocrysin (gold thiosulfide), an addition to a long list of gold salts that had enjoyed vogue over the years, was given a trial in various sanatoria following its introduction in Copenhagen in 1925. Despite some encouraging results, never lacking no matter what the specific in question might be, its general failure to alleviate the disease along with its serious side effects, including shock, fever, and anorexia, along with reports that the initial experiments had involved chicanery led to its decline through the thirties and abandonment by the end of World War II.[4] The secret formulas and methods used in the "antitoxin" and "vaccine" treatments of Henri Spahlinger, whose three-year attendance at a medical school and subsequent completion of a law degree rather uniquely prepared him for his life's work as a self-described bacteriological

researcher, likewise proved valueless, though his postwar operations were subsidized by no less an agency than the British Red Cross.[5] "Umkaloabo" was another widely-touted and long-lived remedy, obtained by happy chance from the secret lore of a South African witch doctor and aggressively marketed by Britain's Major C.H. Stevens through the twenties and thirties in the teeth of a major British Medical Association expose of the patent medicine trade and several lawsuits.[6] While such remedies enjoyed varying popular currency, others were far more successful in arousing the hopes of the medical establishment. Sulfanilamide and its various related compounds, for example, were truly a phenomenal medical breakthrough. Developed by Germany's dye industry and subsequently noted to have a potent bacteriostatic[c] effect on a wide variety of organisms, including those causing gonorrhea, cerebrospinal meningitis, pneumonia and streptococcal infections, sulfa drugs were the subject of intensive worldwide research in the late thirties and early forties and were naturally tried out with a great deal of hope -- but, unfortunately, little success -- on M. tuberculosis.

The story of BCG, developed in 1924 -- not as a cure, but rather as a preventive vaccine against tuberculosis -- demands somewhat fuller treatment, since, unlike the above, it eventually did come into widespread use in Nova Scotia; yet it

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[c] Bacteriostatic agents inhibit the growth or reproduction of bacteria; bactericidal agents kill them.

was adopted far too late to have had much effect on the decline. BCG (for Bacille Calmette - Guerin, named for its developers at the Pasteur Institute in Paris) was an "attenuated" strain of M. bovis -- a live organism whose virulence had been, it was believed, eliminated through successive transplantations over a period of years. Initial reports of its use in French clinical trials on newborn children were highly encouraging; France proudly announced the breakthrough to the world; and the battle was on.

Some investigators of BCG's history have denounced its opponents for their lack of foresight, or applauded its proponents without regard to the historical context; both approaches are unfair and potentially misleading.[7] BCG was no panacea. Although modern workers generally acknowledge that it does confer some degree of protection, agreement was long in coming about; even now, debate continues about the magnitude and duration of that protection and its relative value, especially vis-a-vis other measures.[8] Hampering its adoption by western countries almost from the moment of its introduction were -- besides skepticism born of international rivalries -- ongoing disputes about results (including those reported by Calmette and Guerin themselves, which appeared questionable on several counts),[9] troubles with obtaining good cultures of the bacillus (preparation, storage and administration methods for the vaccine were actually not standardized until the 1950s), and quite understandable

concern about the implications of introducing living -- and hence potentially unstable and virulent -- bacteria into well human beings.

Canadians became involved in BCG research quite early. An Associate Committee on Tuberculosis was organized by the National Research Council in 1925 and proceeded to direct BCG trials among cattle in Alberta. Although human trials were naturally more controversial, the committee approved the same year the proposal of Dr. J.A. Boudouin of the University of Montreal for a BCG clinic to vaccinate newborn babies in the city. Fears that such work might be not only premature but potentially tragic were fueled in the next few years by such reports as that of researchers at the Trudeau Sanatorium in 1928, stating that "the culture contains a virulent element" which had sometimes caused tuberculosis in experimental animals.[10] Noting similar reports from researchers working with Canadian cattle, and feeling that Alberta's program had merely been a ploy by the ranchers to avoid existing test-and-slaughter plans for their tuberculin-positive animals, CTA Secretary Dr. R.E. Wodehouse gave it as his considered opinion in 1929 that "...the BCG vaccine, in view of our present knowledge, is not a safe procedure or one to be permitted either in the animal or in the human."[11] Not only that, it just didn't work, reported the Animal Diseases Research Institute of the Federal Department of Agriculture in 1930: there was "no great difference between the vaccinated and

unvaccinated... BCG...failed to confer any appreciable immunity or protection."[12] The American Veterinary Association rejected BCG for combatting bovine tuberculosis in 1931; Canada's NRC Associate Committee on Tuberculosis did the same three years later.

With regard to the human trials, tragedy had been predicted; tragedy came. 249 newborns in Luebeck, Germany, who had been given a particular batch of BCG in early 1930, began to die of acute tuberculosis shortly afterward. The worldwide sensation heightened when an associated cover-up appeared to have taken place: remains of the administered culture, along with case records, disappeared and reports of the study ceased following at least 155 deaths. Subsequent investigation showed that the administered vaccine had somehow been contaminated with a virulent strain of M. tuberculosis.[13] It might seem, then, that BCG itself had been exonerated. But some experts, like Canada's Dr. E.A. Watson, fresh from the five-year Alberta trials, were worried. Watson was, in fact, sufficiently impressed with the possible dangers to tell the audience at the 1930 Oslo meeting of the International Union against Tuberculosis -- an audience which included Calmette himself --

> BCG vaccinated cattle which have been reared in tuberculous environment [sic] frequently become carriers and disseminators of virulent tubercle bacilli and as such constitute a danger to both man and animals.
>
> There is much to support the view that BCG after living and reproducing itself in an animal

> body over a period of time may, at an opportune moment, change or revert to its original characteristics and properties.
>
> Too little is known of the possible effects of BCG vaccination and of the biology and ultimate fate of these living tubercle bacilli in the human or animal body. There appears to be no need for such haste in applying BCG vaccination except for experimental purposes and exhaustive investigation; especially since substantial progress is being maintained in the suppression of human and bovine tuberculosis by measures which do not include vaccination with living tubercle bacilli but which aim more or less directly at the sources of infection and at preventing exposure to infection. We should well hesitate to imperil the progress made in the prevention of tuberculosis by substituting a method of procedure which lacks proof of its efficacy and safety and is associated with dangerous elements and possibilities.[14]

The Editor of the CTA Bulletin agreed, asserting that he had "always opposed its use in any other practice than research," and reported that the Metropolitan Life Insurance Company, which had lately been involved in small-scale BCG trials on infants in New York, had now taken steps to stop its administration to its policyholders or any members of their families.[15] The editor of the Canadian Medical Association Journal wrote in 1931 that "It may be...the use of [BCG], failing some other method, is justifiable for...cattle. But we cannot subscribe at this juncture to...the use of this organism in human infants."[16] The preponderance of opinion in Germany and Austria was also against BCG. In 1931, the U.S. National Tuberculosis Association declared its opposition to BCG use. Britain rejected it even more strongly and resistance there continued into the 1950s, despite a growing body of evidence from France, Sweden, Romania, Poland, Spain -

- and Canada -- that BCG was actually safe and could be of considerable value in preventing the development of clinical tuberculosis should exposure to infection occur.

Important as the pro-BCG evidence seems now, it is difficult to escape the conclusion that at least that portion of it gathered in the 1930s was the product of human trials which continued in the face of some very serious questions regarding their ethics and safety. Nationalism may provide at least a partial explanation of motive: as an achievement of "French science", BCG was vigorously defended in France and just as vigorously disparaged in Britain; vaccination continued and expanded in Quebec as in France, but was practised in English Canada later and to a much more limited extent. Quebec had always gone its own way in tuberculosis control: its sanatorium-construction program had lagged well behind that of other provinces due to its early reliance on dispensary methods, modelled on those of the very successful French dispensary run by the same Dr. Calmette who had co-pioneered BCG. Quebec, it should be noted, also had a much higher tuberculosis mortality rate than the national average (99.9/100,000 for pulmonary tuberculosis in 1929, as compared with 67 for all of Canada).[17] The high mortality may have been, as some would have it, a result of Quebec's nonconformist ways; on the other hand, perhaps it inspired them. By the time of the First International Conference on BCG in Paris in 1948, the Quebec gamble had paid off.

Evidence from many countries of BCG's safety was now overwhelming, and the rest of Canada basked in reflected glory as Montreal's Dr. Boudouin reported the results of over twenty years of controlled studies, which had shown a 70% lower mortality rate in the vaccinated population than in the unvaccinated controls.[18]

In the earliest English Canadian trial, begun in 1933 among native infants in Saskatchewan and also conducted under NRC auspices, racism as well as the desire to reduce mortality was probably a very significant factor. Tuberculosis among Canadian native peoples, which was rampant and about which essentially nothing had yet been done, was becoming a more obvious danger as non-native mortality rates declined; but because thrift in the provision of medical services was an overriding principle among officials at the Department of Indian Affairs, it was crucial to find a cheaper solution than that offered by the more conventional sanatoria and surveys. A 1937 directive, for example, specified that medical care would henceforth be offered to reservation residents only for acute conditions involving "the safety of limb, life, or essential function"; that drug expenditures were to be slashed by half; and that there would be no funds at all for such luxuries as artificial limbs, dental treatment "except for the relief of pain or serious infection", spectacles "except for prevention of blindness", tuberculosis surveys or institutional treatment of chronic tuberculosis "or other

chronic conditions" -- no funds, "in fact, for any treatment except for acute illness".[19] Although this extreme stance was short-lived (by the time of the Second World War the Department of Indian Affairs was making regular payments to the Kentville sanatorium on behalf of native patients) the federal government would have been only too delighted could BCG alone have eliminated the dangerous pool of infectious tuberculosis among native peoples. The 1933 study had the potential to prove this could be done, and the NRC decision to proceed with it must be seen in this light. Vaccinations of native peoples were also useful as controlled studies in addition to those in Quebec, on which Canadian physicians, hesitant about BCG, could rely. This aspect was addressed quite simply, by vaccinating all babies born on reserves one year and none the next; the latter group served as the controls.[20] It is unclear how, or whether, this apparent change of policy was explained to the parents. Vaccinations of other groups came later, when more safety-confirming evidence was available.

During the thirties in Canada, the declining tuberculosis prevalence had focussed concern on those groups still exhibiting high mortality rates. General prevalence, of course, declined still further during the prolonged uncertainty about BCG, so that, by the time vaccination was generally felt to be safe and valuable, it was hardly necessary to vaccinate the whole population. Saskatchewan

began to use it after 1938 for student nurses; cited as the reasons for the decision were the high tuberculosis risk among this group and the availability of the results of the five-year study among native babies.[21] The following table from the CTA Annual Report summarizes BCG adoption in Canada; it is noted in the original that figures for Saskatchewan "are not exact and show only an extreme minimum".[22]

TABLE C-1
BCG VACCINATIONS IN CANADA, 1926-1949

Year	BC	Alta.	Sask.	Man.	Ont.
1926-34					
1934-42			2400		
1942			178		
1943			364		
1944			364		
1945			364		
1946	1		364	6	4
1947	238	153	416	186	268
1948	1340	1675	740	1699	2235
1949	2187	1112	665	1321	200

(Table continues on next page)

TABLE C-1: BCG VACCINATIONS IN CANADA, 1926-1949 (continued from preceding page)

Year	Que.	NB	NS	PEI	Nfld.
1926-34	6192				
1934-42	48732				
1942	10104				
1943	13054				
1944	17309				
1945	18881				
1946	21484				
1947	29501	1	243	197	160
1948	33909	82	461	45	373
1949	65404	483	371	217	281

Clearly, BCG had become quite respectable in Canada -- as elsewhere -- following the Second World War. The Germans had suppressed the use of BCG in occupied countries, and vaccination began to be seen as an element of resistance and patriotic pride, especially in Scandinavian countries which, after the war, greatly extended its use and added much to existing evidence on its safety and benefits. In 1947, the CTA officially endorsed its use for those unavoidably exposed to tuberculosis in hospitals or homes;[23] and it was in that same year that vaccinations first took place in all provinces. In Nova Scotia, they were voluntary. C.J.W. Beckwith, newly appointed medical superintendent at the Halifax Tuberculosis

Hospital and Director of Tuberculosis Control, reported that student nurses at the Victoria General, the Halifax Infirmary, the Children's Hospital and the Grace Maternity Hospital had "decided to incorporate [BCG] in their control scheme"; when the vaccinations actually began, they were extended to medical students as well.[24] Up to mid-1950, only 1146 Nova Scotians had received the vaccine; by that time, Quebec was routinely offering BCG in its dispensaries and hospitals, as well as vaccinating schoolchildren and 20% of its newborn babies in special programs.[25] Newfoundland, with its especially high tuberculosis mortality, would similarly give routine school vaccinations after 1949.

Thus, neither BCG nor any other specific preventive or medicinal "cure" could help tuberculous Nova Scotians in the years before streptomycin. Only the "fresh air cure" and surgery remained.

Segregation by Surgery

Even if one discounts any claims that lung collapse by artificial pneumothorax cured, or even inhibited the progress of the disease in individuals, it was often successful in rendering patients' sputum free of the bacillus, making them for the moment, at least, non-infective. The problem with that particular procedure, however, was that collapse could so often be achieved only partially or not at all due to thick-walled lung cavities which tended to persist or the presence

of adhesions, an all-too-common accompaniment to the disease. Before development of the thoracoscope, it had been necessary to open the chest in order to expose the adhesions and, assuming they were not too large or numerous, divide them under direct vision. Now it was possible to visualize adhesions in situ without rib resection and divide them by thermocautery, and the procedure (intrapleural pneumolysis) became more frequent, allowing subsequent induction of artificial pneumothorax. Other techniques, some originally developed in the twenties or earlier, were aimed at effecting collapse by some other means where artificial pneumothorax was contraindicated, had failed, or had given rise to severe complications. Some, such as oleothorax (introduction of oils instead of gas into the thoracic cavity, in an attempt to prevent overly-quick absorption and obviate the necessity for frequent refills), artificial pneumoperitoneum (the introduction of gases into the peritoneal cavity instead of the thoracic cavity), scalenectomy (division of the scalene muscles to prevent movement of the uppermost ribs during breathing) and extrapleural pneumolysis (the dissection of the parietal pleura away from the chest wall and obliteration of the resulting cavity with gauze, fat or paraffin) remained alternative, occasional treatments, of use according to the physician's preference in special cases -- for example, when a small apical cavity resisted closure by artificial pneumothorax because of adhesions, or when a patient's general

condition was too poor to permit more radical therapy. Others, including thoracoplasty (removal of rib portions to collapse the entire chest wall in upon the lung) and phrenicotomy (induction of hemiparalysis of the diaphragm by crushing or severing one of the two phrenic nerves in their course through the neck) were much more frequently employed.

Although these procedures, almost without exception, were more invasive and riskier than artificial pneumothorax, resort to surgery in general accelerated greatly during the thirties and forties, as did the employment of various operations in combination or in succession should one or another technique prove unhelpful by itself for a particular patient. Surgical procedures for tuberculosis in Nova Scotia, which had been going on to a limited extent for some years under the auspices of sanatorium staff, had hitherto been arranged for in co-operation with general hospitals who agreed to provide operating facilities and personnel. As resort to surgery became more and more frequent, an in-house surgical service seemed justified at the sanatorium and in 1934 thoracic surgeon V. D. Schaffner, a native of Lawrencetown, N. S., was appointed to the staff. Schaffner had been associated for four years with the distinguished Dr. Edward Archibald of Montreal's Royal Victoria Hospital, who had pioneered the use of thoracoplasty in North America in 1912. By 1936, Schaffner's facilities were ready and the surgical service was inaugurated.

Next to artificial pneumothorax, which remained the method of choice, thoracoplasty was the commonest surgical therapy used in Nova Scotia (and elsewhere), due largely to its power to close stubborn cavities in the lung.[d] It was also the most radical. The number and lengths of rib portions to be removed through an incision running along the patient's vertebral column depended on the location and nature of the lesion and the discretion of the surgeon; the patient was rendered more or less disfigured for life, with a characteristic sunken-chested, skewed appearance.

While many tuberculosis specialists were unconvinced after initial trials that phrenic surgery offered much benefit, Dr. Miller and his colleagues were some of its outspoken proponents and the sanatorium at Kentville employed it to a greater extent than any other, save one, in Canada.[26e] The rationale behind this operation was that by interruption of the nerve supply on one side, half of the diaphragm would be paralyzed in its elevated position and thus compress the ipsilateral lung, irrespective of any adhesions present, simply by decreasing the amount of space available to it. Artificial pneumoperitoneum similarly maintained the diaphragm in a raised position, by pressure from below. Complications reported by Miller's team included severe dyspnoea lasting from a few days to two months, digestive

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[d] See Figure B.

[e] See Figure B.

upsets, and, in some cases, a subsequent basal spread of the disease--for which reason he recommended that phrenic operations be designed to be temporary rather than permanent. Even so, the complication rate was vastly lower than that of artificial pneumothorax; and the fact that the patient was spared the expense of obtaining repeated refills could often be sufficient justification for choosing one over the other.

But any advantages due to fewer complications must have been relatively rarely enjoyed by patients, since so few of them underwent phrenic surgery alone. Of the first 250 sanatorium patients to have phrenic operations, half had also received the benefits of "other operative aids" as well; and, when they published their study of these cases in 1939, Miller and his group allowed that many of the early phrenic cases "today would at once be subjected to thoracoplasty".[27] The following table shows the various combinations of operations to which 124 of these 250 patients were subjected:

TABLE B-2-a

USE OF OTHER SURGERY IN COMBINATION WITH PHRENIC PARALYSIS

Phrenic	+ Artificial Pneumothorax	72
"	+ Thoracoplasty	18
"	+ Artificial Pneumothorax + Thoracoplasty	14
"	+ Artificial Pneumothorax + Pneumolysis	10
"	+ Oleothorax	7
"	+ Oleothorax + Thoracoplasty	3

Despite the insistence of Miller, Schaffner and others that each procedure had "its own definite indications", the above figures indicate that phrenic surgery was an extremely common adjunct to thoracoplasty. While arguing on the one hand that phrenic surgery was less popular than it deserved to be mainly due to lack of proper patient selection, Miller and Schaffner themselves often used it anyway in cases which "at first may not appear to be ideally suited" and reported that "we are often agreeably surprised, even in bilateral lesions..."[28] They recommended it as a separate prelude in some cases, "which will render the patient suitable in a few months for [thoracoplasty]."[29] Thoracoplasty was also a common successor to artificial pneumothorax. According to Miller and Schaffner, "70 to 80 per cent of pneumothoraces are followed by effusions of mild or serious nature, and of these 15 to 18 per cent become purulent, requiring thoracoplasty".[30] Notably, this is a much higher complication rate for artificial pneumothorax than had been reported in the sanatorium's earlier studies. The existence of thoracoplasty as a last resort may even have encouraged optimistic tryouts of newer procedures which might otherwise have ended in disaster; it certainly provided a welcome cushion at Kentville when "many" of the first series of attempts at extrapleural pneumothorax failed.[31]

The very prevalence of such combinations of operations has made it as impossible for modern researchers as for

contemporaries to judge whether all this surgery, or certainly any particular procedure, conferred real benefit on patients sufficient to outweigh their obvious disadvantages and risks. Even when results were patently "disappointing", operators could always blame faulty selection of cases and feel confident that experience would show a treatment's "real" value in the future. Acknowledging in 1939 that "the exact value...and...indications" of phrenic paralysis "are still controversial", Miller and Schaffner asserted that "we hope and believe that the results...during the next few years will be more gratifying than they have been in the past," and urged other sanatoria to employ the procedure more widely. Yet they, at least, acknowledged that "there is probably no branch of surgery in which it is more difficult to set down indications and contraindications for a certain type of operation than in ... pulmonary tuberculosis."[32] Even if such guidelines had been clearer, they would probably not have been followed: citing the many far-advanced cases who found their way to the sanatorium, Miller and Schaffner noted that "We have, therefore, to select cases for compression therapy as well as we can, under circumstances over which we have no control."[33]

Even when the surgery achieved a good "mechanical result", the patient might not feel any better. Tracheobronchial ulceration, which was "not helped immediately" by any operation, could result in the persistence

of symptoms and infective sputum for years. Of the 25 thoracoplasty patients whose mechanical results Schaffner classed as "fair" (the only other categories were "good" and "poor"), two were unimproved postoperatively as far as clinical condition went and ten died. Overall, a third of all the patients suffered serious postoperative complications including tuberculous spread, wound infection, hemorrhage, or spontaneous pneumothorax in the contralateral lung; of these, 24.2% (eight patients) did not recover, and 11% of all the patients were dead within seventeen months after operation. Significantly, as well, about 30% of patients with sputum positive for tubercle bacilli remained in the infective state following the operation. And therein lay the great problem with the government's reliance on treatment as "isolation": a great many patients, regardless of treatment, failed to become sputum-negative. Taking the sanatorium's 1942 statistics as an example, of 207 patients receiving artificial pneumothorax treatment, 116 (56%) remained sputum-positive for tubercle bacilli; of the 44 formerly-infective thoracoplasty patients, 13 (30%) remained so; of 14 intrapleural pneumolysis patients, formerly infective, 5 (36%) remained so; of 23 phrenic surgery patients, formerly infective, 12 (52%) remained so.[34] Even those successfully rendered non-infective might relapse at any time. Besides, there remained the whole class of patients (42% of the sanatorium population in 1943) who were unsuitable for surgery and received only the classic "rest cure", which

was unlikely to affect their infectivity status in any way.[35]

The Kentville study on phrenic operations relied on questionnaires to determine patients' present condition, as Miller had done earlier for artificial pneumothorax; but this time, though it was not stressed in the published charts, readers were offered a rare glimpse of survival rates depending on the number of years elapsed since surgery. The results have been retabulated here to emphasize more clearly the "elapsed-time" factor, which was not originally a primary concern.[36] Only one of the 250 patients was listed as "unknown"; the relevant group is marked with an asterisk.

TABLE B-2-b

RESULTS OF PHRENIC PARALYSIS
ACCORDING TO TIME ELAPSED SINCE SURGERY

Years since surgery	No. of patients	Apparently cured, arrested, or improved		No Change or Worse		Dead		% Dead, Worse or No Change
		No.	%	No.	%	No	%	
1	36	28	77.8	8	22.2	0	0.0	22.2
2	57	46	80.7	6	10.5	5	8.8	19.3
3	34	25	73.5	2	5.9	7	20.6	26.5
4*	21	13	61.9	1	4.8	6	28.6	38.1
5	30	16	53.3	3	10.0	11	36.7	46.7
6	19	13	68.4	1	5.3	5	26.3	31.6
7	37	22	59.5	2	5.4	13	35.1	40.5
8	16	7	43.7	2	12.5	7	43.7	56.3

Thus, it is apparent that while there were no immediate post-surgical fatalities, about a fifth of the patients failed, by Miller's criteria, to show any benefit from their treatment either immediately, or within a year or two afterwards. Miller and his team claimed a death rate of 21.6% overall; but the figures show, as above, that this percentage became far higher the longer the time which had elapsed. Three years after surgery, over one quarter of patients were unimproved, worse or dead; after five years, this had risen to nearly half; after eight years, to more than half, and fully 43.7% were dead. It may be of interest to remind ourselves here that we are not dealing with the modern conception of the seriously ill as, by and large, an elderly group. Over 87% of these patients were below the age of 39; over half of them were in their twenties, and nearly another 15% in their teens. The team's summary of their results, which grouped all these patients together, further showed that 40% of sputum-positive patients who had received "other operative aids" in addition to phrenic surgery remained infective postoperatively; for those who had had phrenic surgery alone, this climbed to 60%.

This report also gives the causes of the deaths which occurred. Six patients died post-operatively, after thoracoplasty -- the necessity of the subsequent operation in itself testifying to the lack of lasting benefit they had obtained from their earlier travails. Four died following massive lung hemorrhages; two of cardio-respiratory failure;

the others of tuberculous meningitis, acute pneumonitis, spontaneous lung collapse, or simply "progressive disease". Of the whole group, up to eight years after their surgery, not one had died of any cause other than tuberculosis.[37]

Yet the enthusiasm for surgical intervention did not flag; quite the opposite. Comparing the sanatorium's record of surgical work done in 1931 with that of 1938 and 1946 shows a clear trend:

TABLE B-3

FREQUENCY OF SURGERY, 1931-1946

PROCEDURES	1931	1938	1946
Artificial Pneumothorax procedures, including refills (no. of patients, where stated, in brackets)	2716	3719 (157)	4000 (170)
Phrenic Operations (Crush, Recrush or Evulsion)	22	71	94
Thoracoplasty procedures (no. patients in brackets)	3 (3)	138 (60)	237 (96)
Intrapleural pneumolysis		17	67
Extrapleural pneumothorax		6	--
Oleothorax procedures (including refills)		12	--

By the mid-forties, something over half of all sanatorium patients were receiving some kind of surgery; most of the rest, judged too far gone to be helped, subsisted on palliative care and the old rest regime and hoped for the best. Thoracoplasty, reported Dr. Schaffner in 1940, was now

being used for cases "that only a few years ago would have been excluded". The problem had been that those sick enough to warrant thoracoplasty were often judged too sick to withstand such drastic intervention -- at least, all at once. The solution lay in the development of a multistage procedure. A few pieces of rib were removed at a time, one operation following another until the desired result had been attained. Schaffner's study of 100 consecutive thoracoplasty cases, for example, actually involved 245 separate operations. 44 patients were operated on in two stages; 44 in three; four in four; and one patient received two one-stage thoracoplasties, one for each lung. Only seven patients of the hundred had received only a single procedure.[38] At the time of the report, Schaffner had begun to try the effect of more stages still, and had noted that the shorter the delay between them, the better the overall result; the ideal was held to be about a two-week interval. By the mid-forties, a three-stage procedure had become most usual. A further refinement involved the substitution of local for general anesthesia: in this way, depression of the cough reflex was avoided, sputum could be cleared more efficiently and the possibility of bronchiogenic spread of the bacillus during or just after the operation was minimized. The surgeon also gained "the fullest cooperation of the patient", who remained awake and aware throughout the ordeal. Although it had been adopted too late to benefit the cases in the study, the Kentville staff

reported it was "so far...greatly pleased" with this innovation, which had been used "recently" on "approximately ninety" cases; by the time the article went to press, a footnote attested that this number had already been raised to 170.[39]

Schaffner's elapsed-time table gives clear indication of the increasing frequency of thoracoplasty. Of these 100 consecutive cases, only two had been operated on in 1934 and six in 1935. In all, though thoracoplasty had been introduced to North America as early as 1912, only 18 Sanatorium patients had had the operation up to 1932.[40] Once the sanatorium's own surgical service came into being, the numbers began to soar. In 1936, there were 20 cases; in 1937, (listed as "one year ago") 30; in 1938 ("less than one year"), 42. Taking the latter partial year into account, it appears that 92% of the group had received their surgery within something over two years before the end of the study period in 1938, 72% within something over a year, and fully 42% within the last few months. For this reason, it is impossible to try to draw conclusions about long-term gains, or the lack of them, from the table. What is reflected in the summary is the increasing tendency to operate on poorer-risk cases: the older cases were more likely to be "apparently cured" or "arrested" than the most recent ones, who were more likely to be merely "improved", stationary, or dead.

The patients were also receiving more extensive surgery.

Of the 100 patients reported on, 65 had disease manifest in both lungs; of these, 21 received "operative aids" of various types in the other lung, as well as their single- or multi-stage thoracoplasties. "Seventeen," reported the surgical team, "or 17 per cent, had contralateral pneumothorax treatment, two had phrenics, and one had pneumothorax combined with a phrenic." The twenty-first was the patient who had received "bilateral thoracoplasty".[41] No longer would bilateral tuberculosis be considered a contraindication to lung collapse, as it had been in the early days of artificial pneumothorax. Now, the modern surgeon would "select aids to collapse diseased lungs and cavities no matter where they are located. Cavities must be closed regardless of whether they are situated in one lung or in both."[42]

It might be considered that, after all, these patients were in such desperate condition that almost any measure offering a slight hope of improvement might be justifiable; but, increasingly, this was not the case. In order to prevent the necessity of undergoing chancy surgery when prognosis was poorest, that same surgery began to be recommended much earlier in the course of the disease even though, in the thoracoplasty study, Schaffner was unable to say "with certainty" whether some of the earlier cases might not have recovered without intervention at all; and, further, results in cases of disease of 10-20 years' standing (66.7% "satisfactory" and 33.3% "unsatisfactory") was exactly the

same as for that of only 3-4 years' duration and even better than that of 2-3 years' (56% and 44% respectively).[43] Dr. Robert Janes of Toronto advised in 1935 that "the institution of collapse should not be delayed beyond the relatively short period required to determine the reaction to bed rest alone;" Miller, too, stressed the same year that there should be "no unnecessary delay in coming to a decision, as the gravity of the prognosis increases...the longer these supplementary procedures are withheld."[44]

As early as 1933, Miller had noted the "keen interest and, in many cases, surprise" among general physicians attending one of the sanatorium's regular refresher courses when they were apprised of the new possibilities for treatment.[45] They must have been impressive as well to the public and to the government, which had financed the transformation of the erstwhile "rest-home" into a far more expensive surgical facility and built its public health plans largely on the basis of the benefits the new age of treatment could provide.

Segregation: Sanatorium vs. Annex

As the Depression decade opened, the Department allocated $200,000 for a new infirmary at the sanatorium, $100,000 for additional beds in Cape Breton, $80,000 to go toward the building of tuberculosis annexes to existing hospitals, and a guarantee of future annual grants of $80,000 to be earmarked

for tuberculosis. Any hospital approved as an annex site would receive a capital sum for construction and $1.00 per patient per day toward maintenance.

With the government and its advisors in the medical society quite convinced from the beginning of the utility of these local annexes, there were some who began to feel that the $200,000 allocated for a new four-story, 80-bed infirmary building at the Provincial Sanatorium could be better spent elsewhere.[f] Early on, Dr. Miller had been disappointed in his expectations for the new infirmary; in 1929 he had drawn up plans for two fourth-floor children's wards which had met with a very cool reception by the government, and had had to be scrapped if construction were to begin on time. Later, there was more frustration and delay when it appeared that the project would go over budget, necessitating a second look at the architect's design. And in 1930, it appeared that some ill-wishers were determined to wreck the project completely. Dr. Miller wrote in agitation to the Premier:

> ...a movement is on foot to urge your Government to withdraw the sum of money it has voted for a new infirmary at the Nova Scotia Sanatorium, and to apply the greater portion of it to the establishment of a number of local tuberculosis 'Wards' or 'Annexes' throughout the Province.[46]

While, to the Premier, Miller stressed that the most up-to-date sanatorium possible was a matter of provincial pride,

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[f] When opened in April of 1932, it would actually contain 84 beds.

he made it clear elsewhere that he, at least, believed that the annex plan was a poor one. While his vehemence may seem somewhat surprising in view of his prominent role on the Commission, which had worked for years to promote this very plan, one must remember that Dr. Miller had never been one to stand idly by when extra money or extra beds for his Sanatorium were at stake.

> This idea [annexes] is not new, but is, to say the least, open to question and contrary to the whole trend of modern thought, which, expressed in business, in education, in research, and in all manner of service where specialization and skill are desirable, is centralization.[47]

Centralization, he went on, was only common sense: it meant increased cost efficiency to treat a large number of patients in a single facility, to permit

> the employment of...specially skilled physicians and nurses, technical equipment for diagnosis and examination, for light therapy in its various uses; for study of special diets; where the patient can have the best obtainable x-ray equipment and an expert roentgenologist at his service; where the need and possibilities of surgical procedures can be studied, and the necessary observations and treatment of artificial pneumothorax cases can be carried on...

And finally, argued Miller,

> There can be no objection to the receiving of tuberculosis patients, under special circumstances, at any small hospital which decides to have a ward or room for this purpose; but this would entail little expense and should not be a large feature of the best procurable system for treating the tuberculous.
>
> I am sure that every physician and every parent or relative of a tuberculous person desires for his or her patient the best chance and every possible aid in his fight. And these can best be found at a central institution where every facility

> is provided.
>
> I speak, therefore, on behalf of the patients of this province, whose distressful pleas for admission we have to refuse because of the lack of infirmary room...

But, as the government must have reasoned, general hospitals were not devoid of equipment, or of physicians and staff who could supply special diets, make observations, be trained to deliver pneumothorax refills (as they would very soon be doing routinely: 20 physicians were giving this service by 1933)[48] and perform surgery -- which, in fact, was impossible before 1936 at the Sanatorium itself. As far as x-ray capability went, this was hardly confined to Kentville. The Victoria General that year was offering radiological therapy for cancer, asthma, dysmenorrhea, profuse menstruation, acne, "enlarged glands" and common warts, among other things.[49] Besides, as Dr. Campbell pointed out in 1931, any patients who needed highly-specialized treatment for which a given hospital was not equipped could always be transferred to the sanatorium. It is, of course, quite true that the expertise available at the sanatorium was a resource made use of by doctors all over Nova Scotia: Miller and his staff provided internship periods for medical students, refresher courses for practising physicians, and help in interpreting x-ray films to any doctor who asked for it. It is also true that general hospitals were not, in their present state, set up to offer long-term care. But, as resort to surgery among tuberculosis specialists increased, the

treatment became more and more indistinguishable from mainstream therapeutics; and experts in almost every field -- other than tuberculosis -- seemed quite comfortably established at general hospitals. The fact was that the sanatorium was not a separate institution in the 1930s because it offered treatment or facilities that could not possibly be given anywhere else. Sanatoria everywhere were perched on isolated hilltops for reasons which had made sense in another age. They had been struggling to justify their territorial seclusion even then; they continued to do so under vastly changed conditions now.

It is undeniably true that Dr. Miller cared about access. He had always advocated financial assistance to enable the poor to be treated, and, due largely to his efforts and those of other Commission members, this campaign had borne fruit: by 1935, he was able to report that "between fifty and sixty percent" of sanatorium patients were in receipt of some kind of aid.[50] He was genuinely distressed at the beginning of the 1930s by his growing waiting list, which often meant patients waited three to six months for admission. Yet it was also true that the Sanatorium represented "Cadillac" treatment, involving as it did the long-term provision of optimum nutrition, rest, and the ideal "home environment" along with more specific measures. Patients there did, undoubtedly, receive the best care available, and Dr. Miller did his utmost to protect their interests. Once they were

part of the Sanatorium "family", for example, impecunious patients who would otherwise have had to leave were as often as possible offered one of a variety of jobs at the institution itself, so that they could stay on and continue treatment. At one point during the depression, some 33 patients were so employed as telephone operators, stenographers, librarians, clerks, barbers, orderlies, maids, ambulance drivers, laundry workers, messengers, mechanics, technicians, and so on.[51] Only a large central institution, equipped with such amenities as its own post office, lighting plant, garage, library and the like could have done this to such an extent; and it might also be argued that such an institution, isolated and dealing with a single disease, was perhaps better able than a general hospital to evoke an image in the public mind which encouraged donations to subsidize patients there. But to spend the bulk of public money on the finest possible treatment in this case would necessarily mean that a great many more tuberculosis victims must go completely unprovided for. Besides, a large, central institution like the sanatorium inherently limited accessibility by requiring people to travel far from home for undetermined periods and, to a great extent, cut their ties with their supporting network of family and friends at the very time -- during illness -- when that support was most needed. Miller's argument, then, sincere though it undoubtedly was, carries echoes of a pervasive Weltanschauung which crops up again and

again in the history of twentieth-century medicine: the Flexnerian view that the biggest, best, most scholarly, modern, efficient and expensive must become the minimum standard, regardless of how many people are thereby denied access.[52]

The government's plan for local annexes was, at least, pragmatic. The primary goal was segregation, not the question of access or of providing the best obtainable treatment. Obviously, it would be helpful if those to be segregated went willingly; most people, it could be expected, would want treatment closer to home.[g] Besides, their municipalities and towns were ready to contribute to hospital enlargement; and, sanatoria having become virtual hospitals anyway, there seemed little reason not to choose the obvious solution.

In the end, neither Miller's arguments nor those of his opponents changed the government's original intentions. The sanatorium got its new infirmary in 1932, along with a new operating room after Dr. Schaffner was appointed; and the annexes were built according to plan. The first one, with ten beds, was opened in November of 1931 at Inverness Memorial Hospital, and was closely followed by a twelve-bed unit at St. Mary's Hospital (also in Inverness) and a forty-bed unit at

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[g] A 1948 amendment to the Nova Scotia Public Health Act compelled treatment of active cases, and sanatoria and hospitals were fitted up with "detention quarters" for the unwilling. See David McCurdy, "The Recalcitrant Tuberculosis Patient", Canadian Journal of Public Health (August 1954), pp. 350-2.

Sydney City Hospital; several others were soon on the drawing board. By the end of 1939, there were additional annexes at Amherst's Highland View Hospital (16 beds), St. Martha's Hospital, Antigonish (50 beds), St. Joseph's Hospital, Glace Bay (42 beds). There was, in addition, the 16-bed Our Lady of Lourdes Sanatorium at Stellarton, privately operated by the Sisters of Charity. Altogether, with some 554 beds, the province had now surpassed its long-held goal of a bed per annual death.[h]

Public Health in the Great Depression

The government's new plan for case-finding and home monitoring divided the province, initially, into three divisions, eastern, western and central; each had its own travelling clinician by 1932. The unevenness of existing nursing coverage was recognized as a special problem. As Dr. Byrne wrote in 1931, "Some sections of the province have a reasonably good nursing service, others a hopelessly inadequate one or none at all."[53] In addition to its own nurses, the Department took on the three which had been employed by the Commission, and began planning for more. Cape Breton Island was served by its own separate "Health Unit", to which C.J.W. Beckwith of the Provincial Sanatorium was

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[h] This standard was called "very inadequate" and "outdated" in the CTAAR for 1935 (p. 13); the CTA now recommended a standard of 2.5 beds per annual death.

appointed as clinician in 1938. The creation of more divisions would await the training of new public health professionals to head them; in 1941, two were added thanks to Rockefeller Foundation grants funding two physicians and a nursing supervisor to attend the Diploma in Public Health programs at the University of Toronto or Johns Hopkins.[54i]

The overall plan aimed at streaming discovered cases either to institutions, or to be cared for at home under the supervision of visiting nurses. Home care, for the first time, was to be considered not an unfortunate evil to be regretted, but a part of official policy. This was such a great turnabout, and seems to have been such an obvious necessity from the beginning, that it is interesting to speculate on why it was happening just now. It had always been estimated that Nova Scotian tuberculosis cases numbered in the thousands; it had certainly been apparent before this that the thousands of beds necessary to house every case could never possibly be constructed. Yet schemes which could offer care to very large numbers of patients, whatever their condition -- such as drop-in dispensaries -- had never been adopted; instead, the sanatorium solution held sway.

Although the existence of surgical methods which would presumably render patients non-infective and the availability

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[i] Rockefeller and Connaught fellowships, aimed specifically at training nurses and physicians for full-time district public health work in every province, became increasingly available at the University of Toronto's School of Hygiene during the 1940s.

of pneumothorax refills from general practitioners were crucial factors in the new respectability of home care, they were not the only ones. Also of importance was the postwar compromise which had been worked out between modern private physicians and public-health practitioners. Before 1914, when A.P. Reid had suggested a corps of health inspectors to search out disease in homes, his idea had been a clear threat to the existing medical establishment. The lay health inspectors would, in effect, have been practising medicine without a license. Notwithstanding his power to criticize the medical establishment in public, which Reid for one certainly used, the more radical plans of the Public Health chief were held in check and gradually, solutions were hammered out. Nurses, a trained group possessing little authority or autonomy, could be trusted to undertake house-to-house work in a capacity which was understood to be safely subordinate. It began to be understood, too, that travelling clinics, which were much more feasible in the 1930s when roads had improved and all-season motoring had become more commonplace, could be carried on without injury to the area's private practitioners. Dr. Miller described a typical travelling clinic, run by Sanatorium staff, which covered eight counties in 1931. Physicians in the targeted area were contacted a few days in advance of the clinic's arrival. If so inclined, they would then select cases of their own in which they felt the need of a second opinion, supplied free of

charge. There was no "drop-in" traffic: in fact, traffic, especially in larger centres, was often so heavy that the clinicians were unable to see all the cases which had been referred. Persons who had not taken their complaint to a private physician, through lack of money or any other reason, were not eligible for the free service; neither were patients whose physicians judged their cases well in hand or unsuitable, or who saw no value in the service. If Miller's clinic staff was following the policy which had been unanimously adopted by the NSTC, which is likely, then the diagnosis would be reported not to the patient, but to the referring physician, so that the patient would have to pay the fee for a second visit to learn the results of the free examination. The result was workable, even helpful, for physicians and, of course, for many patients, but only those who could afford to be under a doctor's care in the first place, and the numbers of these naturally dwindled during the depression. For the more unfortunate, the services were just as inaccessible as they had ever been. In addition, x-ray equipment was not available at every center and there was no mobile x-ray service. Even where they were available, x-rays were not part of the free service; they were included only when the patient was able to pay for them, or when some benevolent organization had undertaken to do so. Plates were expensive. Besides their regular community visits, clinicians organized mass surveys of various groups who requested it,

such as students at a particular school, or workers at a particular factory; often x-ray costs for such special surveys were underwritten by the requesting organization. But thousands of patients who went to clinics received only the regular percussion-and-auscultation physical examination -- delivered by an especially-skilled chest clinician, it is true, but the same examination which the advent of the x-ray had long since shown to be relatively unreliable.

There were other important factors, too, making home-care less formidable a notion than it had been. The greatly increased number of beds, the increased willingness of towns, municipalities and other groups to subsidize their occupancy, and, above all, the dropping death rate, all meant that there were fewer seriously-ill individuals to demand intensive care procedures at home. Thus could the government now speak with some confidence of its hope "before long, to have every case of tuberculosis in the province institutionalized or else under the supervision of our trained specialists and nurses."[55]

The best-laid plans of the Department, however, soon ran into huge obstacles in the shape of the Great Depression. The nursing team, increased to ten (not counting independent nurses) by 1933 and covering the whole province, were in an excellent position to observe at first-hand the effects of continuing distress in thousands of homes and in the schools. In 1933, they made 9,876 home visits (covering 15,765

people), as well as visits to 1,615 classrooms, contacting some 38,373 pupils; interviews with selected parents often followed school inspections. Besides working on "child welfare", maternal care, and education, the team paid

> very special attention ... to the home care of the open cases of tuberculosis. Minute instruction is given on the arrangement of the patient's sleeping quarters, the use of sputum containers [which the nurses distributed, along with tens of thousands of refill-liners each year], the importance of mouth covering when coughing or sneezing, the care of dishes, diet, the hands, the necessity of regular rest and in general the practice of proper health habits.[56]

The amount of work done by the nurses increased yearly. In 1938, they made 23,678 home visits and contacted 44,541 schoolchildren; in 1934, these figures had been 16,578 and 37,589 respectively. About 40% of the home visits involved tuberculosis cases: 8,077 in 1937, 9,402 in 1938. Since there were certainly not so many known individual cases in the province, this is a good indication that repeated follow-up visits were indeed being made. When taken in combination with the numbers of patients seen by the travelling clinicians, each of whom examined, on average, between one and three thousand people a year, it is clear that public health personnel were coming into contact with the people of the province as never before.

Still, despite their growing opportunities to observe the plight of patients directly, district nurses made no comprehensive public report of the conditions they found. The

existence of "distress" seems almost taken for granted in their reports; the chief topic of their remarks concerned those few cases in which they had been able to secure charitable support for the indigent sick. As the depression progressed, both the sanatorium and the Victoria General noted that a larger proportion of their patients could not afford to pay. Dr. Beckwith, the travelling tuberculosis diagnostician at the time, noted that it was in the very areas where high mortality rates, large families and poor living conditions were most prevalent that the municipality was most likely to be unable to pay anything toward institutionalization or support of the tuberculous poor. "Little can be expected in the way of control," he wrote, "unless aid is forthcoming which will facilitate treatment, education, or operative measures, when indicated, for the control of open cases."[57] Dr. Bayne, Eastern Division DHO, echoed this concern:

> [Support] is of necessity dependent on the financial status of the municipality. Indeed some districts have such a small treasury that it is difficult for them to give aid to tuberculous individuals at home and they appear to be unable to consider sanatorium treatment for even the most deserving.[58]

Though all patients were urged to have an x-ray and, if found tuberculous, to spend <u>some</u> time, at least, at the sanatorium, both measures were often out of the question. Rural patients had to travel to the nearest x-ray-equipped general hospital, and this could involve quite a distance: there was as yet, for example, no x-ray centre at all between Liverpool and

Yarmouth. Besides, as Dr. Miller noted, "the cost of chest films taken in the average general hospital is practically prohibitive for the poor."[59] For these reasons, most practitioners still relied on stethoscopes, and the sanatorium continued to find that most of its new admissions had evaded detection until the advanced stages. Meanwhile, the segregation policy had evidently had its effect upon public opinion:

> The public is slowly learning the importance of segregation of open cases, and some instances have come to light where public opinion has made the removal of an open case compulsory. It is both alarming and disheartening, however, to see the many instances in which treatment would save a life and protect all contacts, yet such treatment is not possible because of inability to pay or find payment for it.[60]

Since the new Health Minister's portfolio covered welfare too, DHOs also shared responsibility for reporting on cases receiving or applying to receive Mother's Allowance, as well as conditions in the poorhouses and jails of their districts.[61] They were aided in this work by "visitors" sent out by the Director for Administration of the Mothers' Allowance Act, who would investigate the merits of claims

> so that the welfare of the dependent children may be assured, the morale of the home unbroken, the older members of the family not relieved of their legal and moral responsibilities and the tax-payers of the province not imposed upon.[62]

The latter two considerations would seem to have been primary. There were guidelines, for example, on how to distinguish a

"deserving" family from a deceptively similar "undeserving" one, each headed by a widow with four children under the age of sixteen:

> One owns her own home and the other lives in a rented house. One was left a considerable amount of life insurance, the other none. In one family there is a very delicate child of 5 and a child over the age of sixteen years confined to bed suffering from an incurable disease. In the other family all are in good health. One mother is healthy and has an opportunity to do work which will not in any way prevent her from giving adequate care to her children and which will partially provide for the maintenance of her family. The other mother is very delicate. One mother has a number of children over the age of sixteen years, several of whom are quite competent of earning and helping to support the family. The reputation of one mother is excellent, the other questionable. One is regarded as a very economical and competent housekeeper, the other as wasteful, incompetent and slatternly...[63]

There is much evidence to suggest that relief payments as well were distributed in all parts of Canada during the depression with an eye to such criteria.[64] Standards varied not only between municipalities, but also from year to year within a given municipality. In Nova Scotia, the provincial supervisor of relief reported that the number of people directly receiving relief for 1936-7 had been cut by one-third from the previous year, due to a "special effort" by the municipalities to prune their relief rolls. As a result, the number of places offering relief at all was cut drastically.

As soon as it became apparent that the depression would be no momentary thing, chief MHO Campbell worried about its potential effects, feeling that "a continuation of world

conditions through which we are passing may yet seriously affect the health of the people."[65] Yet, as the economy continued to worsen, a remarkable fact came to light: not only was the overall tuberculosis death rate not climbing, it was continuing and even accelerating its decline. Thus even when there was an upturn in mortality, as there was in the mid-1930s, there was no resort by public health officials to the pessimistic predictions they had been wont to make in the past. Instead -- though the depression was far from over -- chief MHO Campbell showed a striking degree of equanimity:

> This does not mean that this disease is on the increase. It has, for some time, been observed that a period of low mortality is followed by a short period of comparatively heavy losses. We know the morbidity and mortality tendencies in tuberculosis are definitely downward and, as a consequence, we look for a sharp decline next year.[66]

He was right: the decline reappeared in 1937 and continued thereafter.[j] Having given this novel eventuality some thought, Dr. Campbell even felt he had found the answer. Poverty could actually be <u>good</u> for the health of the population: after all, it meant a "return to plain food, curtailment of social activities, and enforced moderation generally."[67] This view of poverty as a bracing antidote to presumed pre-depression extravagance -- which, by the way, blatantly contradicted Campbell's many earlier statements about the close relationship between tuberculosis and poverty

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[j] See Graph A-1-b in the Appendix.

-- is at least reminiscent of early campaigners' praise of the healthfulness of romantically rough, plain, rural living.

Campbell's confidence in the future was possible even in the light of unprecedented economic hardship and a programme which made few concessions to the poor for one overriding reason: in this place, at this time, the corner had been turned and the decline had become unstoppable. Year by year, fewer open cases existed, meaning fewer and fewer people became infected to begin with; the cycle had now become self-sustaining. In the five years before 1937, there had actually been more deaths in relatively peacable Nova Scotia attributable to violence than to tuberculosis, and the Public Health Department noted in 1937 that the long waiting lists for tuberculosis beds so characteristic of the past "are gradually fading from the picture."[68]

The divisional clinicians' examination results during the thirties also reflected this turning point in Nova Scotia's experience of tuberculosis. Year by year, the percentage of positive cases identified at initial examinations averaged about 16%, with another 15% judged suspect. In 1938, travelling tuberculosis diagnostician C.J.W. Beckwith reported essentially similar results whether the initial examination included an x-ray or not: radiologic examinations yielded 70% initial negatives, as compared with 72% from exclusively physical examination of the chest. The actual case rate among the general population would have been lower still, since the

case-finding effort was concentrated on high-risk groups such as young adults, persons in contact with a known open case, or patients whose symptoms had been judged suspicious by their own doctors.[k] C.M. Bayne, DHO for the Eastern Division, reported in 1935 that among groups which had been receiving regular annual examinations, such as certain schools and religious orders, new cases of tuberculosis were now rarely to be found.[69]

Statistics for other parts of Canada were showing the same phenomenon; and in some places, notably Saskatchewan, both diminishing numbers of positive tuberculin-test results and lessened demand for sanatorium accommodation led the CTA to note that "we are reaching the saturation point in regard to beds required."[70] CTA President R.G. Ferguson went further:

> It would seem evident now that the back of the tuberculosis problem has been broken and the way cleared for the final drive for the reduction of this disease to a minor cause of death.[71]

These were certainly gratifying results, in that they had been attained in the middle of the Great Depression, without a cure having been discovered, without BCG, and without an equitable welfare scheme. Certainly, not all western countries, or groups, had experienced the decline at the same rate; significantly, high mortality was still a feature of

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[k] No specific effort was made, however, to target those at risk because of poverty. Case-finding surveys among young adults, for example, were largely confined to normal school, boarding school or university populations.

populations with relatively high levels of poverty, such as Canada's native peoples and the people of Newfoundland. But in populations which had experienced the decline most fully, the danger from the erstwhile Great White Plague had dwindled to the point that only in the event of their being plunged into utter extremity -- such as that experienced in war-ravaged Europe and in concentration camps during World War II -- could it resurface, and then only temporarily. The Great Depression, severe as it was in North America, was not powerful enough to bring it back.

CHAPTER 5

THE 1940s: TWO CURES

When the Second World War began, the federal government, mindful of its failure to effectively screen recruits in the previous conflict and still burdened with pension payments to tuberculosis-disabled veterans, was not about to make the same mistake twice. Although the tuberculosis death rate in Canada had declined to a fraction of what it had been in 1914, all would-be recruits were x-rayed. Of the 1,500,000 examined, 15,000 (1%) were rejected on the basis of tuberculosis.[1] While only 1/3 of these had disease considered active or in need of treatment, their further breakdown on the battlefield -- and access to federally-financed treatment and pensions -- was prevented. As an added bonus, the radiological examinations also detected a variety of other chest conditions which would have impaired service. All told, about 1.4% of recruits were rejected on the basis of their x-rays.[a]

The war also increased fears of deteriorating health and sanitary conditions in Nova Scotia, as well as concern that

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[a] As with any project of this magnitude, things did not always run with clockwork precision. The X-rays, at first read by sanatorium and public health personnel, were gradually taken over entirely by the military hospitals; but Western DHO Robertson claimed in 1943 that tuberculous recruits were "seldom" informed of the reason for their rejection. This, of course, resulted in a great deal of extra work for the public health staff, who then had the job of tracking down these new cases. See Western Division Report, DHAR, JHA, 1943, Part II, Appendix 17.

the postwar period could bring a flood of immigrants from wartorn Europe and elsewhere which might overwhelm the existing public-health network.[2] These fears were borne out in urban and military centres such as Halifax, suddenly overcrowded in wartime and beset by wave after wave of infectious disease; and also in a host of rural centres, where health officials struggled to enforce the efficient operation of balky new water chlorination plants, often staffed by inexperienced wartime workers. Many towns still lacked clean-milk bylaws, and water supplies in Northumberland Division were so badly contaminated at so many different times of the year that only sheer luck seemed to prevent a major typhoid outbreak.[3]

The possibility of a wartime rise in tuberculosis mortality was the particular worry of Atlantic Divisional Officer J.J. MacRitchie, as he confronted "the increased tempo of life that accompanies our war effort". [4] In 1943, he characterized the anti-tuberculosis struggle to date as "a steady pull upstream against a current which occasionally eases away in intensity".[5] This view was far too pessimistic. Although the provincial death rate rose slightly in 1941 and again in 1943, tuberculosis mortality continued its dramatic decline. It had reached a new low of 54.6/100,000 population by the end of the war, down some 21 points from 1939.[b] In

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[b] See Table A-1, Graphs A-1 and A-1-c; Table A-2 and Graph A-2-d in the Appendix.

1946, a gratified MacRitchie reported: "Epidemically speaking we have emerged unscathed". In his opinion, the great wartime drop in tuberculosis mortality had been due to the "laborers in the field" at the provincial Department of Health.[6]

In the first two sections of this chapter, developments in the public health programme and at the sanatorium are examined for the war years and the immediately postwar years respectively. The concluding section briefly examines the inauguration of chemotherapy for tuberculosis, and the consequences for those organizations which had been most closely involved in the struggle against the disease.

Wartime Frustrations

The availability of two newly-trained public health specialists in 1940 allowed the creation of two new health divisions: Northumberland, comprising Pictou, Antigonish and Cumberland counties, and Fundy, comprising the counties of Colchester, Hants, Kings, Annapolis and the municipality of Digby. The corresponding territorial diminution in the other divisions held out the promise of greater administrative efficiency, but this promise was undermined by a lack of staff in wartime to carry out routine visits and procedures. Rapid turnover among nurses, attracted by army posts, marriage or the host of wartime industrial jobs newly opened to women, posed problems everywhere in the province. Western DHO J.S. Robertson reported in 1940 that although there was a large

number of open tuberculosis cases in homes, nurses could now make only infrequent visits. But the supply of nurses was actually quite variable. In Fundy Division, for example, the normal complement of five was reduced to a single nurse in 1942, only to increase again to five the following year. As a result, services were usually curtailed only for limited intervals; and with school visiting and immunization the first to be cut, the overall tuberculosis program during the forties did not suffer greatly. The Western Division, for example, reported in 1945 that the most serious effect had been merely the deferral of proposed programme expansion.[7]

The direction of that expansion became clear early in the war, and largely followed the lead provided by the armed forces, whose "blitzkrieg" mass x-ray program was the most significant example of the well-group survey concept which grew increasingly popular in the forties, in Canada and elsewhere.[8] While in 1938, some 166,330 Canadians had been examined at clinics and in surveys across the country, 1,471,960 received such examinations in 1946 and the number approached 2 million in 1948.[9] Two technological innovations were of particular importance to this movement: the development of the Vollmer ("patch") tuberculin test, and that of miniature x-ray film, both of which came into common use during the war years. The patch test, which had proved its worth to Nova Scotian health workers just before the war, involved no injections, merely the fixing of tuberculin-

treated gauze to the skin with adhesive tape; thus teachers or or even youngsters themselves, once supplied with the ready-to-use materials, could easily distribute them, and medical personnel need become involved only to read the results later. The test was thus a relatively inexpensive means of identifying those who had been exposed to tuberculosis (or, unavoidably, BCG) and among whom new tuberculosis cases were most likely to be found. The x-ray could then be reserved for examination of positive reactors.[10]

For many physicians, however, any version of the tuberculin test was no substitute for the accuracy of the x-ray. Since fears of the potential danger of routine, widespread radiation exposure were still years in the future, and availability and costs continued to go down, miniature radiographs became an increasingly stronger rival, rather than a complement, of the patch test. While tuberculin screening plus x-ray was used widely in the Fundy Division under Dr. G.G. Simms and in the Cape Breton Health Unit, for example, the Atlantic Division used tuberculin hardly at all. And when G.M. Smith took over the Cape Breton Division from Dr. Beckwith at the end of the war, he declared his hope that the increasing availability of miniature x-ray film would eventually do away with the need for tuberculin tests altogether.[11] Similarly, in 1942-3 the Department of Education instituted compulsory x-ray examination, as opposed to tuberculin screening, of every teacher in the province. X-

ray was also the method used by the federal government and the Ontario Department of Health in their full-scale survey of Ottawa federal civil servants during the winter of 1943-1944. The survey disclosed a 2% prevalence of tuberculosis and a 0.39% prevalence of active disease, higher proportions than had been found among armed forces recruits.

Whatever the case-finding method, well-group surveys predictably proved a much less "lucrative" source of new tuberculosis cases than those reported to health authorities by community physicians or the traditional travelling clinics, which continued to function throughout the province and which were the chief method used in rural areas. This was especially true since surveys tended to concentrate on younger groups such as schoolchildren, not yet at the prime age for development of the disease. Surveys of their teachers and of residents at boarding schools for native peoples and reservations yielded proportionately more cases. Surveys of selected groups of workers also suggested a relatively high prevalence in certain branches of the labor force; but wartime lack of funds and especially of staff prevented Atlantic DHO J.J. MacRitchie from realizing his dream of a full-scale survey of industrial workers.

Case-finding results were compiled differently depending on the division involved and the year, making the provincial picture somewhat unclear. Some officers reported all examinations as a single figure; others divided them into

first-time and return examinations, not always tabulating the results of both; still others listed new cases found without regard to whether they had been detected by clinical or survey methods; some, especially in the early years, reported that surveys had been done, but did not provide the results; and all methods often obscured the number of individuals, as opposed to the number of examinations, involved. Nevertheless, trends do emerge within divisions where the reporting method was consistent.[c] In 1941, for instance, the 8,206 first-time examinations conducted in the clinics of all five divisions (not including the city of Halifax) yielded 675 (8.23%) definite positive cases and 6,580 (80.19%) definite negatives, the remainder consisting of either suspected cases or cases of primary tuberculosis, including those with fully-healed and calcified lesions. Both the latter groups were slated for later re-examination.[12]

Not all divisions reported the results of re-examinations; one that did, the Western Division, found 49.2% negatives among 2,697 cases.[13] Tuberculin surveys that year in Cape Breton high schools found that 35.4% of 1,864 students and teachers reacted positively. When x-rayed, these 660 cases yielded 396 (60%) definite negatives and only seven actual cases of tuberculosis, two of which had already been on record.[14] This amounted to a finding of definite

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[c] Readers interested in comparing regional patterns within the province should consult Table A-4, which gives mortality rates by county at various periods.

tuberculosis in just 0.37% of examinees, as compared with 17.4% of clinic attendees in the same division that year. Despite staffing shortages and low case yield, surveys of well groups continued to increase in popularity over the war years, and the Cape Breton Division under Dr. Beckwith had perhaps the best-organized survey program in the province. In 1945, his division surveyed 6,156 individuals by x-ray or patch test plus x-ray of positive reactors, and a further 4,053 school children by patch test alone, for an overall increase of nearly 450% over 1941.[15]

Comparison of survey results in the Fundy Division also yields interesting information, especially with respect to declining case rates among specially-targeted groups. In 1941, 1,859 individuals were tuberculin-tested at the Normal School, the Agricultural College, several high schools, the Shubenacadie Indian Residential School, and the Kings County native reserves.[16] Of these, only 475 were positive reactors who, on x-ray, yielded 330 definite negatives and 14 actual cases of tuberculosis, ten of them among aboriginal people. The increased susceptibility to the disease among native peoples and hence their heightened exposure to infection was indicated by a 55% positive tuberculin reaction rate at the Shubenacadie Indian school as compared with an overall rate of 15.9% among other school students, and a 48.5% positive reaction rate on the reserves. Altogether, ten cases were found among 263 reserve residents, a rate of 3.80%; in

1945, surveys at Fundy Division reserves yielded only 1 case among 133 individuals, for a rate of 0.75%.[17] Truro restaurant employees, for unclear reasons, seemed also to have heightened case rates; this group was targeted after four active cases, with four more suspected, were found among 151 of them in 1942, for a rate of 5.3% definite or suspected tuberculosis. The following year, out of 123 restaurant personnel, 7 cases and 3 suspects were found. By 1945, however, no cases at all occurred in this group.

The city of Halifax was rather late in instituting well-organized case-finding. Known in some parts, according to Atlantic DHO MacRitchie, as "the Ash can of Canada"[18], this naval base and major port played host to a swelling wartime population plagued with overcrowding, worsening sanitation problems and a variety of epidemics which at first claimed most of the health administration's time. City Health Commissioner Allan Morton reported that in 1942, the city's first full year with a co-ordinated public-health nursing service, there had been 904 admissions to the Infectious Diseases Hospital, which was filled to capacity; diphtheria, mumps, scarlet fever and venereal diseases had posed the most significant problems, with the latter accounting for 49 committals to prison under the Health Act. A great deal of time also had to be spent on inspections of dairies and butcher shops, along with weekly rounds of the city's 103 restaurants, and the routine duties involved with the

immunization and home-visiting programmes. Despite the chest clinics at the Dalhousie Public Health Centre and the treatment of some 150 patients yearly at the Halifax Tuberculosis Hospital, Morton concluded that the tuberculosis situation "has practically only been touched on the surface."[19]

In 1943, however, when the International Health Division of the Rockefeller Foundation carried out a survey, designed a five-year plan and provided $35,000 in funding toward the organization of the city's Health Department, the picture began to change. Among other things, Halifax instituted a statistical department, increased its capacities for monitoring of the water supply, increased its nursing staff from nine to fifteen, and began planning a 69-bed addition with operating room for the Tuberculosis Hospital, which opened in 1947. Together, the Tuberculosis Hospital and the Dalhousie Public Health Centre operated one evening and three daytime tuberculosis clinics weekly. The mass-survey concept, however, did not take hold in earnest until 1946, when C.J.W. Beckwith left Cape Breton to become Director of Tuberculosis Control and Superintendent of the Tuberculosis Hospital. There followed mass x-ray programs among high-school, medical and dental school students, and rigorous follow-up, tuberculin testing and examination of contacts of known cases.[20]

The increased use of well-group surveys and the growing efficiency of record-keeping was a clear indication of health

authorities' determination to locate, treat and supervise each and every case of tuberculosis in the province, a goal which now seemed within sight. Certainly, the success of this effort was variable among divisions, with Dr. Beckwith in Cape Breton believing in 1941 that he now had "a reasonably accurate picture of the tuberculosis morbidity (new cases)" while Northumberland Division's Dr. E.L. Eagles felt in 1943 that morbidity figures were still "uncertain and unreliable".[21] And, as Eagles pointed out, due to the limited coverage of tuberculin surveys and their concentration on narrow age groups, there was as yet no accurate picture of infection rates. Mortality, he felt, was still the best guide to the progress being made -- or, even better, the ratio of known active cases to deaths, with three being the suggested minimum value of an efficient case-finding system. Using this measure, Northumberland Division was efficient, with a ratio of 3.4; Cumberland County even more so, with a ratio of 6. After so many years in which tuberculosis deaths had routinely exceeded the number of reported cases, these were indeed gratifying figures. Indeed, there could be little doubt that a higher and higher percentage of cases was being weeded out and placed in institutions or under nursing supervision. The Cape Breton Health Unit was able to report as early as 1942 that more tuberculosis deaths were taking place in hospitals than in homes--an unprecedented situation.[22]

Though the tuberculosis mortality rate dropped quite

significantly over the war years, the numbers of new cases found remained much more consistent, a "curious anomaly" attributed by the Public Health Department in 1953 to the stepped-up case-finding effort which was detecting yearly a greater proportion of the shrinking pool of tuberculosis victims.[23] And encouragingly, as the following table of results from the Western and Cape Breton Divisions for 1940-1945 illustrates, the cases being found increasingly represented the earlier stages of the disease.[24]

TABLE C-3

NEW TUBERCULOSIS CASES DIAGNOSED, 1940-1945
WESTERN AND CAPE BRETON HEALTH DIVISIONS

WESTERN DIVISION	New Cases Diagnosed	Stage of Disease Min.	Mod.	Far Adv'd.
1940	151	41.0%	25.0%	34.0%
1941	106	45.3%	28.3%	26.4%
1942	104	63.4%	25.0%	11.6%
1943	115	52.0%	37.4%	10.5%
1944	73	46.6%	30.1%	23.3%
1945	91	51.1%	30.7%	18.2%

CAPE BRETON	New Cases Diagnosed	Stage of Disease Min.	Mod.	Far Adv'd.
1940	395	50.6%	28.6%	20.0%
1941	380	53.7%	26.0%	20.3%
1942	376	56.1%	25.6%	16.7%
1943	355	55.5%	25.4%	17.7%
1944	387	52.9%	32.0%	10.8%
1945	366	56.0%	27.9%	12.0%

In contrast, most patients entering institutions were still in the advanced stages, often due to significant delays between diagnosis and admission. The intensified case-finding effort had increased demand for admissions to the sanatorium and hospitals at the very moment when they were least equipped

to meet it. As the rural electrification program progressed, more of these hospitals added x-ray units, for the use of which patients had to pay, while mobile x-ray equipment now provided free service in the non-electrified areas of all divisions. Case-finding had become continuous and the pressure on institutions increased. The most severe problem was not an actual lack of beds, as it had been in 1914-18, but a severe wartime staff shortage, especially, as Northumberland DHO G.G. Simms put it, of "woman power": nurses and maids.[25] At the sanatorium, from the beginning of the war to the end of 1944, a total of 76 nurses had resigned, along with 42 nursing assistants, 298 maids and 193 orderlies. Further, their replacements, as Dr. Miller pointed out in 1945, were often not up to prewar standards: "Most of those who applied for employment were generally of a poor class...without experience...not interested in their work...and appeared in many instances to have little or no intention to remain here for any length of time."[26] This situation fostered disorganization and frustration, which led to still more resignations. The same problems led some hospital tuberculosis annexes to "close" beds temporarily. While some relief was offered by the dispatch of naval medical personnel to serve at the sanatorium, it is not surprising that the annual numbers of patients treated declined at most institutions after 1941:[27]

TABLE C-5

TOTAL PATIENTS UNDER INSTITUTIONAL CARE FOR TUBERCULOSIS, 1939-1945

YEAR	PATIENTS TREATED				
	NS San.	Annexes	Hfx TB Hosp.	Lourdes San.	Total
1939	622	414	141	20	1197
1941	763	521	150	20	1434
1943	697	485	153	18	1353
1945	718	452	153	16	1339

This decline, moreover, took place in spite of an apparent increased tendency toward rapid patient turnover, with some hospitals discharging patients the moment a satisfactory collapse had been achieved.[28] Still, the numbers being treated in institutions by the end of the war represented a significant increase over the 1939 figures, both in absolute terms and proportionate to the diminishing pool of cases, whose decline is presumptively indicated by mortality decline. For every person who died of tuberculosis in 1945, there were 4 treated in institutions; the corresponding figure for 1939 was 2.8.[29] Overall, Miller's comment that roughly the same volume of work was being done despite the wartime problems is probably a fair assessment.[30] As with the public health officials involved in case-finding, there seemed to be not so much a real decline in accomplishment as a mounting frustration that the war had impeded the implementation of what was felt to be the best-coordinated and most efficient

tuberculosis-care program the province had ever seen.

The Postwar Public Health Machine: The "Cure" Before the Cure

After 1945, there was a real sense of urgency about the work remaining to be done. The stringencies of the war years had been particularly frustrating for the province's many newly-qualified public health professionals; now they were eager to get on with the job for which they had been trained. A postwar rise in mortality due to the return of exhausted troops from tuberculosis-ridden Europe was expected, and indeed occurred right on schedule. Besides the cases discovered at the time of recruitment, some 4,000 servicepeople had been discharged during their tours of duty for tuberculosis, and had to be cared for.[31] More beds were needed just to deal with the new civilian cases being unearthed by the public health teams. In addition, there were fears of heightened postwar immigration and its accompanying health problems. There was worry, too, that just as the program was being expanded, modern young women would not be attracted to nursing as in the past: the expense of training, low pay and the long hours of unpaid work required of students, coupled with the new job opportunities which women had seized during the war, led administrators to feel that an aggressive postwar recruitment campaign would be necessary to place public health efforts on a sound basis.[32]

The postwar problems were met by an enormous infusion of

new energy into the anti-tuberculosis battle. The Department of National Defence released medical personnel, military-hospital beds and its grip on the country's resources; wartime industry released willing medical workers; and, perhaps most important of all, both the federal and provincial governments released money -- if not a torrent, at least a generous flow -- to health care programs in general, and tuberculosis in particular. Mindful of the failure of traditional economic policies to alleviate the distress of the Great Depression, encouraged by the success of federal wartime economic management and alarmed by concrete indications that neither activist groups nor voters in general would take a return to prewar economic conditions quietly, the Mackenzie King government in the early 1940s, with the help of a group of civil-service economists espousing the ideas of John Maynard Keynes, began to consider unprecedented changes in policy. The result was a comprehensive postwar reconstruction program calling for ongoing federal intervention to level out the boom-and-bust economic cycle and to create a "welfare state" whose many specific components, destined to expand and change over the years, ranged from the provision of family allowances and house-building loans to involvement in the financing of education and health -- hitherto areas of provincial jurisdiction.[33] Federal grants were planned under a federal Health Insurance Act to help finance general provincial public health programs and administration, as well as specific

grants-in-aid for particular diseases and projects -- tuberculosis, venereal and mental diseases, crippled children, the blind, and public health education and research. In return, provincial programmes were expected to meet and maintain minimum standards for record-keeping, case-finding, treatment facilities, professional education, and after-care and rehabilitation.

The inclusion of tuberculosis came after years of urging by the CTA, which had indeed called for federal action at the time of its formation in 1901. More recently, it had made a formal recommendation for grants-in-aid to the Rowell-Sirois Commission in 1937, whose final report was instrumental in shaping the new federal outlook. Its similar brief to the 1938 Canadian Public Health Association conference gained the support of all the provinces. That meeting resulted in the endorsement of a "Public Health Charter for Canada" incorporating the CTA's detailed proposals, which was submitted to the House of Commons Special Committee on Social Security in 1943, and was adopted by the government as the basis for the final programme.[34] Federal grants for tuberculosis would be proportional not only to population, but also to provincial mortality rates and to the amount spent by the province itself. Further, the CTA recommended as a minimum standard that provinces should provide sanatorium or hospital treatment free of charge to the patient. This recommendation, too, was adopted and became a condition of

aid.

The compelling arguments ably advanced by the CTA and others are probably quite sufficient to explain the inclusion of tuberculosis in the grants-in-aid programme, yet it may be of some significance that the Prime Minister apparently had a long-standing personal interest in the disease. His brother, D. MacDougall King, a physician who himself suffered from tuberculosis, was the author of both The Battle with Tuberculosis and How to Overcome It (published in 1917) and, later, Nerves and Personal Power, to which the Prime Minister contributed a preface paying tribute to his brother's courage in fighting the disease. Even during the war, when the burdens of state must certainly have been heavy, Mackenzie King answered the CTA's call and found time to make a special broadcast in support of the Christmas Seal campaign.[35]

In its effort to gain the largest possible share of the grants-in-aid pie for tuberculosis, the Association stepped up its campaign urging provinces to formulate definite and ambitious long-range programmes and, since federal contributions would likely be proportional to provincial expenditures, to institute immediate and significant increases in their own tuberculosis budgets. Another step toward getting its own house in order was the CTA's effort to encourage formation of official, affiliated province-wide associations. In Nova Scotia, that challenge was met when the Nova Scotia Tuberculosis Association was organized in 1947 out

of the remnants of the old Tuberculosis Commission. The CTA's campaign was eminently successful: of all the projects receiving grants-in-aid, tuberculosis in the end received "double or three times that allotted to other programs", according to Dr. F.W. Jackson of the Department of National Health and Welfare. He told the CTA's 1949 annual meeting in Halifax that the reason was apparent: "Of all the health programs in Canada, that in respect to tuberculosis is probably the best organized and those in charge of the program in various provinces know exactly how they want to go about improving what was already a good show."[36]

Eventually, three million annually was allocated to tuberculosis services (later to rise to four million) plus a further sum, matching provincial expenditures, of up to $1,500 toward each new bed under a separate hospital construction grant. Although money from the grants-in-aid scheme did not actually begin to flow until 1948, those involved in tuberculosis programmes across the country were aware well before the war ended that, for the first time in history, ongoing federal support could be anticipated, and laid their plans accordingly. Almost at once, in Nova Scotia as elsewhere, plans were launched for expansion of the public health service and for the provision of new tuberculosis beds. Plans were also laid in the province to provide universal free treatment.

Sanatorium and public health authorities now seemed

determined, in the absence of a cure, to provide one in the form of greatly expanded, extremely costly and long-term programmes to be underwritten, they hoped, by the federal government. Optimally, these programmes would have the potential to reach, examine and record medical data on virtually every person in the population. For his part, Dr. Miller of the provincial sanatorium hoped at some future date to have the populations of whole communities x-rayed, a step which had been pioneered in Melville, Saskatchewan in 1941. CTA president J.A. Couillard took that dream further, claiming in 1943 that x-raying of the entire Canadian population would be the way of the future, affording as it did a "golden opportunity to demonstrate the worth of our work in the past, the possibilities of an all-out effort, and to regain some of the public favor and prestige enjoyed in earlier years."[37] By 1947, Saskatchewan, often a leader in anti-tuberculosis measures, had already completed a full-scale x-ray survey of its non-aboriginal population, reaching approximately 75% of them, or some 677,650 people.[38]

But some physicians worried whether the public would willingly support the expenditure of the vast sums necessary to eradicate tuberculosis, which, after all, had long been supplanted as the major cause of death. True, felt Atlantic DHO MacRitchie, there was heightened awareness of health problems and a determination to overcome them:

> People in no other era exhibited so much concern in their physical well-being as they do now, and in no

> other period of time did any state or nation take as much interest in the health of the people within its borders as in this generation.[39]

But MacRitchie also remembered hearing an Ontario sanatorium superintendent, a few years earlier, fret that as "pulmonary tuberculosis had ceased to be a scourge...it would be difficult to keep the public interested in the future as they were more concerned with the upward curve in other diseases such as cancer [and] heart."[40]

Obviously, a campaign for continued public support would be needed. To justify the expanded programmes, sanatorium and public health authorities cited the unevenness of existing operations, the backlog of patients demanding attention, and the fact that more cases were being found every day. The danger of a resurgence in the disease was another convincing argument, especially when exemplified by the experience of Britain, where a well-organized tuberculosis programme and a long history of uninterrupted mortality decline had not staved off a 20% rise in tuberculosis mortality rates during the war years -- and that despite having escaped actual combat on her own soil.[41] Other statistics calculated to startle a complacent public were publicized at every opportunity. The fact that tuberculosis had caused almost as many Canadian deaths (36,000) between 1939 and 1945 as had enemy action (38,000), and had actually outstripped combat mortality right up until D-Day, was used to enhance the status of the disease as a public enemy.[42]

Mention was also made of the remaining pockets of high tuberculosis prevalence in Canada, such as among the native peoples and in Newfoundland, and of the dangers inherent in immigration. The Newfoundland rate, for example, estimated at about three times the national average in 1948, was used to emphasize the necessity of maintaining a strong programme in Canada; once Newfoundland joined Canada in 1949, her people, when travelling to other provinces, no longer would have to undergo the x-ray screening required of immigrants.[43] Such were the public arguments raised in an effort to ensure maximum federal contributions and to maintain popular support for continuing emphasis on this malady. Unspoken was the imperative for survival felt at every level of the costly, complex institutional and professional bureaucracy which had moulded itself and congealed upon the familiar matrix of tuberculosis.

Free treatment had long been espoused by the CTA. As Manitoba's Dr. David Stewart put it: "We would never have eradicated smallpox if a man had had to mortgage his farm to pay for the treatment."[44] By 1945, most provinces had either achieved this goal, or taken steps toward it. Saskatchewan had led the way with legislated free treatment as early as 1929. Alberta had followed by 1936, although only pulmonary patients were yet eligible for free care. Ontario, at first meeting costs only for indigents, by 1938 had taken responsibility for the average per capita cost for every

patient treated -- an arrangement close enough, in the CTA's view, to its own criteria. In the 1930s Manitoba had instituted a municipal levy to pay for treatment; this was followed by the mid-1940s with a true guaranteed free-treatment programme. British Columbia and Quebec, also during the 1930s, had provided liberalized assistance from both their municipalities and the provincial governments.

The Maritimes, however, had so far accomplished virtually nothing in this area. In Nova Scotia, certainly, the lion's share of sanatorium bills was now being met by municipalities, towns, or one of a variety of other organizations; in 1945, of the 718 patients treated at the sanatorium, only 229 were classed as "non-indigent".[45] Still, especially in poorer districts, patients could by no means count on financial help. There was ample evidence from the DHOs that many who did not receive needed treatment had been prevented by financial circumstance. With the institution of free treatment expected to be a condition for the outpouring of federal largesse, Nova Scotia was under considerable pressure to give concrete evidence of its serious intentions, especially after New Brunswick introduced free treatment legislation in 1945. Bringing up the rear, Nova Scotia did not announce its own legislation until the summer of 1946, somewhat weakly explaining that the measure, though in the planning stages for "some time", had been delayed because of a lack of hospital beds.[46] The explanation may perhaps have suggested itself,

since the takeover of additional beds at the naval hospital at Shelburne had just preceded the announcement. In any case, the move brought these two Maritime provinces into the vanguard, since only they and Saskatchewan, Alberta and Manitoba had true universal free treatment with no right at all reserved to collect from patients able to pay.

The provision of additional beds, meanwhile, was continuing at a rapid pace. In 1940, with the recent addition of two 42-bed units in Glace Bay, Nova Scotia had had 596 tuberculosis beds, the largest number in proportion to population in Canada.[47] By 1943, the sanatorium had increased its bed capacity by approximately 100. Sixty more were made operational just after the war, when the naval hospital at Shelburne reverted to civilian use and was converted into a sanatorium; about 130 beds were actually available there, and were put into use once the shortage of nurses eased.[48] In 1947, the Halifax Tuberculosis Hospital added a new wing and increased its capacity from 64 beds to 135. With the final addition of some 200 beds in 1949 when the Point Edward naval hospital was taken over by the Department of Health for use as a sanatorium, the province had a nominal count of more than 1200 beds, or more than double its 1940 capacity.[d] The increase is more significant still in light of the declining mortality rate. While the 1940 figure represented less than two beds per annual death, in

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[d] See also Table C-7 in the Appendix.

1949 there were over six beds for each death that occurred that year.[49] This number was closer to five for the moment, however, because the Department of National Defence, citing "the tenseness of the international situation", nervously allowed only 25 beds at Point Edward to be occupied at first lest the Cold War lose its chill and necessitate a quick clear-out of civilian patients.[50]

A similar urge to provide more beds, and to do it faster and in a more organized way than ever before, was evident in most parts of Canada. As early as 1943, the CTA had estimated that some 6,680 additional beds would be needed after the war for "whites" and 1,390 for native peoples on reservations.[e] The question whether this might be excessive was dismissed by Executive Secretary G.J. Wherrett:

> The answer is no, since we are still under the ratio now in use in Ontario, Manitoba and Saskatchewan for the White population, and even in those provinces additions are necessary. There are still considerable old-type sanatorium beds in use in Canada that will need to be scrapped. It seems certain that we will not be over-supplied for many years to come.[51]

As it happened, Canada's building campaign exceeded even these estimates. Whereas the number of deaths was cut almost in half between 1941 and 1950 (going from 6,051 to 3,582), the number of beds almost doubled (from 9,278 to 18,060). In 1941, only Ontario, Manitoba and Saskatchewan had had more

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[e] This breakdown begs the question as to the treatment of blacks and Orientals; presumably "whites" was being used here to indicate non-aboriginal people.

than two beds per annual death; none had as many as three. But in 1950, even Newfoundland, new to Confederation, comparatively poor and burdened with the highest provincial tuberculosis death rate in Canada, had 2.7 beds per death.[f] All other provinces had more than four, with three provinces (including Nova Scotia, with yet another expansion at the Kentville sanatorium) listed at seven or more beds per death.[52]

It was also during the postwar period that serious attention began to be given to the problem of tuberculosis among Canada's aboriginal peoples. Little enough had been done by 1936, when the Department of Indian Affairs became part of the Department of Mines and Resources; following this, the situation became even worse, with the denial of a great many basic medical services to the reserves in the interest of economy. While people living on reservations could be and sometimes were admitted to regular sanatoria, they were almost invariably dependent on the Indian Affairs Branch to authorize payment of their bills. The CTA, which had for some time been urging action in this direction, succeeded in persuading the government to convene a conference on the subject in 1937,

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[f] However, Newfoundland's 1950 death rate, at 70.4/100,000 population, was still far lower than that of the Yukon (187.5) and the Northwest Territories (506.3). At this time, the overall national rate was 26.8, and that of Nova Scotia 27.6. See Wherrett, Miracle of the Empty Beds, p. 255. But using Wherrett's figure for the number of deaths (p.253), the NWT had more beds per annual death (2.95) than Newfoundland. The number of beds in the Yukon was not given by the CTA.

after which some money was made available for the beginnings of a diagnostic and treatment programme. But G.J. Wherrett, who, as CTA executive secretary was directly involved with the campaign of that time, reports the feeling of "many who were close observers of the period...that not until [reservation medical services] became a part of the Department of National Health and Welfare in September 1945 was the serious deficiency appreciated and a real effort made to correct the situation."[53]

As part of its postwar reorganization, the government also invited a twelve-member Advisory Committee, composed of ten CTA delegates and one representative each from Indian Affairs and National Health and Welfare, to take part in planning for tuberculosis services to reservations. More than $7 million was allocated for this purpose in 1948, at the same time as announcement of the provincial health grants and the $3 million national tuberculosis grant-in-aid. Once concerted action was taken, results came quickly. In 1947, the death rate among those classified as "Indians" was a staggering 728 per 100,000 population; in just three years, this was cut by 54% to 298.8.[54] The tuberculosis problem among the Inuit had never been quite so severe, according to the CTA; this perception, coupled with the difficulty of providing services in the far north, may help explain why x-ray surveys and methodical referrals for treatment did not begin among them until 1947.[55] The actual mortality rate among northern

peoples is available only by inference, as for example from the extremely high mortality rates reported for the Northwest Territories and the Yukon in 1950 (see footnote f). These rates began to drop precipitately in the early 1950s, with the Yukon approaching the national average by 1957, and the Northwest Territories by 1968. Northern native peoples, it is safe to say, were among the most outstanding beneficiaries of the era of tuberculosis chemotherapy. Southern native groups had begun to record sizable mortality drops before 1950, when drugs were not yet in common use.

While Nova Scotia was estimated in 1943 to need 580 new beds for whites (presumably a reference to non-aboriginals), one must read between the lines for meaningful information on provincial black and native peoples. The CTA reported that year that in the previous five years there had been an average of nine annual deaths among native peoples in the province. The Maritimes as a whole had no beds especially reserved for them, and was estimated to require 60, 27 of them in Nova Scotia.[56] Native peoples were treated at the Provincial Sanatorium, however; for example, $3,884.20 was paid toward patient treatment by Indian Affairs in 1941, and Anna Ross's diary indicates that at least one native woman, a Mrs. Googoo, was being treated there as early as 1924.[57] There was never -- at least up to 1945 -- any separate breakdown given for black patients in the province, either regarding tuberculosis prevalence or treatment, although blacks in the U.S.

historically suffered from tuberculosis at a much higher rate than the white population -- three times the white rate, for example, in the period 1934-1938.[58] The Ross diary, again, refers to at least one black sanatorium patient in 1924, indicating that no exclusionary policy existed.[59] There is also oral evidence that several residents of East Preston, a black community just outside Halifax, were sanatorium patients during the 1930s, and that, in the same period, patients in the area were visited two to three times per week by public health nurses.[60]

However, there are indications in the Ross diary that social isolation and racism almost certainly added to the burdens of black and native peoples at the sanatorium. If Anna's attitudes were typical, the experiences of both the patients she mentions must have been something less than pleasant. Apparently as an April Fools' stunt, Anna reported on April 1 that she had "got myself ready...blackened my face and everything" and visited a male patient named Currie on two separate days, once pretending to be "Mrs. Googoo, Indian lady" and once "colored lady, Joe Izzurd's wife". To do so, she must have paraded, "guyed up" as she put it, through the sanatorium grounds; males resided in a separate building. Both Mrs. Googoo and Mr. Izzurd were patients. In the entry for April 8, Anna reported that she and her friends were disturbed by "Mrs. Googoo, (our true, dark skined [sic] specimen, of the American race) whose bed was hitting against

the wall". A further undated farcical account of the June 1st "wedding" of two other patients casts Mrs. Googoo as one of two bridesmaids, "dressed alike in silk raincoats...both [carrying] trees". Since these are the only references to these patients in the entire diary, it is evident that they had little or no social contact with Anna and her group; nor are their names ever listed among the many people Anna mentioned encountering from time to time in the places where patients gathered, such as the reception room or the recreation hall. At least in Mrs. Googoo's case, this cannot be explained on the grounds that they seldom saw one another. Not only were there only about a hundred civilian patients at the sanatorium at any given time that year, only about half of them female, but Mrs. Googoo in fact occupied the next-door "porch" to Anna's, in the same pavilion.[61]

In postwar Nova Scotia, with bed accommodation newly in a most satisfactory state and free treatment guaranteed for all, the next logical step was taken. For some time, DHOs and others had been frustrated by the refusal of some diagnosed tuberculosis sufferers to enter institutions.[62] Others who did enter sanatoria or hospitals left early, against medical advice. While waiting lists remained long and patients remained responsible for their own bills, it seemed that little could be done about this; in any case, there were always, as an article in the CTA Bulletin put it, "more deserving patients to fill the vacancies."[63] Now, there

seemed no excuse. More and more cases were being diagnosed; surely the public good demanded that they all, willing or not, submit to isolation and to the prescribed treatment. The failure to keep patients in hospital was, felt Dr. C.J.W. Beckwith, "the most serious defect in Halifax's control program". He reported in 1948 that 12% of all patients leaving the Tuberculosis Hospital did so against advice, 54% of them still in an infective state. According to a summary of his report in the CTA Bulletin, Beckwith called for "Legislation...to make treatment of infectious cases compulsory, not only as a safeguard to the general population, but as a protective measure for the patient who is surely doomed if he does not submit to treatment."[64] Beckwith, and other like-minded individuals, were gratified that same year when an amendment to the Public Health Act stipulated that legal action might be taken against any person who

> (a) is suffering from open tuberculosis; and
> (b) is unwilling or unable to conduct himself in such manner as not to expose other persons to danger of infection; and
> (c) refuses to be admitted to, or remain in, a sanatorium or hospital or has left a sanatorium or hospital against the advice of the Superintendent thereof.[65]

The Act, it is plain, left a great deal to the discretion of the physicians involved. Suspicion of open tuberculosis, testified to by a local MHO and the appropriate DHO, was sufficient legally to compel examination. Failing to submit to examination, or being found in the course of it to have open tuberculosis for which one refused treatment, could then

result in conviction. Cape Breton DHO David McCurdy reassuringly explained that action was

> never taken...without carefully weighing the evidence and making reasonably certain that the individual was given a square deal. If a person leaves or is discharged from one of our institutions, he is given a second chance and sometimes a third chance before an action is taken against him.

Still, he admitted, errors had been known to occur:

> Sometimes a patient may be classified as recalcitrant in one institution when the fault is not entirely his own and when transferred to another institution he is found to be a reasonably good patient.[66]

Since convicted persons could be forcibly confined to a treatment institution for up to a year, errors might be unfortunate indeed. Physicians found, however, that it was "usually a simple matter" to obtain a conviction: McCurdy himself had brought cases before five different magistrates over a five-year period "without experiencing any difficulty." This was, perhaps, because the majority of these problem individuals were, according to McCurdy, "either psychopathic personality types or alcoholics," whose essential characteristics he went on to describe:

> [He] has little or no regard for his own welfare nor for the welfare of his family or any of his associates or contacts in his community... Many...boasted about their successful defiance of public health authority. This invariably stirred up considerable public criticism, which was fully justified but nevertheless very embarrassing.
>
> Another common trait...was their social activity which gave them far more opportunity to spread their disease than the average patient at large would have. If there was a beer tavern, a dance or a social gathering in their community,

> they would invariably be in attendance.
> For these reasons, the recalcitrant is a thorn in the flesh of the Health Officer...

Surprisingly enough, some of these people gave "little or no trouble when admitted." Fred Barrett, the tuberculosis association's Director of Rehabilitation after 1949, reported in 1952 that detained "recalcitrants" were responding quite well to the training programmes being offered.[67] For the others, described as impossible to please, scornful of the rules and given to disturbing other patients, hospital and sanatorium personnel devised ways of securing the necessary cooperation. They were confined in detention quarters within the institution until such time as their guardians noted "sufficient improvement in their behaviour." Apparently such quarters too often had to be improvised; McCurdy argued strenuously for "suitable" detention annexes as an essential part of the plan.

McCurdy did not argue that these alleged psychopaths and alcoholics should receive treatment for those afflictions during their involuntary stay, nor is there any indication in his rather comprehensive summary of the workings of this Nova Scotia law that any such treatment had ever been provided since its enactment. Psychiatric services were not provided formally at the sanatorium until 1955, using consultants from the Fundy Mental Health Center in Wolfville.[68] Nevertheless, and despite the fact that it was "not possible to assess the value of compulsory hospitalization of open cases to our

tuberculosis program", McCurdy reported that the Act, then in operation for six years, had been "well received by the general public."[69] This view is not without evidence. In 1947, in fact, the Nova Scotia Federation of Home and School Associations had passed a resolution asking for much stronger measures than those eventually enacted. The federation called for compulsory x-ray examination of all citizens of the province, with compulsory hospitalization of all active cases discovered until such time as they ceased to be infective.[70] Given the sizable proportion of patients who remained infective regardless of the treatment given them, the potential effect of such a proposal is apparent. Dr. Miller's hope that people would come to recognize an "educated" consumptive as no more of a threat than a man with a wooden leg had clearly not been fulfilled in the late 1940s.

The stage had now been set for the final triumph of modern medicine over its old nemesis. The chances of a case of tuberculosis going undiagnosed had become increasingly remote. Bed capacities had been doubled. Treatment was not only free, but compulsory. In hindsight, the irony is obvious. With the advent of effective drug therapy just around the corner, the splendid new facilities would very soon be obsolete and there could have been no worse time for a young person to contemplate a career in tuberculosis. Yet what was obvious even then was that the tuberculosis mortality rate was at its lowest point in recorded history. The vast

majority of people -- at least young people, if the tuberculin surveys were to be believed -- had never been infected, had never, probably, ever come into contact with a sufferer. Control of the disease, had that been the objective, might have seemed a fait accompli. But control was not the objective. The goal was the complete and perfect elimination of tuberculosis, and it seemed that almost no expenditure of effort or money was regarded as excessive to attain it.

One obvious justification for this attitude, of course, was simply that tuberculosis is an infectious disease. Leaving a focus from which it might spread in the future would be inherently unsafe. If there was little talk about eradicating, say, venereal diseases, this was only because there seemed no possible way of doing so; in the case of tuberculosis, the goal did seem at least technically possible in 1945. Then, too, tuberculosis had historically been no minor ailment, but the foremost destroyer of human lives, and young lives at that.

Normally, to speak of conquering or eradicating a disease implies that a cure has been found. The recent advent of penicillin, newly-purified, finally practicable, and of almost incalculable benefit during the war, had raised physicians' hopes immensely. At last, a truly bactericidal agent had been found which could effect dramatic cures in a vast range of diseases, from pneumonia to gonorrhea. But the hopes that penicillin might be the long-awaited assassin of M.

tuberculosis were soon dashed: the new "wonder drug" was as powerless against the germ as tuberculin had been. Still, public expectations of medicine in the 1940s were in sharp contrast with those of the 1890s, following the tuberculin failure. In the years after 1900, medicine had become increasingly identified with specialized technological expertise and specific treatment, and accorded increasing public reverence. Similarly, doctors had gone up in their own esteem, and as a result, according to one observer,

> ...whatever lies outside the domain of specific diagnosis or treatment is considered by increasing numbers of physicians as outside the domain of medicine itself...
>
> In deference to this spirit...some of our wisest essayists decry the expenditure of our national resources on "halfway" technologies -- those which only palliate or contain disease, rather than radically curing it.[71]

There was no "cure" for tuberculosis in the generally-accepted sense of the word. But medicine had, in effect, contrived one in accordance with the logic of its own constricted domain. The modern public health field bore medicine's imprimatur as a legitimate and necessary field of endeavor, if not a particularly prestigious specialty. Its organized tuberculosis screening and monitoring system, backed by impressively modern diagnostic methods and manifest links to more conventional medical institutions now constituted what, in the absence of a cure, became one. Public health staff spent more time on anti-tuberculosis activity than anything else. It was the backbone of their field, and its

expansion was largely responsible for the field's rise in status. There seemed in 1945 almost no limits to which it might not rise -- contingent, of course, on the public's acceptance of universal, constant health monitoring and continued respect for medicine. Atlantic DHO MacRitchie, for one, saw great things in the future:

> Are we giving enough attention to the causes of early breakdown? ...Let our public health program begin early in life and continue to the end of the productive period of life; then and not until then will we be doing our full duty in lessening the prevalence of tuberculosis...

There could be, as MacRitchie saw it, only one alternative:

> Our hope, for a different course to follow, lies in the future laboratory discoveries. When such come -- and now there is a thin shaft of light on the horizon -- there also comes, a different method of approach to the problem. Speed the day.[72]

Denouement: The Twilight of Tuberculosis

MacRitchie's reference to "a thin shaft of light" reflected not only the faith in medical research so widespread in the post-penicillin era, but also the existence of a new crop of tuberculosis "cures" which were receiving a great deal of publicity as early as 1943. Sparked by the success of the sulfa drugs, research was ongoing with a group of the more complex sulphone compounds under the names of Promin, Diasone and Promizole, among others. Though human trials were still in the early preliminary stages, the CTA reported itself inundated with enquiries about these drugs from the public.[73]

American biochemist Selman Waksman, meanwhile, had taken a different approach in his research. In 1944, Waksman and his colleague Albert Schatz published test results showing that streptomycin, a substance isolated from two strains of the soil organism Actinomyces griseus, had been shown in vitro to have a significant and reliable, albeit only bacteriostatic, effect on M. tuberculosis. In vivo trials using guinea pigs began immediately at the Mayo Foundation in Rochester, Minnesota; but the chief researchers involved, while confirming in vivo bacteriostasis, called for interpretation of their results in a "cautious frame of mind":

> This unusual suggestion is made for the benefit of the many thousands of patients who have tuberculosis. Morale plays a crucial part in treatment of such a debilitating and chronic disease, and morale is injured by premature and optimistic reports of results which may not be sustained in practice.[74]

There was danger too that over-optimistic patients counting on a breakthrough might also resist undergoing the rigors of conventional therapy. In Nova Scotia, Dr. Miller took pains to caution patients:

> [T]hese preparations are still on experimental trial, and so far give scant encouragement that they will prove of benefit in the cure of human tuberculosis... It is most unwise for any patient...to discard the known benefits of the "rest regimen", combined in suitable cases with one or another of the various compression aids, for the uncertainties of treatment with a new drug.[75]

The sulphone drugs were soon forgotten in the excitement surrounding streptomycin, first available in Canada in 1947

and used that same year in Nova Scotia on a trial basis both at the sanatorium and at the Halifax Tuberculosis Hospital. Streptomycin, however, was not covered under the government's free treatment scheme until 1949, when part of the federal health grant was devoted to its provision. By this time it had become evident that streptomycin was no panacea. Toxic side effects included damage to the auditory nerve, which could culminate in loss of hearing and interference with the sense of balance. The most serious problem, however, was that resistance to the drug developed within a few months after a patient began treatment. Because of this, streptomycin was seen as most beneficial in formerly rapidly-fatal forms of tuberculosis, such as tuberculous meningitis and miliary tuberculosis. But most patients were chronic pulmonary cases; and, while sometimes even a temporary suppression of the disease could allow natural immune forces to gain the upper hand, many physicians worried that such patients could pass on resistant strains of tuberculosis to others, leading eventually to the demise of the drug as effective treatment.

World interest now focussed on another drug, para-amino-salicylic acid (PAS), whose bacteriostatic effects on _M. tuberculosis_ had been announced by Jorgen Lehmann in 1946. Because nausea, vomiting, diarrhoea and abdominal pain were extremely common side effects, PAS was unpleasant to take. It was also less effective against tuberculosis bacteria than streptomycin. But when the two were given in combination the

development of resistance was significantly postponed, and after 1949 efforts concentrated on experimenting with various dosage combinations of the two drugs. For the moment, the combined treatment mainly offered hope for victims of acute forms of tuberculosis, and a means of stabilizing other patients to allow the application of conventional surgical therapies.

With the development of the bactericidal and relatively non-toxic isonicotinic hydrazide (isoniazid, or INH) in 1951 by researchers in the U.S. and Germany, the three main weapons against tuberculosis had been found. They were later supplemented by thioacetazone (1950),[g] pyrazinamide (1952), ethionamide (1959), ethambutol (1962) and rifampicin (1966). Viomycin, cycloserine and capreomycin were minor additions to the arsenal. Of all these, only rifampicin and isoniazid are bactericidal.

By the early 1950s, then, patients without frank lung cavitation were being treated in sanatoria and hospitals with various combinations of the "big three" -- streptomycin, PAS

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[g] This drug, early eclipsed in the West by isoniazid because of its higher incidence of toxic side effects, has nevertheless been widely used in third-world countries where its cheapness has been judged by health authorities to outweigh its dangers and unpleasantness. See A.B. Miller, W. Fox and R. Tall, "An international co-operative investigation into thiacetazone (thioacetozone) side-effects." Tubercle 47 (1966), p. 33. Under the name Thiazina, it has served as the main therapeutic agent for new tuberculosis cases in Tanzania and other African countries. See Manual of the National Tuberculosis/Leprosy Programme in Tanzania (Dar-es-Salaam, 1981), pp. 24, 27-28.

and isoniazid.[h] For patients with lung cavities, the new drugs were used primarily as facilitators for surgery. Since the drugs were so effective, surgeons now confidently began to invade the tissue of the lung itself, a measure previously taboo due to the danger of blood-borne bacterial spread during the operation. Now that lung cavities could simply be excised, collapse therapy fell at last into disuse. In 1954, the provincial sanatorium reported that 61% of its patients had been treated surgically, and that every one of these operations had involved the removal of lung tissue.[76]

The new methods did not mean, however, that the demand for long-term care, and hence for beds, lessened. On the contrary, pulmonary tissue-removal procedures could usually not be safely undertaken until a lengthy course of drug therapy had sufficiently quelled the disease process. More and more patients were being rendered fit for surgery, and many more who would have died quickly in earlier years now lingered on indefinitely in their sanatorium beds. Non-surgical patients were carefully monitored for signs of resistance and toxicity over months of treatment, trying if necessary one combination of drugs after another until the most effective blend had been found and the sputum had become negative. Coupled with the ever more efficient case-finding

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[h] PAS was first used at the Nova Scotia Sanatorium in 1950, isoniazid in 1952 and rifampicin in 1969. J.E. Hiltz and H.M. Holden, "Sanatorium Milestones". Health Rays 57, 11 (1977), pp. 23-27.

programme and the law to compel treatment, these factors ensured that the demand for infirmary beds and sanatorium services significantly increased in the post-drug era. And the tuberculosis establishment flourished, until a five-year study begun in 1956 in Madras finally sounded its death knell.

A joint effort of the World Health Organization, the British and Indian Medical Research Councils and the Madras state government, the study tested the effect of chemotherapy outside the institutional setting, in an effort to determine whether drugs could offer real hope for third-world countries which could not afford the expensive Western-style sanatorium network. The results were unequivocal: the drugs worked. They worked despite the fact that typical patients' homes were poor and unsanitary and despite seriously deficient diets. They worked whether patients had had cavities at the beginning of treatment or not, and the lack of isolation brought no increased risk to patients' families. The only major problems had occurred when patients had not adhered to the prescribed daily dosage schedule. This could not be overcome by assigning staff to make daily supervisory visits, which would have been much too expensive, or by arresting the patient, since adequate detention-treatment facilities did not exist. Instead, health workers successfully devised regimens which required much less frequent dosages, hence making it more realistic for patients to come to the local clinic for their drugs, where the actual taking of the medication could be

supervised. After the development of rifampicin, further studies in Africa showed it was feasible to shorten therapy to about one-third of the previously standard 18-month course.[77]

The last arguments of sanatorium promoters died with the Madras study, leaving patients and physicians alike by 1961 with the uncomfortable knowledge that most of the pulmonary surgery and lengthy hospital stays of the past ten years had, after all, been unnecessary. But even before this, the way of the future had become clear. The slight postwar rise in tuberculosis mortality had been easily overcome, and Canada's death rate had dropped an unprecedented 12.8% in 1948.[78] Nova Scotian results were even more dramatic, showing an average drop of approximately 20% each year between 1947 and 1952.[79] In the city of Halifax, there had been an astonishing drop from a death rate of 79/100,000 in 1946 to 45.7 in 1947.[80] As early as 1949, Saskatchewan reported that many of the new beds it had provided were empty, not for lack of staff, but for lack of patients.[81] That same year, the CTA predicted that the Canadian tuberculosis death rate would drop below 15 per 100,000 population in the next 25 years, with some provinces under 10.[82] In all provinces by 1951, waiting lists for beds were either sharply down or had disappeared completely, and a number of Canadian municipalities had recorded no tuberculosis deaths at all for several years. Nevertheless, construction programs continued and would continue as long as available beds fell short of the

total number of new cases being found.[83]

A great deal of money was being spent on mass surveys, but returns were diminishing sharply: the Ontario Department of Health, for example, uncovered only a single active case for every 2,700 people screened in the first half of 1954, and the Gage Institute found a 1 : 3,200 proportion during the same months.[84] As fewer and fewer young people were exposed to the germ, there was also significant change in the epidemiology of tuberculosis. Of the 2,457 people who died of tuberculosis in Canada in 1952, 1,690 were thirty or more years of age. "It can no longer be said", stated an article in the CTA Bulletin, "that tuberculosis is a young person's disease."[85]

In Nova Scotia, as elsewhere, though these trends were clear, the twilight of tuberculosis seemed to arrive with shocking suddenness in the midst of feverish activity by the postwar tuberculosis establishment. The provincial tuberculosis association after the war had enthusiastically shared the high cost of mass surveys, hospital equipment and rehabilitation. In response to an enhanced publicity campaign Seal Sale returns had been increasing steadily since the war, and as of 1951 the association had a paid staff of five. A rehabilitation director, appointed in 1949, was responsible for planning an overall provincial programme involving in-hospital training and post-treatment visiting, assistance, advice, and referrals to help ex-patients deal with such

things as job-hunting, setting up a small business and learning to deal with the prejudices and fears of "outsiders". Although the importance of such a programme had received much lip service over the years, these were the first concerted rehabilitation efforts since the 1920s. Once the crisis of caring for World War I veterans had passed, only one rehabilitation worker remained at the sanatorium: an ex-patient and teacher, Ann McLeod, who was not part of the official staff and received instead a small honorarium from the patient's canteen fund. Without any allowance for supplies, she managed to teach interested patients a variety of crafts as well as tutoring them in typing, shorthand, and regular school courses. When she left in 1946, there was a hiatus until the following year, when occupational therapist Margaret Markham joined the staff. Finally, when the federal health grants became available, they supported a comprehensive in-hospital rehabilitation program under the director, whose efforts were co-ordinated with those of other provinces through the CTA, and four supervisors appointed by the Department of Health.[86]

A second NSTA staff member was the director of mass surveys whose goal it was, using the association's new mobile unit in co-operation with existing government arrangements, to x-ray every person in the province over the age of twelve. Some 40,000 people were examined each year in the early 1950s as part of this project. Results varied significantly with

geographical area. In 1952, for example, the city of Halifax yielded one new active case for every 661 persons examined, while rural areas as a whole yielded one in 2,856.[87] Once again, the law of diminishing returns was clearly in operation: the provincial yield for 1952 was 0.69 new active cases per 1,000 examinees, dropping to 0.57 in 1953.[88] The province also embarked on plans to x-ray all admissions to general hospitals; by 1953 this was being routinely done in fifteen, and was uncovering new tuberculosis cases at twice the rate of mass surveys which, more often than not, focussed on healthy students.[89] A summary of all new cases (including inactive ones) discovered in the province between 1944 and 1952 indicates that the postwar upsurge due to expanded case-finding had passed its peak:[90]

TABLE C-4
NEW TUBERCULOSIS CASES DIAGNOSED 1944-1952, ALL PROVINCIAL HEALTH DIVISIONS

Year	Total New Cases
1944	688
1945	658
1946	1,597
1947	1,658
1948	1,843
1949	1,127
1950	1,204
1951	899
1952	1,052

Never had tuberculosis been so much in the public eye, and the extended programmes seemed quite successful in raising support. Mobile x-rays and school surveys made the campaign

highly visible in the community. Christmas Seal mailers in the early 1950s were aimed at the broadest possible public, reaching some two million Canadian homes every year and eliciting donations from at least half of them.[91] Media promotion and appeals from prominent local citizens encouraged donors to feel they were supporting "science" rather than "charity".[92] Other organizations, such as the Crippled Children's Fund, took the CTA as a model and began seasonal "Seal Sales" of their own to the indignation of the association, which regarded them as rivals.[93i]

Nevertheless, as beds began to empty and new cases became more and more scarce, the tuberculosis establishment began to wind down. Ambitious plans for regular mass x-rays were shelved, and medical personnel and volunteers moved on to other projects. Institutional facilities were retired, many of them almost brand-new. In 1939, the province had had a little over 500 tuberculosis beds; in 1949, well over 1200; in 1959, only 300, nearly a third of which disappeared in the next three years. The first reductions were made at the periphery and progressed to what had always been the core of the province's programme, the provincial sanatorium.[94] By 1957, all general hospital tuberculosis annexes had been

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[i] Easter seals were first marketed by the Crippled Children's Fund shortly after the war without consulting the CTA, which fumed: "If we have Easter Seals, why not First of July seals, or Thanksgiving seals, or Armistice seals? We have already heard a rumour of Dieppe seals. How will the public react to a multiplicity of such appeals?"

closed and the Halifax Tuberculosis Hospital had transferred all its patients to the 26-bed Halifax Health Centre next door; even this service was terminated in 1964. By the mid-1960s, only the sanatorium itself was left.

At the sanatorium, which had in 1948 been approved by the Royal College of Physicians and Surgeons of Canada as a teaching hospital for internal medicine and thoracic surgery, which had the same year opened a school for affiliate and postgraduate tuberculosis nursing, and which had actually planned a new infirmary building in 1949, there were empty beds by 1956. It was evident to Superintendent J.E. Hiltz, who succeeded Dr. Miller in 1947, that the institution could no longer survive by treating tuberculosis alone. Surreptitiously at first, the staff began to involve itself in the medical and surgical treatment of other chest diseases such as cancer and chronic obstructive pulmonary disease, including emphysema. Official consent for these new functions was won only after Hiltz, in the words of a colleague, had fought "the whole medical hierarchy of the capital city".[95] While it had been quite permissible to treat tuberculosis in such a relatively remote location as Kentville, doctors evidently felt that specialized facilities for "mainstream diseases" properly belonged in Halifax along with the rest of the modern medical establishment. Presumably, its large existing investment in plant and equipment at Kentville helped persuade the economy-minded provincial government to accept

Hiltz's argument. Renamed the Miller Hospital for Chest Diseases, the sanatorium amalgamated with the Blanchard-Fraser Memorial Hospital in 1975 and still deals with tuberculosis as the need arises, naturally with a treatment radically changed in nature and duration from that of Miller's time.

Anna Ross and her fellow patients of the 1920s might not have recognized their old home in its new incarnation. Pavilion after pavilion closed in the 1960s. The "old infirmary", built for the soldiers of 1917, had closed by 1972, the same year that the recreation building with its post office, barber shop, canteen, chapel, auditorium and radio station was demolished. The "new infirmary", built in 1932, became the only building used for actual patient accommodation. Finally, in 1976, the original sanatorium building which had opened amid such controversy in 1904 was sacrificed to the wrecker's ball over the protests of those who wanted it preserved as a historic site. A visitor to the still-beautiful grounds today finds little but a small museum display in the main building and the shell of what was once a "fresh-air library" as reminders of the thriving small town which once existed, and the thousands of human beings who lived, hoped, "cured" and died there.

The story of the sanatorium in the pre-drug era belongs, of course, to its patients, but equally perhaps to Dr. Miller, who took over from Bertha Elliott in 1909, retired in 1947 and died in 1965. Whether prompted by anxiety for the

institution's future or simply by sentiment, toward the end of his long career Miller began to write retrospective reports of the sanatorium's work, and to publish a selection of letters he had received over the years from grateful patients. 6,351 patients had been treated between 1904 and 1945, 3,019 males and 3,322 females. During the two world wars, many of them had not been Nova Scotians, or even Canadians: the care his staff had offered in difficult times to Allied armed forces personnel and merchant seamen far from home was an achievement of which Miller was particularly proud. A breakdown of sanatorium patients since 1904 according to age makes clear the preponderance of young people over the years. This profile remained relatively constant virtually until the end of the period, since even in the 1940s, when young people were less likely to contact the disease than ever before, there was still a significant backlog of patients whose clinical disease arose from infections contracted years before.[96]

TABLE C-6

AGES OF SANATORIUM PATIENTS, 1904-1945

Age Group	Number of patients	% of Total
1-9	5	0.08
10-19	972	15.30
20-29	3,141	49.46
30-39	1,360	21.41
40-49	565	8.90
50-59	212	3.34
60 and over	96	1.51

Most patients who bothered to write Miller following their stays probably did so with positive feelings about the

institution and him personally; in any case, the letters he chose for publication are filled with thankfulness and admiration, and strike no negative note. Though perhaps not wholly representative, they nevertheless offer sometimes eloquent evidence of patients' own struggles, hopes, and determined belief in the "cure" before the cure, and of the achievements which the doctors must have felt made their own struggles worthwhile. A few excerpts will suffice. From a patient of 1931-2, writing more than ten years later:

> Enclosed please find cheque for $12.00. Two dollars of this amount to apply on subscription to Health Rays, and $10.00 to Christmas Cheer fund for the patients... I shall always remember with gratitude what your institution did for me.[97]

From the brother of one of the sanatorium's wartime overseas patients, writing from Greece:

> My brother...has written us that thanks to the ability and the endeavour of yours and staff...it has been possible for him to overcome the critic situation which he had reached and to be today in the agreeable position to see his health improve. I take the honor to address you this letter to thanking you for the efforts you did to save a Greek sailor, who accomplishing his duty reached the coast of your polite country...being ill and needing attention.[98]

From a thoracoplasty patient:

> I feel that I am a fairly good example of what thoracoplasty can do for a person. I am much busier than most persons with normal health, and can honestly say that I scarcely ever notice the fact that one lung is partially collapsed...This summer I am planning to take the first vacation I have had since five years, as I have been attending university during the summer months working on and off...In addition to my school work I am active on the executive of five local associations...During the past six years I felt it wise to stay indoors

> on about two days, due to a slight cold, but apart from that I might say I have been as "healthy as a trout".[99]

And, finally, from another wartime patient living in England:

> Having spent a number of months convalescent...am now doing light work in the employment of the Exchange Telegraph Company. Am feeling in good shape and am still visiting regularly the county medical officer for check up and also attend the Royal Northern Hospital (London) for x-rays etc. Having reached the present state I feel that it is only right to let you know how I appreciate all that was done for myself and all the other men from this side of the Atlantic. Yourself and staff have given me a fresh lease of life and I only hope that I may make use of the new lease in the right direction.[100]

Things did not always go so well. Yet it is clear that their experiences with tuberculosis, with the doctors and nurses and with each other had been central to the lives of a great many people. It is also clear that the sanatorium was a very special sort of place: certainly, it is difficult to imagine a similar body of letters being written by ex-patients years after their treatment to the superintendent of a modern general hospital. Once having "cured" there, patients did not forget.

Certainly Murray Chipman, who had been Health Rays editor in the 1920s, did not. "Thinking of the dire weather North America experienced this past winter, how grateful generations of patients must feel that the pavilion-type cure is now history," he wrote in 1977. "That the San's pavilions are now demolished cheers me greatly."[101]

CONCLUSION: WHOSE TRIUMPH?

The story of tuberculosis in Nova Scotia is not without irony. At the beginning of the century, the disease fitted comfortably neither the emerging patterns of modern medical practice, nor traditional public health methods which had evolved with epidemics and general cleanliness in mind. It could not be attacked through quarantine or through community engineering projects; its victims were dangerous to others in general hospitals, yet could often not afford to be treated privately at home. At a time when the state of sanitation and the prevalence of epidemics offered prodigious challenges to the fledgling Board of Health, tuberculosis was the greatest challenge of all.

Even if tuberculosis had not been a particular affliction of the poor, they would have demanded special consideration from a public health viewpoint because of the need to isolate infectious patients. The government's decision to open a fee-charging sanatorium was immediately decried by physicians and, along with the installation of a nurse-superintendent, cost the new institution dearly in terms of trust from the profession. Municipalities which had been used to paying for the maintenance of their indigent citizens at the Victoria General balked when it came to long-term stays at a higher weekly rate; in this sense, the opening of the sanatorium may actually have deprived some patients of help previously

available elsewhere.

Either the disease or the original "sanatorium solution" would have to adapt if disaster was to be avoided. Eventually, both did. For its part, the disease continued what was in all probability an already-established decline. By 1908, the Public Health Department had begun to track the mortality decline statistically, and though there was still no clear picture of morbidity, the results were heartening enough to generate the necessary support for expanded programs. The war years brought greatly heightened awareness of the crippling extent of tuberculosis among the nation's young; for physicians, they also brought home the value of the x-ray and the unsettling truth about how misleading clinical signs could be in diagnosis. Both phenomena helped to increase dependence on the sanatorium. The wholesale treatment of afflicted service personnel required expansion of sanatorium facilities and, once discharged, these ex-patients demanded comparable treatment for their families and neighbours. Physicians who could no longer justify reaching a diagnosis of tuberculosis in a routine office check-up increasingly turned to the sanatorium, with its new x-ray and its dynamic new superintendent, for aid and advice. Dr. Miller, who had inherited an ignominious institution in 1909 and brought it in triumph through the gruelling years of the war, now began in earnest to help train interested physicians and students and quickly became the central figure in the growing tuberculosis

bureaucracy.

The process of bureaucratic growth as described by MacDonagh is evident throughout the period described.[1] The mere passage of a public health act being found unsatisfactory, A.P. Reid was appointed full-time secretary to the new Provincial Board of Health in 1893. This led inexorably to the unprecedented collection of data revealing the hitherto-unsuspected extent of the original public-health problem and exposing the weaknesses in the legislation. A cyclical process began: information-gathering revealed the need to perform additional functions connected with administration, enforcement and the assessment of results, leading to the appointment of more functionaries and an increasingly fine division of labour. Repeatedly, the situation was newly-conceived and additional measures developed to deal with it. Eventually the government, whose original intentions were more modest, became committed to the routine of fine-tuning the operations of a far more complex act through repeated legislative amendments at the behest of its appointed staff. Intervention, to a degree once unthinkable, became more or less routine, with the public gradually becoming accustomed to, and even dependent on, the new situation; and the bureaucracy, thanks to its ever-growing expertise in administration and its vast accumulated knowledge of the problem in question, became virtually eternal through a cycle of constant adjustment and, barring political

"accident", steady growth.

In the Introduction (p. 25), Larson's arguments were used to suggest that in a class-based society, increasing government intervention and reliance on experts results, in effect, in a predetermination of policy direction. In the case of tuberculosis policy, this may seem contradicted by the facts; after all, several early public health workers -- including, eventually, the Chief Health Officer himself -- evidently envisaged a very different sort of government involvement than the one which transpired. But most reformers, horrified as they often were with the misery and poverty their investigations revealed, were by virtue of their own class position disinclined to regard such blatant inequality as an indictment of the fundamental economic basis of their society. Even though quite radical measures were sometimes proposed, they were essentially reformers, not conscious revolutionaries. Dr. Allen Krause of the Johns Hopkins medical complex in Baltimore enunciated this point of view clearly:

> ...our programme is plain and permits of no equivocation. It is to contribute to the attainment of civic decency and cleanliness; of light, space and food enough for all; of a rational proportion of working and leisure hours for those who cannot dispose of their own time; and of the reduction of preventable infections to a minimum.
>
> ...there can be no question as to what direction our sympathies and activities as tuberculosis workers should take...with the strict proviso that as a health organization we dare never become involved in politics or in class conflict....I may, for instance, look upon

> tuberculosis as a terrible evil, yet I should regard the abrogation of certain fundamental Anglo-Saxon rights or the disruption of some features of our social and economic structures as far greater catastrophes...
>
> ...It must be evident to all of you that increase of comforts, of leisure, of food, of space, of the individual means to obtain these, can come only from increased wealth which, whether we approve or not, results only from increased productiveness.[2]

A similar inclination to espouse minimal change was apparent in the thinking of Dr. Reid, who, for example, in allowing the anti-urban bias common among reformers to dominate his thinking in 1903, believing that "impure air" was a more important factor in tuberculosis than poverty:

> The poor man who lives in the cabin, through the walls and roof of which you can study natural history and astronomy, may have his woes, but they are not likely to be classed as respiratory disease -- at least, this is my experience.[3]

Later, it became apparent to Reid that the minimum measures required to deal effectively with tuberculosis would entail more fundamental change, and he recommended comprehensive welfare programs quite radical in their potential scope.

As things stood, however, the slower and presumably safer option of treating the problem as primarily a medical one accorded best with the contemporary imperatives of government, middle-class social reformers and, of course, the medical profession as a whole. Certainly, the profession should not be regarded as a monolith; the initial resistance of practising physicians to medical bureaucrats' disease-

reporting schemes and the confidence with which individuals like Reid and Knopf challenged their peers is sufficient evidence of this. Once the first steps had been taken on the chosen path, pressures of conformity helped to still such maverick voices; but several other factors in the postwar years helped preclude the possibility of political "accident" which might have brought them to the fore again. One was the new x-ray technology and the possibilities for artificial pneumothorax therapy which helped the sanatorium earn increased respect from the medical profession. Another was the sanatorium's earning of public approbation for its wartime role as well as the mere existence of its expanded facilities, waiting to be used. Also important was the fading of the idealistic social reform drive following the war, coupled in the Maritimes with the emergence of more immediately distressing political issues surrounding the depression of the twenties and the accompanying population decline, business losses and sometimes violent labour unrest. But such unrest in itself indicates the still-present possibility of a class-conscious reaction to tuberculosis among the poor. Government policy might so far have managed to keep health concerns out of the arena of class conflict, but the inequity of access to tuberculosis services remained a clear stumbling block. Thus an additional important factor in maintenance of the status quo, and perhaps a crucial one, was the decline in tuberculosis mortality. By the twenties, collected statistics

clearly demonstrated that the decline -- for whatever reasons -- was well-established and could be expected to continue.

For the forseeable future, tuberculosis had been defined as a medical problem, with which the medical profession dealt in its accustomed way: the provision of institutional care to individuals with the aim of ultimate cure and, in the case of public health physicians, with a view to expansion of the case-finding and health-care network in the ongoing effort to root out, isolate and destroy the responsible germ. As Larson notes, however, defining a particular function as non-political may limit the number of decision-makers, but hardly eliminates their politics. For this reason, the concern of the profession to safeguard the sphere of the private practitioner became an important element in public-health planning. Hence, the government's travelling tuberculosis clinics dealt only with referred patients, and diagnosticians were encouraged to report results to the referring doctor, rather than directly to the patient.

In Nova Scotia, major expansions of anti-tuberculosis activities were ultimately left to government, but often followed and were modelled upon the prior initiatives of organizations at least nominally private in nature. Often, as well, these initiatives were part of a larger effort, national or international in scope, and involved direction, participation and funding from such giants as the life insurance industry and the Rockefeller Foundation. During the

1920s, Nova Scotia found itself in a unique position to benefit from the funds available for the CTA's Maritime Tuberculosis Educational Committee; largely because of the prior work done by the Massachusetts-Halifax Health Commission after the Halifax Explosion, volunteers were able to organize an ambitious and broadly-based programme independent of the other Maritime provinces. This programme, in turn, became the basis for the government's own planning after 1931. The inauguration of tuberculosis annexes at general hospitals was an important step toward an improved and more rational regional distribution of care, as was the expanding clinic network. More important to poor patients, however, must have been the recognition of the legitimacy of home care and its facilitation by the establishment of a visiting nurse service.

At the sanatorium, however, and to a lesser extent at the annexes, the development of new surgical therapies continued to justify the centrality of more expensive live-in institutional treatment, although mortality statistics did not notably improve.[4] The new therapies also helped keep hopes focussed on the possibility of eventual cure, hopes which climaxed during and after the Second World War, first with the introduction of penicillin therapy and later with the discovery of streptomycin and its companion agents. In the meantime, however, the federal governmental stance on involvement in health matters had changed, and an ultimate "cure" for tuberculosis in the form of an unprecedented drive

to find, treat and monitor all remaining cases was imminent notwithstanding the medical breakthroughs. With the federal health grants paving the way for the subsequent introduction of hospital insurance and medicare, bureaucratic centralization had taken the next logical step and the Canadian view of medicine and public health was evolving from its initial concern with community health to the modern ideology stressing the patient's right to be treated.[5] In the process, Nova Scotia and those provinces which had not already done so introduced free treatment. Government had at last addressed one of the central contradictions presented by tuberculosis, and by a very few other maladies such as venereal disease -- how to control its spread without providing universal access to treatment. The expansion of services to virtually all sufferers was, of course, greatly facilitated by the quite dramatic decline the disease had already undergone.

Throughout, however, the tuberculosis movement had retained vestiges of its original voluntary-organization involvement, whose fundraising over the years had relieved government of the necessity of paying for needed clinic equipment and rehabilitation programmes. Although the provision of direct relief to poor patients had long been lost as a goal, the movement was able to retain a "charity" image sufficient to keep the public spending its pennies on Christmas seals, a fact which has certainly helped keep alive

immensely expensive research programs aimed at other conditions and diseases ever since, and which may have helped bring about a fundamental change in public perceptions of the nature of "deserving" causes.

Whose triumph was the decline of tuberculosis? For many who were directly involved in the battle, there was only one answer: the steady progress wrought against the disease was a result of the co-ordinated efforts of public-health experts, volunteers, and physicians, and of the public who supported such efforts. For example, John Hawes' 1931 book Talks on Tuberculosis made no effort to distinguish between "progress" as exemplified by increased institutional facilities and that manifested by lower death rates except to term one "steady" and the other "remarkable".[6] Some writers were not quite so restrained. Atlantic DHO MacRitchie had no hesitation in ascribing the "great drop" in mortality in the 1940s to "the labourers in the field" engaged in case-finding;[7] while, according to CTA president Roland Desmeules in 1948:

> The names of the Founders and the Presidents who have led the Association in its difficult but conquering march should be indelibly inscribed in our memory....It is with profound conviction that I make the statement that they have been successful in [their] task. It will suffice for me to mention that, in 1900, the mortality rate from tuberculosis was 200 per 100,000, and that it is now 47. It is difficult to visualize the amount of financial, educational and charitable effort required to achieve such a result.[8]

Sometimes, even apparently trifling measures were credited with great things. An 1899 leaflet on tuberculosis

circulated by the Pictou medical society was held by the authors of Consumption: Its Cause, Prevention and Cure to have contributed materially to the relatively low 1911 death rate in Pictou County.[9] The alleged connection between mortality decline and specific measures also provided an opportunity for physicians to justify their control of the movement. The function of "an educated and enlightened public", according to John Hawes, was to "back up and assist us physicians in our efforts";[10] while Kentville's Dr. Miller in 1944 reminded doctors of their responsibility "to lead and direct the movement and to provide the inspiration."[11]

However, the lack of hard evidence generally kept twentieth-century activists from making their claims too explicit. Since decline continued no matter what the current programme happened to be, tuberculosis campaigners were always forced to speculate on what other forces might be affecting disease prevalence, among them the assumed general improvement in living standards achieved since the turn of the century. True, before the 1940s at least, few specific social measures had actually been enacted; but happily this did not seem to matter. As time went on, society seemed automatically to be ridding itself of its evils and contributing to mortality decline. In 1921 Allen Krause gave a detailed summary of how this was supposedly happening:

> We have been going ahead. With never a thought about tuberculosis, society has contributed to its decline...
> ...The demand of city dwellers for better and

> cleaner streets, for parks, for public utilities within the reach of the poorest, for public schools which make your and my old ones seem like pesthouses, for medical inspection of schools...the revolution -- for it cannot be called less -- in factory and office architecture and in plumbing for every purpose; the remarkable suburban development of our cities; the new principle and policy of vacation periods for wage earners; the unparalleled vulgarization of good dressing and many changes of clothing, with its attendant cleanliness and psychic uplift; the astonishing increase in popular amusements, with a coincident diminution in household "chores" and labor; the extraordinary expansion of private and industrial insurance, which has mitigated economic shock for millions of dependents: all this, and much more besides, can have had no other effect than to aid in fending off tuberculosis.[12]

A great many of these criteria of the improved living conditions in 1921 -- especially in the Maritimes, where the depression years had, essentially, already begun -- are obviously open to criticism. While "good dressing", cleanliness, access to "popular amusements", to insurance, to household labor-saving devices and to the good life in suburbia might have transformed life for many of the middle classes and more highly-paid workers, it is doubtful that the working poor and the growing numbers of the jobless noticed much change.

The study of tuberculosis in Nova Scotia is of sufficient scope to shed some light on other possible causes of mortality decline -- or, at least, to raise additional questions. Reference to the "A" group of tables and graphs in the appendix readily shows that steady decline was well-established long before the institutional isolation of

consumptives could have had any appreciable effect. Nova Scotia had no institutional network comparable to the system of workhouse infirmaries and hospitals to which Leonard Wilson credited the decline in England;[13] the single general hospital it did have at the beginning of the century, furthermore, offered no long-term care and had a rule against the admission of infectious cases which one must assume was honored at least some of the time. Until the building of tuberculosis annexes and the establishment of a permanent public health nursing staff in the 1930s, there was only the sanatorium and the Halifax Tuberculosis Hospital to serve the whole province and no provision for supervision of home care except that which might or might not be provided by private physicians. Table C-7 in the Appendix gives a brief summary of the extent to which treatment services reached the population, and the following discussion refers to it. The 1911 figure showing available beds in the province represents the sanatorium alone; by 1921, 48 beds at the Halifax Tuberculosis Hospital had been added to the total and a great number of sanatorium "pavilion" beds, hastily supplied to the armed forces, were in the process of being discarded in favor of increased infirmary accommodation. 1931 figures reflect the loss of these beds, and of the military personnel to fill them, while by 1941, many beds had been added by the introduction of tuberculosis annexes to general hospitals. The 1951 figures reflect the addition of beds from the

turnover of naval hospital facilities for tuberculosis use. It is apparent from the table that in the early years, when decline was already well-established, only a tiny fraction of potential patients had undergone institutional care. At least until the 1930s, therefore, when tuberculosis mortality rates had already dropped to half their 1908 levels, there is little support for the isolation argument.

There can be little question, however, that the extended case-finding, monitoring and treatment effort of the 1940s did bring this factor into play, but only after the number of cases had dropped to manageable levels. Yet however effective such services may have been, access to them was a serious problem in Nova Scotia as late as the 1940s, when Western Division DHO J.S. Robertson reported that many consumptives never saw a private doctor because of "the usual financial inability of such patients to pay".[14]

Some analysts, like Simon Szreter, suggest that general public-health improvements may have affected tuberculosis decline.[15] Indeed, this may be so; there may have been a general increase in cleanliness and a lessened tendency to contract other diseases which could have weakened individual resistance and precipitated reactivation of prior tuberculosis infection. But it should also be remembered that pasteurization laws and water-supply improvements were the responsibility of individual towns and municipalities whose ability and willingness to introduce such schemes varied

widely; thus these measures were introduced on a piecemeal basis over a long period, and typhoid continued to be a problem in Nova Scotia right up to the Second World War. Nova Scotia's first factory inspector, appointed in 1908, found employers contemptuous of anti-spitting campaigns, too embarrassed about filth to discuss it, and receptive in general only to such modest suggestions as improving ventilation by installing fans.[16] More research is needed to explore the development of workplace sanitation, and the spread of sanitary improvements in other spheres.

With respect to the possible influence of education, again solid information is lacking; I am aware of no studies that tested Nova Scotians' knowledge about tuberculosis at various periods. However, there is some interesting, if scattered, information available from Ontario, which mounted comparable education programs. Visitors to a provincial health department display at the 1954 Canadian National Exhibition were invited to select one or more of several dozen health queries by pressing a button on a machine and receiving an electronically-flashed answer; one of the two most popular questions was "Is tuberculosis inherited?"[17a] The following year, the Canadian Institute of Public Opinion conducted a survey at the behest of the Ontario Tuberculosis Association,

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[a] The other was "How serious is alcoholism in Ontario?" Early tuberculosis activists would have been horrified, after all their hard work, that the heredity question was still being asked.

rating the public's attitudes toward tuberculosis and the Association itself. Thirty-two percent rated tuberculosis as a more serious cause of personal and family distress than any other disease; and this was the highest percentage given to any disease. Eighty-five percent of respondents had had a chest x-ray at some time in their lives, but only 23% within the past year. Twenty-five percent stated they would "feel uncomfortable" working next to a person released from a sanatorium, and a "high percentage" had never heard of the Tuberculosis Association, nor knew how how Christmas Seal money was spent.[b] An astonishing 75%, while they knew Christmas Seals existed, did not recognize that they had anything to do with tuberculosis.[18]

Having dealt, at least partially, with the other possibilities, we are left with the consideration of "living standards", but the state of the field gives us only glimpses of the problem, to which the present study can add only piecemeal observations. That there existed a poor class of people in Nova Scotia we can assume with safety, and preceding chapters have recorded many observations by physicians regarding their inability to pay for conventional care and the consequent inaccessibility of existing facilities to them. One physician, Dr. Forrest, Halifax MHO in 1924, commented specifically on nutrition, blaming Nova Scotia's high death

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[b] 4%, even at that late date, believed it was spent on the relief of poor patients.

rate from tuberculosis not only on the province's foggy, cold summers but also on the poor nourishment in villages. In many places, he wrote, milk, meat and fresh vegetables were practically unknown; Forrest met a man who told him he had not tasted meat for a year. He reported that potatoes, tea and bread formed the main diet, while in the winter of 1923-1924, many people were "on the verge of starvation" following the failure of the fishery.[19]

Although nutrition may, in fact, prove to have been a decisive factor, one should not succumb to the temptation of trying to reduce poverty to a one-dimensional entity. If one gleans anything at all from modern studies of poverty, it is a sense of its overwhelming complexity, of the ways in which it affects each and every aspect of life. With regard to health, the experience of people from low socio-economic classes differs from that of others with respect not only to housing and nutritional levels, both quantitative and qualitative, but also to such matters as their perception of symptoms and willingness to consult a doctor, the attitude of medical professionals toward them, the differing treatment they receive as a result, and their higher levels of financial and family instability with the related emotional stress.[20]

The element of stress is a particularly interesting one in the history of tuberculosis, and one which is necessarily missed by most attempts at quantification of poverty. Links between emotional problems and tuberculosis had often been

observed over the centuries, but because of their resistance to quantification were usually not considered as a subject for serious study. British studies after the Second World War pioneered in the use of controlled experiments and statistical analysis to throw light on this question. In a series of studies beginning in 1951, David Kissen found that persons having a recent history of "break or serious threat of a break in a romance, engagement or marriage" were significantly more likely than others to develop tuberculosis in the first place and to suffer relapse, and that among a group of people judged by questionnaire and interview to display an "inordinate" as opposed to a "normal" need for affection, every one of those later diagnosed as tuberculous fell into the former group as compared to 16% of those with negative diagnoses. In publication of his studies in 1958, Kissen offered this as a possible explanation for the fact that tuberculosis in Britain had risen greatly in wartime, but not during the Great Depression: the latter period, while bringing material deprivation, had offered "no particular threat to personal or family relationships," while the war years certainly had.[21] Such provocative studies, giving scientific support to earlier subjective observations, at the very least invited a new look at the advisability of sanatorium treatment, which involved long-term separation from family and friends. They might also have shed light on the long-observed correlation between tuberculosis and alcoholism, on a possible connection between

family instability and tuberculosis in lower socio-economic groups, or even on the role of emotional stress caused by social dislocation among such dispossessed groups as native North Americans whose susceptibility to tuberculosis was a matter of record.[22] But by the time of publication, sanatoria were almost obsolete anyway, and as tuberculosis in Britain and other developed countries became a topic of chiefly historical interest, the chance was lost, at least for the moment, that other researchers would confirm and extend these fascinating insights.

The potential value to be gleaned from a detailed study of the complex components of standard of living which may have affected tuberculosis decline in Nova Scotia is apparent, for those interested in the historical problems of regional economic underdevelopment and class studies as well as for historians of medicine. As one medical writer put it, in presenting historical data on tuberculosis mortality in England and Wales:

> Similar data have been obtained in every industrialized country...but these data are cited because they are reliable and begin in 1850. [They] show that the mortality rate from this disease has been declining steadily since the middle of the 19th century and has continued to decline in almost linear fashion during the past 100 years. There were increases in rates of tuberculosis during wars and under specified adverse local conditions. The poor and the crowded always came off worst of all in war and in peace, but the overall decline in deaths from tuberculosis was not altered measurably by the discovery of the tubercle bacillus, the advent of the tuberculin

> test, the appearance of BCG vaccination,[c] the widespread use of mass screening, the intensive anti-tuberculosis campaigns, or the discovery of streptomycin. Only the advent of isoniazid changed the mortality patterns...
>
> It is important that this point be understood in its completeness. [It] was made years ago...and has been repeatedly stressed through the years by many observers of the public health. Our research efforts have been of great value in the management of individual patients and in present-day public health practice, but they do not account for the linear decline in deaths during the past 100 years.
>
> ...This decline in rates of certain disorders, correlated roughly with improving socioeconomic circumstances, is merely the most important happening in the history of the health of man, yet we have only the vaguest and most general notions about how it happened and by what mechanisms socioeconomic improvement and decreased rates of certain diseases run in parallel.[23] [Emphasis added]

The present study, in focussing on tuberculosis as a social and an individual problem, has attempted to describe and assess the methods used in its control from the viewpoints of patients, volunteers, and physicians in private practice and in the public health service. It is hoped that it will be of value above all in encouraging increased interest among historians in the interdependent roles of society, economics and disease, which medical writers have begun to explore. As the disease which constituted, in Wolff's words, the "most sensitive measuring-rod" to the state of civilization, tuberculosis in particular may have a great deal to tell us

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[c] It should be noted, however, that England steadfastly resisted the adoption of BCG vaccination during the period in question. Presumably the author is making general reference here to the other industrialized countries, which exhibited similar mortality patterns.

about ourselves, our definitions of "disease" and "cure", our motives in so defining them, and about the vast complexity of social and medical factors which determine our well-being.[24]

ENDNOTES

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17. Marsha A Chandler, William Chandler, Public Policy and Provincial Politics (Toronto, 1979), p. 204.

18. Marsha A Chandler, William Chandler, Public Policy and Provincial Politics (Toronto, 1979), pp. 203-216. For detailed information on the Ontario situation, see Peter Conrad, Caring on the Grand: A History of the Freeport Hospital (Kitchener, Ontario, 1987) and J.T.H. Connor, A Heritage of Healing: The London Health Association and Its Hospitals, 1909-1987 (London, Ontario, 1990); the latter deals with the old Queen Alexandra Sanatorium, later the Beck Memorial Sanatorium. Also of interest is David Gagan's A Necessity Among Us: The Owen Sound General and Marine Hospital (Toronto, 1990) for discussion of the dynamics of hospital growth and the difficulties of treating tuberculosis in a general hospital.

19. K. McCuaig, "From Social Reform to Social Service: The Changing Role of Volunteers in the Anti-Tuberculosis Campaign, 1900-1930", Canadian Historical Review 61 (1980), pp. 480-501, and "Tuberculosis: The Changing Concepts of the Disease in Canada, 1900-1950" in C.G. Roland [ed.], Proceedings of the First Hannah Conference on the History of Medicine, June 3-5, 1982 (Toronto, 1984); R. Shryock, The National Tuberculosis Association 1904-1954: A Study of the Voluntary Health Movement in the United States (New York, 1977); B. Rosenkrantz, "The Trouble with Bovine Tuberculosis", BHM 59 (1985), pp. 155-175; D. McBride, "The Henry Phipps Institute, 1903-1937: Pioneering Tuberculosis Work with an Urban Minority", BHM 61, 1 (1987), pp. 78-97; A. Mitchell, "Obsessive Questions and Faint Answers: The French Response to Tuberculosis in the Belle Epoque", BHM 62, 2 (1988), pp. 215-235. Far less analytical, but a good source of carefully-researched information on the Canadian voluntary movement, is G.J. Wherrett, The Miracle of the Empty Beds: A History of Tuberculosis in Canada (Toronto, 1977).

20. A.M. Lowell et. al., Tuberculosis (Cambridge, Mass., 1969), pp. 72-73.

21. S.A. Knopf, "The Tuberculosis Problem in the United States", North American Review of Reviews 174 (1902), pp. 376-385; Ernest Poole, "The Plague in Its Stronghold: Tuberculosis in the New York Tenement" in Charity Organization Society, A Handbook on the Prevention of Tuberculosis (New York, 1903), pp. 303-330.

22. Ernest Poole, "The Plague in Its Stronghold", pp. 305-306, 329-330.

23. Canadian Tuberculosis Association Annual Report [CTAAR] 1908, Appendix 10.

24. Halifax Visiting Dispensary Annual Reports and Minutes passim, especially 1901.

25. R.C. Brown and R. Cook, Canada 1896-1921: A Nation Transformed (Toronto, 1974); Richard Allen, The Social Passion: Religion and Social Reform in Canada, 1914-1928 (Toronto, 1971); B.A. Wood, Idealism Transformed: The Making of a Progressive Educator (Montreal, 1985); E.R. Forbes, "Prohibition and the Social Gospel in Nova Scotia", Acadiensis 1,1 (Autumn, 1971), pp. 11-36; Henry Roper, "The Halifax Board of Control: The Failure of Municipal Reform, 1906-1919", Acadiensis 14, 2 (Spring, 1985).

26. Heather McDougall, Activists and Advocates: Toronto's Health Department, 1883-1983 (Dundurn, 1990), p. 291.

27. James Weinstein, The Corporate Ideal in the Liberal State, p. x; B. Anne Wood, Idealism Transformed, p. x.

28. J.H. Thompson and A. Seager, Decades of Discord, p. 59; Richard Allen, The Social Passion, p. 4.

29. S.A. Knopf, "The Tuberculosis Problem in the United States", North American Review of Reviews 174 (1902), p. 383.

30. James Weinstein, The Corporate Ideal in the Liberal State, p. 19.

31. James Weinstein, The Corporate Ideal in the Liberal State, p. 61.

32. B. Anne Wood, Idealism Transformed, pp. 7, 126.

33. Barry M. Franklin, "Curriculum Thought and Social Meaning: Edward L. Thorndike and the Curriculum Field", Educational Theory 26, 3 (Summer 1976), p. 309.

34. B. Anne Wood, Idealism Transformed, p. 100.

35. B. Anne Wood, Idealism Transformed, p. 193.

36. Heather MacDougall, Activists and Advocates, p. 291.

37. M. Larson, "The Production of Expertise and the Constitution of Expert Power", in T.L. Haskell, The Authority of Experts (Bloomington, Indiana, 1984), pp. 28-83.

38. Thomas Haskell, "Professionalism versus Capitalism: R.H. Tawney, Emile Durkheim, and C.S. Peirce on the Disinteredness of Professional Communities", in T. Haskell (ed.), The Authority of Experts, pp. 180-225.

39. Eliot Friedson, "Are Professions Necessary?" in T. Haskell, The Authority of Experts, pp. 3-27.

40. On medical professionalization in general, see W. Rothstein, American Physicians in the 19th Century: From Sects to Science (Baltimore, 1972); G. Markowitz and D. Rosner, "Doctors in Crisis: A Study of the Use of Medical Education Reform to Establish Modern Professional Elitism in Medicine", American Quarterly 25 (1973), p. 84; R. Numbers, "The Fall and Rise of the American Medical Profession" in J. Leavitt and R. Numbers [eds.], Sickness and Health in America (Madison, Wisconsin, 1985), pp. 185-196. For a discussion of the Canadian situation, see R. Gidney and W. Millar, "The Origins of Organized Medicine in Ontario, 1850-1869" in C. Roland, Health, Disease and Medicine (McMaster University, 1982), pp. 65-95; J. Bernier, "La Standardisation des etudes medicales et la consolidation de la profession dans la deuxieme moitie due XIXe siecle", Revue d'histoire de l'Amerique francaise 37, 1 (1983), pp. 51-65; C. Howell, "Reform and the Monopolistic Impulse: The Professionalization of Medicine in the Maritimes", Acadiensis 11, 1 (1981) pp. 3-22.

41. C.-E. A. Winslow, The Evolution and Significance of the Modern Public Health Campaign (New Haven, Connecticut, 1923), pp. 57-58, cited in Paul Starr, The Social Transformation of American Medicine (New York, 1982), p. 190-191. For Winslow's description of the earlier sanatarian movement in public health, especially in mid-nineteenth century England, see also Winslow, The Conquest of Epidemic Disease (New York, 1967) [originally published 1943].

42. Paul Starr, The Social Transformation of American Medicine (New York, 1982), p. 196.

43. Barbara Rosenkrantz, Public Health and the State: Changing Views in Massachusetts, 1842-1936 (Cambridge, 1972), p. 179.

44. K. McCuaig, "From Social Reform to Social Service: The Changing Role of Volunteers in the Anti-Tuberculosis Campaign, 1900-1930," Canadian Historical Review 61 (1980), pp. 480-501 and "Tuberculosis: The Changing Concepts of the Disease in Canada, 1900-1950" in C.G. Roland [ed.], Proceedings of the First Hannah Conference on the History of Medicine, June 3-5, 1982 (Toronto, 1984). See also K. McCuaig, Public Health in Canada, McGill University M.A. thesis, 1981.

45. For example, G.J. Wherrett's The Miracle of the Empty Beds and J.T.H. Connor's A Heritage of Healing offer chronologies with little or no analysis, while P. Conrad's Caring on The Grand gives a detailed treatment of the sanatorium's community context and political history, but questions neither the wisdom of having such an institution in the first place nor the therapy which was offered there. See also Heather McDougall, Activists and Advocates

46. Georg Wolff, "Tuberculosis and Civilization",Parts I and II, Human Biology 10, 1 (1938), pp. 106-123 and 10, 2 (1938), pp. 251-284.

47. A. Keys, J. Brozek, A. Henschel, O. Mickelsen and H.L. Taylor, The Biology of Human Starvation (Minneapolis, 1950), Volume II, pp. 1015-1037; quote from p. 1015.

48. See, for example, CTAAR, 1936, p. 16, which cited improved living standards as an important element in tuberculosis control along with education, treatment and isolation; DHAR, JHA, 1924, Part II, Appendix 16 cites "early treatment, education..and improvement in the living conditions of our population are among the factors which may be considered causative or to which credit should be given." CTAAR, 1920, p. 8: "This decrease...is due to three factors. First, the lessened infection in the homes from which tuberculous patients have been removed to hospitals and sanatoria. Second, the earlier recognition and the earlier and better treatment of patients both in their homes and in sanatoria. Third, the better home and living conditions, especially in regard to ventilation, sanitation and personal hygiene." CTAAR 1924, p. 68: In Nova Scotia, Visiting Housekeepers' visits were "largely on undernourished and therefore possibly tuberculous families...Nutrition classes for the undernourished children are held in both Health Centres each week by the Visiting Housekeepers, in which the children are taught the rules of the Health Game." On the "racial immunity" factor: J.B. Hawes, Talks on Tuberculosis (Cambridge, Mass., 1931), p. 179: "These three factors--the isolation and care of the advanced consumptive and the proper disposal of his germ-laden sputum, increasing bodily resistance [by gradual building up of a group's immunity through long exposure] and education in hygiene and right living--have been responsible for the declining death rate in tuberculosis and will be responsible for the continued decrease in the future." DHAR, JHA, 1924, Part II, Appendix 16: "Our population is composed quite extensively of racial elements apparently very vulnerable to the disease."

49. See, for example, Harley Williams, Requiem for a Great Killer: The Story of Tuberculosis (London, 1973); G.J. Wherrett, The Miracle of the Empty Beds (Toronto, 1977).

50. T. McKeown, The Modern Rise of Population (London, 1976); The Role of Medicine (Oxford, 1979).

51. Terry Copp, The Anatomy of Poverty: The Condition of the Working Class in Montreal 1897-1929 (Toronto, 1974); Michael Piva, The Condition of the Working Class in Toronto, 1900-1921 (Ottawa, 1979). There do exist glimpses of life among the poor in the nineteenth-century: see Judith Fingard, Jack in Port: Sailortowns of Eastern Canada (Toronto, 1982) and The Dark Side of Life in Victorian Halifax (Halifax, 1989); Kenneth Pryke, "Poor Relief and Health Care in Halifax, 1827-1849", in Wendy Mitchinson and Janice McGinnis (eds.), Essays in the History of Canadian Medicine (Toronto, 1988), pp. 39-61.

52. F.B. Smith, The Retreat of Tuberculosis, 1850-1950 (Kent, 1988); S.C. Farrow, "McKeown Reassessed", British Medical Journal 294 (1987), pp. 1631-1632.

53. E.A. Wrigley and R.S. Schofield, The Population History of England, 1541-1871, A Reconstruction (London, 1981).

54. S. Szreter, "The Importance of Social Intervention in Britain's Mortality Decline c. 1850-1914: a Re-interpretation of the Role of Public Health", Social History of Medicine (1988), pp. 1-37.

55. L. G. Wilson, "The Historical Decline of Tuberculosis in Europe and America: Its Causes and Significance", Journal of the History of Medicine and Allied Sciences 45, 3 (1990), pp. 366-396; quote is from p. 367.

56. A. Newsholme, "The Causes of the Past Decline in Tuberculosis and the Light Thrown by History on Preventive Measures for the Immediate Future", A Series of Public Lectures: Supplemental Volume to Transactions of the Sixth International Congress on Tuberculosis (Philadelphia, 1908), pp. 80-109; quotes from p. 102.

57. Readers interested in following this continuing debate, especially with reference to tuberculosis, may consult, besides works already cited: T. McKeown and R.G. Brown, "Medical Evidence Related to English Population Changes in the Eighteenth Century", Population Studies (November, 1955), pp. 119-141; E.J. Hobsbawm, "The British Standard of Living, 1790-1850", Economic History Review 10, 1 (1957), pp. 46-61; R.M. Hartwell, "The Rising Standard of Living in England, 1800-1850", Economic History Review 13, 3 (1961), pp. 397-416; T. McKeown and R.G. Record, "Reasons for the Decline of Mortality in England and Wales during the Nineteenth Century", Population Studies 16 (1962), pp. 94-122; E.J. Hobsbawm, "The Standard of Living during the Industrial Revolution: A

Discussion", Economic History Review (August, 1963), pp. 119-134; R.M. Hartwell, "The Standard of Living", Ibid., pp. 135-146; R. Currie and R.M. Hartwell, "The Making of the English Working Class?" Economic History Review 18, 3 (1965), pp. 633-643; T. McKeown, R.G. Brown and R.G. Record, "An Interpretation of the Modern Rise of Population in Europe", Population Studies 26, 3 (1972), pp. 345-381; M.W. Beaver, "Population, Infant Mortality and Milk", Population Studies 27 (1973), pp. 243-254; P.E. Razzell, "'An Interpretation of the Modern Rise of Population in Europe' -- A Critique", Population Studies 28, 1 (1974), pp. 5-17; T. McKeown, R.G. Record and R.D. Turner, "An Interpretation of the Decline of Mortality in England and Wales during the Twentieth Century", Population Studies 29, 3 (1975), pp. 391-422; G.E. Godber, "McKeown's The Role of Medicine: Comments from a Former Chief Medical Officer", Milbank Memorial Fund Quarterly (Summer, 1977), pp. 373-378; W. Holland, "McKeown's The Role of Medicine: A View from Social Medicine", Ibid., pp. 379-382; J.T. Hart, "McKeown's The Role of Medicine: Advancing Backwards", Ibid., 383-388; R.M. Green, "Beyond The Role of Medicine: McKeown as Medical Philosopher", Ibid., pp. 389-403; J.B. McKinlay and S.M. McKinlay, "The Questionable Contribution of Medical Measures to the Decline of Mortality in the United States in the Twentieth Century", Ibid., pp. 405-428; T. McKeown, "Fertility, Mortality and Causes of Death: An Examination of Issues Related to the Modern Rise of Population", Population Studies 32 (1978), pp. 535-542; R.E. Jones, "Further Evidence on the Decline in Infant Mortality in Pre-industrial England: North Shropshire, 1561-1810", Population Studies 34, 2 (1980), pp. 239-250; M.W. Flinn, "The Population History of England, 1541-1871", Economic History Review 35, 3 (1982), pp. 423-437; P.H. Lindert, "English Living Standards, Population Growth, and Wrigley-Schofield", Explorations in Economic History 20 (1983), pp. 131-155; R. Schofield, "The Impact of Scarcity and Plenty on Population Change in England, 1541-1871", Journal of Interdisciplinary History 14, 2 (1983), pp. 265-291; T. McKeown, The Origins of Human Disease (Oxford, 1988).

58. I am indebted to Dr. Sheila Zurbrigg for suggesting this connection, on the basis of her research into the historical relationship between malnutrition and disease in India.

59. Several news items of the past few years underline the fact that tuberculosis has not disappeared. See, for example, "Treaty Indians Remain Prone to Tuberculosis", Winnipeg Free Press, 3 January 1987, p. 2; "Homeless Infected with TB", Calgary Herald, 8 May 1987, p. A17; "Living Conditions on Reserve Cited in Alberta TB Outbreak", Toronto Globe and Mail (Metro Edition), 10 September 1987, p. A4; T. Monmaney, "The Return of Tuberculosis", Newsweek 111, 8 (22 February 1988), p. 68; "AIDS Epidemic Sparks Tuberculosis Surge: WHO",

Montreal Gazette, 10 March 1988, p. C12. One particularly interesting project in Brooklyn, New York in 1971, studying admissions to hospital for alcohol withdrawal syndrome, found that the residences of such patients tended to cluster in a few zones, and that within these zones there existed significant correlations between the number of admissions and the following factors: tuberculosis, overcrowding, high rates of aid to dependent children, venereal disease, juvenile delinquency, unemployment, homicide, low median income, low educational level and low residential stability; see S.M. Rosenblatt et. al., "Patients Admitted for Treatment of Alcohol Withdrawal Syndromes: An Epidemiological Study," Quarterly Journal of Studies on Alcohol 32, 1 (1971), pp. 104-115. See also Tuberculosis Control: Report of a Joint IUAT/WHO Study Group, World Health Organization Technical Report Series No. 671 (Geneva, 1982); Marion M. Torchia, "The Tuberculosis Movement and the Race Question, 1890-1950", Bulletin of the History of Medicine 49, 2 (1975), pp. 152-168; J.F. Rice, "Health Conditions of Native Americans in the Twentieth Century", Indian History 10, 4 (1977), pp. 14-18.

CHAPTER 1:

THE SANATORIUM SOLUTION (pp. 41-82)

1. "Alexander Peter Reid", in Henry James Morgan, The Canadian Men and Women of the Time (2nd edition) (Toronto, 1912), p. 933.

2. Canadian Public Health Association, The Federal and Provincial Health Services in Canada (2nd edn.), (Toronto, 1962): see individual articles on each province for dates of founding.

3. Nova Scotia Provincial Board of Health Annual Report (PBHAR), in Journal of the House of Assembly [JHA] 1899, Appendix 14.

4. PBHAR, JHA, 1902, Appendix 16.

5. Actual statistics were not collected until 1908. A 1914 study confirmed this observation, showing the province with a tuberculosis mortality rate of 181.8 per 100,000 population, well in the lead of all other reporting provinces, which ranged between 152.5 and 76.7. Post-1921 statistics show that Nova Scotia remained either in the lead or not far behind; see G.J. Wherrett, Miracle of the Empty Beds (Toronto, 1977), p. 255. But the number of living cases was never known with any certainty. In 1914, Montreal's Bruchesi Institute estimated morbidity by multiplying tuberculosis deaths by 10 (see Canadian Tuberculosis Association Annual Report [CTAAR], 1914, Appendix 17). An earlier method had multiplied by a factor of 5 (CTAAR, 1908, Appendix 6); this seems to have been the common practice. Thus Reid in 1912 estimated there were between five and six thousand cases in Nova Scotia (Department of Health Annual Report [DHAR], JHA, 1912, Appendix 16).

6. Richard Shryock, The National Tuberculosis Association 1904-1954: A Study of the Voluntary Health Movement in the United States (New York, 1977), chapter 2; S.A. Waksman, The Conquest of Tuberculosis (Berkeley, 1966), p. 19; Edward Kass, "Infectious Diseases and Social Change", The Journal of Infectious Diseases 123, 1 (1971), pp. 110-114.

7. PBHAR, JHA, 1903-4, Appendix 16.

8. For a discussion on patients' reluctance to consult physicians except in urgent need, see Edward Shorter, Bedside Manners: The Troubled History of Doctors and Patients (New York, 1985) pp. 55-57. I believe, however, that this was due less to patients' classifying of their symptoms as "minor" (as Shorter would have it) and more to their distrust of

physicians and access to alternatives. Up to the First World War, when doctors' status as "experts" became almost unassailable, seeking the advice of family and neighbors on disease was commonly held to be at least as helpful and justifiable as calling a physician. The patent medicine industry profited immensely from this self-help tradition. With regard to tuberculosis in particular, F.B. Smith gives a good description of common remedies in "Gullible's Travails: Tuberculosis and Quackery, 1890-1930", Journal of Contemporary History 20, 4 (1985), pp. 733-756 and The Retreat of Tuberculosis 1850-1950 (London, 1988) pp. 136-165. See also "Report of Select Committee on Patent Medicines", Lancet (12 Sept. 1914), p. 704. With or without a doctor, there was no dearth of advice for the Canadian patient in need of relief. There were a number of medical self-help books on the market, most cookbooks contained a "home remedies" section, and specifics of all kinds were freely advertised. B.G. Jefferis and J.L. Nichols, The Household Guide or Domestic Cyclopedia (Toronto, 1894) recommended wild cherry bark (p. 123) or various homeopathic remedies (p. 181) for tuberculosis; T. Eaton Co. Ltd. Spring and Summer Catalogue (Toronto, 1901), pp. 116-118 offered many remedies (among them Burdock's Blood Bitters, Allen's Lung Balsam, Wood's Norway Pine Syrup and Bovinine) which were also regularly advertised to physicians in the Maritime Medical News; and Chase's Recipes 10th Edition (London, Ontario 1864?), a best-seller which was constantly being revised and which contained in this edition seven close-typed pages of advice to consumptives, was available to anybody for a dollar. I have covered the use of many of these specifics in more detail in S.M. Penney, Tuberculosis in Nova Scotia 1882-1914, unpublished M.A. Thesis, Dalhousie University, 1985, pp. 38-39.

9. The belief in the heritability of tuberculosis was centuries old, though theories of contagion had also gone in and out of fashion. Neither position could be proved before Koch. For a view of popular fatalism toward tuberculosis before the sanatorium crusade began, see Edward Trudeau, "The History of Tuberculosis Work at Saranac Lake, N.Y.", 1st Annual Report (Henry Phipps Institute, 1905), p. 122; also Annie McLean, "Nova Scotia's Crusade against Tuberculosis", Charities: A Weekly Journal of Philanthropy and Social Advance 14 (1905), pp. 736-738; A.F. Miller, "Recollections of the Sanatorium 1910-1918", Health Rays: A Magazine of Health and Good Cheer, Special Anniversary Issue (1954), pp. 21-31.

10. The best description of this era I have seen is in William G. Rothstein, American Physicians in the 19th Century: From Sects to Science (Baltimore, 1972), pp. 41-62.

11. References to these and other remedies were extremely common in medical journals and newspaper advertisements of the late 19th and early 20th centuries. More on the specifics mentioned here, and how they were used, can be found as follows: Creosote -- J.A. Myers, Captain of All These Men of Death: Tuberculosis Historical Highlights (St. Louis, 1977), p. 47; J.H. Morrison, "Creosote in Tuberculosis", Maritime Medical News [MMN] 9, 6 (1897), p. 206. Formalin and other antiseptics -- H. M. Thomas, "The Treatment of Pulmonary Tuberculosis by the Inhalation of Antiseptic Nebulae", MMN 11, 11 (1899), pp. 393-401; W.H. Hattie, "Pulmonary Tuberculosis", MMN, 9, 11 (1897), pp. 375-382. Tonics -- "Therapeutic Suggestions", MMN 9, 9 (1897), p. 327.

12. Celsus (25 B.C. - 45 A.D.) recommended sea voyages, outdoor living and a milk diet. R.M. Burke, A Historical Chronology of Tuberculosis (Springfield & Baltimore, 1938), p. 6; J.B. Hawes, Talks on Tuberculosis with Patients and Their Friends (Boston, 1931). Remarked Hawes (p. 4): "[Celsus'] advice is as good now as it was the day he gave it, centuries ago."

13. S.M. Penney, "Marked for Slaughter: The Halifax Medical College and the Wrong Kind of Reform, 1868-1910", Acadiensis XIX, 1 (1989), pp. 27-51.

14. Halifax Visiting Dispensary Annual Report (Halifax, 1901). Public Archives of Nova Scotia [PANS] RD 63.

15. "President's Address", CTAAR, 1924, p. 14. A Handbook on the Prevention of Tuberculosis (New York, 1903), pp. 303-330, gives several first-hand observations of working-class family behavior when tuberculosis struck, as, of course, does Frederick Engels [The Condition of the Working Class in England (London, 1892; Panther edition, 1976)]; see especially pp. 126-136, 189-190. An article in New York's Jewish Daily Forward (Feb. 7, 1903) describes an incident perhaps not untypical: a woman, complaining of tuberculosis-like symptoms (cough, chest pain) awaited medical attention for hours in a public dispensary, although in fact it was her husband who was sick: "If he sits in the dispensary, he will lose pay. So I go, while he works. I make believe I am the sick one, they give me medicine, and he takes it. He feels a little better now" [Irving Howe & Kenneth Libo, How We Lived: A Documentary History of Immigrant Jews in America, 1880-1930 (New York, 1979), pp. 31-32]. In Nova Scotia, workers' reluctance to leave their jobs may have been at least partially responsible for the fact that the bulk of sanatorium patients were housewives and students.

16. Smith L. Walker, "Medicine and Surgery in Southern California", MMN 16, 4 (1904), pp. 119-126. Many locales enjoyed an economic boom thanks to the tuberculosis "business". In New Mexico, for example, the influx of thousands of consumptives with their families attracted hundreds of physicians and secondary industries; this has been held to be a critical factor in the economic development of the state. See J.W. Spidel, "An Army of Invalids: New Mexico and The Birth of a Tuberculosis Industry", New Mexico Historical Review 61, 3 (1986), pp. 179-201.

17. Ibid., pp. 125-126.

18. As were Canadian hospitals in general. A 1903 survey of public hospitals by the Canadian Tuberculosis Association was repeated in 1908, showing that hospital accommodation for consumptives had decreased significantly during the period:

	Total hospitals responding	Hospitals with special accommodation for consumptives	Hospitals not admitting consumptives	No. admitting consumptives in emergency
1903	34	13	13	8
1908	45	11	28	6

(Source: CTA Annual Report, 1908)

19. This 1890-1914 average figure has been calculated from a count of all patients listed in the hospital's annual reports as having any form of "phthisis" or tuberculosis. The actual numbers may be somewhat less, since it is possible that some patients spent time in both the medical and surgical sections; any such cases would appear in the records of both sections and have thus been counted twice.

20. Reports on Public Charities: The Victoria General Hospital Annual Report, JHA, 1890, 1907, 1908; Appendix 3 (B).

21. CTAAR, 1908, Appendix 10.

22. G.J. Wherrett, Miracle of the Empty Beds, p. 221; Annie McLean, "Nova Scotia's Crusade", pp. 736-738.

23. This was the typical Maritime pattern; see Marsha A Chandler, William Chandler, Public Policy and Provincial Politics (Toronto, 1979), pp. 203-216. W.H. Hattie, "Tuberculosis Legislation in Nova Scotia", DHAR, JHA, 1915, Appendix 16; A.P. Reid, "Sanitary Progress", MMN, 11, 9 (1899), pp. 301-308; "Care of Consumptives in the Victoria General Hospital", MMN, 11, 5 (1899), p. 171; C.D. Murray,

"Presidential Address", MMN 16, 12 (1904), pp. 501-541.

24. S.M. Penney, "Marked for Slaughter: The Halifax Medical College and the Wrong Kind of Reform, 1868-1910", Acadiensis XIX, 1 (1989), pp. 27-51; C. Howell, "Reform and the Monopolistic Impulse: The Professionalization of Medicine in the Maritimes", Acadiensis 11, 1 (1981) pp. 3-22.

25. P. Starr, The Social Transformation of American Medicine, p. 190; J.A. Myers, Captain of All These Men of Death, p. 58: when in 1889 the New York City Health Department issued leaflets on tuberculosis, Dr. S.A. Knopf, a leader in the tuberculosis field, hailed this as "the most important epoch in the control of tuberculosis in New York City, as well as in the United States, if not in the entire civilized world."

26. Opposition to vaccination was strong in Nova Scotia as elsewhere, with public anxiety both provoked and reflected in the press. See, for example, "Vaccination Made Her A Maniac!", The Halifax Evening Mail, 23 May 1904. In providing general vaccination programs, the government was always forced to include a loophole allowing people to opt out on the grounds of "conscientious scruples".

27. PBHAR, JHA, 1902, Appendix 16.

28. PBHAR, JHA, 1902, Part II, Appendix 16.

29. DHAR, JHA, 1911, Part II, Appendix 16.

30. Maritime Medical News 9, 7 (July 1897), p. 258.

31. Acadian Recorder, 18 Dec. 1913.

32. The particular reference is to the postmortem studies by Otto Naegeli, whose results, published in Virchow's Archives in 1900, indicated that virtually all adult cadavers exhibited healed tuberculosis lesions. Yet only a small fraction had had clinical tuberculosis. Hence, infection was universal, and some other factor must determine actual disease incidence. See R.M. Burke, A Historical Chronology of Tuberculosis, p. 48. By 1911, A.P. Reid was using these results to support his proposals for non-institutional methods of fighting tuberculosis: see DHAR, JHA, 1911, Appendix 16.

33. DHAR, JHA, 1905, Appendix 16. It would be years before science would show that inhaled dust particles are normally filtered out in the upper respiratory tract, putting an end to the fear of dried sputum so characteristic of the time.

34. "Ottawa Tuberculosis Conference", PBHAR, JHA, 1902, Appendix 16.

35. "Report of the Committee on Care and Control of the Consumptive Poor", CTAAR, 1902.

36. DHAR, JHA, 1907, Appendix 16.

37. Anonymous, "T.B. Blues", Honkin' Blues (California: Creative Concepts Publishing Co., 1979), p. 30.

38. A.F. Miller, "Recollections", pp. 21-31; S.A. Knopf, "The Tuberculosis Problem in the United States", North American Review of Reviews 174 (1902), pp. 376-385; Debates of the Nova Scotia Legislature, 1 April 1912.

39. PBHAR, JHA, 1898, Appendix 14.

40. J.W. McDaniel, "Milk as a Medium for the Spread of Disease", MMN 9, 9 (1897), pp. 298-306. Opposition to compulsory notification of tuberculosis cases was very common in Canada: see reports of discussions at CTA annual meetings, CTAAR 1907, 1909.

41. Richard Shryock, The National Tuberculosis Association, 1904-1954: A Study of the Voluntary Health Movement in the United States (New York, 1977), p. 30.

42. Report of Discussion at Annual Meeting, CTAAR 1906, 1907.

43. PBHAR, JHA, 1900, Appendix 12.

44. E. Farrell, "Letter from Berlin and Vienna", MMN 11, 6 (1899), pp. 192-196.

45. Edward Trudeau, "History of Work at Saranac Lake", p. 139.

46. W.H. Hattie, "Tuberculosis Legislation"; Debates of the Legislature of Nova Scotia, 8 Feb. 1900.

47. "Sanatorium Act", Cap. 9, 63 Victoria, Nova Scotia Laws, 1900.

48. Development and reform of the public health machinery is dealt with in greater detail in S. Penney, Tuberculosis in Nova Scotia 1882-1914, pp. 97-26-32, 56-68, 97-101, 123-126.

49. J. Murray Beck, Politics of Nova Scotia Volume Two: 1896-1988 (Tantallon, Nova Scotia, 1988), p. 94; E. Forbes, "Prohibition and the Social Gospel in Nova Scotia", Acadiensis 1, 1 (Autumn, 1971), pp. 11-36.

50. Forbes, Ibid., p. 25.

51. Clearly, the provincial medical association had envisaged an institution that would receive advanced as well as early cases; see "Memorial to the Government Concerning the Care of the Consumptive Poor", MMN 11, 6 (1899), pp. 199-201. The Visiting Dispensary managers, too, had hoped the poor would be accommodated [see Halifax Visiting Dispensary Annual Report, 1901]. The physicians at the Victoria General, of course, were simply desirous of removing the indigent, advanced and infective cases from their general wards.

52. C.D. Murray, "Presidential Address", MMN 16, 12 (1907), p. 502; Halifax Visiting Dispensary Annual Report, 1907.

53. A. McLean, "Nova Scotia's Crusade against Tuberculosis", Charities: A Weekly Journal of Philanthropy and Social Advance, 14 (April-September 1905), pp. 736-738.

54. PBHAR, JHA, 1901, Appendix 12.

55. H.K. MacDonald, "Presidential Address", MMN 16, 3 (1904), p. 86.

56. C. C. Easton, "The Spirit of a Sanatorium", Charities 12 (1904), pp. 782.

57. C.D. Murray, "Presidential Address", MMN, 16, 12 (1904), p. 503.

58. Sanatorium Annual Report, JHA, 1905-1910, Appendix 3 (C).

59. Visitors were often felt to be harmful agencies in early sanatoria, "exciting" the patient and leading to an undesirable rise in temperature and pulse rate. See Jane Walker, The Modern Nursing of Consumption (London, 1904) p. 19. Even as late as 1930, A.F. Miller and Jane Mortimer [The War on Tuberculosis (Nova Scotia, 1930), p. 52] advised that "Seeing visitors, talking...are all forms of physical and mental exercise. These and all kinds of excitement are very injurious to some patients..." On the other hand, some sanatoria, like Frimley in England, made "graded exercise" including construction labor compulsory for patients. Whether patients rested or exercised depended on the theories of the individual superintendent; the requirement for absolute obedience was perhaps the only common factor.

60. Sanatorium Annual Report, JHA, 1910, 1915, Appendix 3 (B). Of 65 patients treated in 1908-09, 52 were between the ages of 15 and 35, with 42 of these under 25 years of age. 14 occupations each accounted for six or more cases between 1904 and 1915: housewives (122 patients), students (83), clerks

(45), housemaids (33), teachers (28), farmers (22), dressmakers (19), nurses (17), carpenters (11), miners (10); laborers, merchants, fishermen, and physicians accounted for between six and nine cases each.

61. Sanatorium Annual Report, JHA, 1908, 1910, Appendix 3 (B).

62. Sanatorium Annual Report, JHA, 1908, Appendix 3 (B).

63. Sanatorium Annual Report, JHA, 1909, Appendix 3 (B).

64. Sanatorium Annual Report, JHA, 1910, Appendix 3 (B).

65. Sanatorium Annual Report, JHA, 1909, Appendix 3 (B).

66. MMN 22, 2 (1910), p. 42.

67. MMN 22, 2 (1910), p. 42.

68. Department of Health Annual Report [DHAR], JHA, 1907, 1909, Appendix 16.

69. DHAR, JHA, 1910, Appendix 16.

70. DHAR, JHA, 1911, Appendix 16.

71. "Report of Executive Committee", CTAAR, 1910.

72. Reports of Halifax Anti-Tuberculosis League, CTAAR, 1908-1914.

73. See, for example, reports of the Amherst League, CTAAR 1911-1913, Appendix 12.

74. G.H. Cox [ed.], Consumption: Its Cause, Prevention and Cure (London, 1912).

75. See the annual reports of the various leagues, CTAAR 1909-1915. Leagues led by women's groups, such as those in Halifax and Amherst, and the Women's League in Sydney, devoted much effort to direct relief. The activities of the Tri-County League and the Cape Breton Leagues organized by it were substantially different. These also tended to be larger than the socially-active leagues.

76. Report of the Colchester Anti-Tuberculosis League, CTAAR, 1910.

77. S.N. Miller to A.P. Reid, undated. DHAR, JHA, 1910, Appendix 16.

78. DHAR, JHA, 1910, Appendix 16.

79. Report of discussion at annual meeting, CTAAR 1909: comment by Dr. John Hunter of Toronto.

80. Report of the Amherst Anti-Tuberculosis League, CTAAR, 1911. The Amherst League even succeeded in getting a promise of aid from the provincial government and from their own county council for the project, but the war intervened and the idea was shelved.

81. A.F. Miller, "Recollections of the Sanatorium 1910-1918", Health Rays Special Anniversary Issue (1954), pp. 21-31.

82. Sanatorium Annual Report, JHA, 1912, Appendix 3 (B).

83. Sanatorium Annual Report, JHA, 1912, Appendix 3 (B).

84. L. Brown, "The Ultimate Results of Sanatorium Treatment", Transactions of 6th International Congress on Tuberculosis vol. 1, part II (Philadelphia, 1908)

85. W.H. Hattie, "Tuberculosis Legislation in Nova Scotia". DHAR, JHA, 1915, Appendix 16.

86. CTAAR, 1913, Appendix 12.

87. DHAR, JHA, 1912, Appendix 16.

88. S.A. Knopf, "The Modern Warfare against Tuberculosis as a Disease of the Masses", DHAR, JHA, 1915, Appendix 16.

89. DHAR, JHA, 1912, Appendix 16.

90. Colin Howell, personal communication. Dr. Howell's observation on Reid's conservatism was made in the course of extensive research of Reid's earlier career, especially in connection with the Victoria General Hospital.

91. Henry James Morgan, The Canadian Men and Women of the Time, 2nd ed. (Toronto, 1912), p. 514.

92. Report of discussion at annual meeting, CTAAR, 1910.

93. Report of the Amherst League, CTAAR, 1914.

94. Halifax Visiting Dispensary Minutes, 20 November 1909.

95. CTAAR, 1907, Appendix 3.

96. W.H. Hattie, "Tuberculosis Legislation in Nova Scotia", DHAR, Appendix 3, JHA, 1915, Appendix 16.

97. G.H. Cox and J.W. MacLeod [eds.], Consumption: Its Cause, Prevention and Cure (London, 1912), p. 13.

CHAPTER 2:

THE SANATORIUM: WAR AND POSTWAR (pp. 83-125)

1. Provincial Department of Health Annual Report, 1916. In Journal of the House of Assembly, Nova Scotia, Part II, Appendix 16, 1916.

2. J.H. Holbrook, "President's Address". Canadian Tuberculosis Association Annual Report, 1942, pp. 12-13.

3. Report of discussion at annual meeting, CTAAR, 1919, pp. 23-26.

4. CTAAR, 1940, p. 33.

5. Ibid., p. 11.

6. "President's Address", CTAAR, 1942, p. 10.

7. JLC, 1917, Appendix 3 (B).

8. JHA, 1916, Part II, Appendix 16.

9. JLC, 1917, Appendix 3 (C).

10. "President's Address", CTAAR, 1942, p. 13; A.F. Miller, "A Study of Readmission and Relapse of Tuberculosis Patients", American Review of Tuberculosis 9 (1924), p. 561

11. Sanatorium Annual Report, JLC, 1917, Appendix 3 (C).

12. A.F. Miller, "Recollections of the Sanatorium, 1910-1918", Health Rays Special Anniversary Issue (1954), pp. 21-31.

13. Sanatorium Annual Report, Journal of the House of Assembly, 1915, Appendix 3 (C).

14. "Sanatorium Idea Itself Not At Fault, Is Dr. Miller's Reply to Criticism". Halifax Herald, Sept. 10, 1924, p. 2.

15. Sanatorium Annual Report, Journal of the Legislative Council, Nova Scotia, 1917, Part I, Appendix 3 (C).

16. After publication of the Carnegie-funded Flexner report on North American medical education in 1910, research became a central function of medical schools, and was sometimes frankly acknowledged to be a more important activity than teaching. See Kenneth Ludmerer, Learning to Heal: The Development of American Medical Education (New York, 1985), p.

218, 241.

17. Allen K. Krause, "Some Problems of Medical Education in Tuberculosis". American Review of Tuberculosis 5 (1921-2), p. 757ee.

18. Sanatorium Annual Report, Journal of the Legislative Council, Nova Scotia, 1920, Appendix 3 (C).

19. A.F. Miller, "The Work of the Nova Scotia Sanatorium and its Place in the Fight against Tuberculosis". Nova Scotia Medical Bulletin, June (1932), p. 2.

20. A.F. Miller, C.J.W. Beckwith, A.A. Giffin, H.R. Corbett and A.V. Fraser, "Twenty Years' Experience with Artificial Pneumothorax: A Study of 460 Cases". Canadian Medical Association Journal 33 (1935), p. 651.

21. A.F. Miller, "Seven Years' Experience", p. 811.

22. A.F. Miller, "Seven Years' Experience with Artificial Pneumothorax". American Review of Tuberculosis 5 (1921-2), pp. 809-818.

23. A.F. Miller et. al., "Twenty Years' Experience with Artificial Pneumothorax". Canadian Medical Association Journal 33 (1935), pp. 650-656; A.F. Miller and V.D. Schaffner, "The Results of Phrenic Nerve Paralysis in the Treatment of Pulmonary Tuberculosis". Canadian Medical Association Journal 40 (1939), pp. 55-63.

24. Ibid.

25. M.E. Lapham, "The Treatment of Pulmonary Tuberculosis by Compression of the Lung". American Journal of the Medical Sciences 163 (1912), pp. 503-518; see also Ray W. Matson, Ralph C. Matson and Mark Bisaillon, "End Results of 600 Cases of Pulmonary Tuberculosis treated by Artificial Pneumothorax". American Review of Tuberculosis 9 (1924), pp. 294-336.

26. A.F. Miller, "A Study of Readmission and Relapse of Tuberculosis Patients in 200 Consecutive Cases of Ex-Service Men Readmitted to the Nova Scotia Sanatorium". American Review of Tuberculosis 9 (1924), p. 562.

27. A.F. Miller, C.J.W. Beckwith, A.A. Giffin, H.R. Corbett and A.V. Fraser, "Twenty Years' Experience with Artificial Pneumothorax: A Study of 460 Cases". Canadian Medical Association Journal 33 (1935), pp. 650-6.

28. A.F. Miller et. al., "Twenty Years' Experience with Artificial Pneumothorax", p. 651.

29. A.F. Miller, "Seven Years' Experience", pp. 812-813.

30. The attempt to study human disease "scientifically" by comparing a treated group with a group deliberately left untreated has led to some notorious abuses. See, for example, Allan M. Brandt, "Racism and Research: The Case of the Tuskegee Syphilis Study", in J.W. Leavitt and R.L. Numbers (eds.), Sickness and Health in America (Madison, Wisconsin, 1985), pp. 331-343. This study, conducted between 1932 and 1972 by the U.S. Public Health Service, not only failed to treat but actively sought to prevent treatment of a group of several hundred black males with syphilis, who were lied to about the nature of the study and were led to believe they were, in fact, being treated.

31. A.F. Miller, "Seven Years Experience", p. 809.

32. A.F. Miller, "Twenty Years' Experience", p. 652.

33. A.F. Miller, "The Work of the Nova Scotia Sanatorium and Its Place in the Fight Against Tuberculosis". Nova Scotia Medical Bulletin, June 1932, pp. 1-12.

34. Sanatorium Annual Report, JLC, 1927, Part I, Appendix 3 (C).

35. A.F. Miller, "The Work of the Nova Scotia Sanatorium and Its Place in the Fight Against Tuberculosis". Nova Scotia Medical Bulletin, June (1932), pp. 1-12.

36. Ibid., p. 803.

37. A.F. Miller, "A Study of Readmission and Relapse of Tuberculosis Patients in 200 Consecutive Cases of Ex-Service Men Readmitted to the Nova Scotia Sanatorium." American Review of Tuberculosis 9 (1924), p. 562. It should be noted that the figures quoted here are different from those in another paper, "Conclusions from Repeated Physical and X-Ray Examination of Ex-Service Men", Canadian Medical Association Journal 14 (1924), p. 585, although both papers bear the note that they were presented by Dr. Miller to the Conference of Medical Superintendents of the DSCR in Ottawa on April 8, 1924. One, obviously, represents a later revision. The latter article gives the percentage of relapse as 37.8%, or 508 patients out of 1344 original admissions.

38. A.F. Miller and H.T. Hamon, "Some Lessons Learned from Comparison of Chest Roentgenograms and Physical Findings in Twelve Hundred Cases Covering Four Years' Experience with Tuberculous Ex-Service Men". Tubercle 5 (1924), pp. 586-592.

39. A.F. Miller, "Conclusions from Repeated Physical and X-Ray Examination of Ex-Service Men". Canadian Medical Association Journal 14 (1924), pp. 585-59.

40. See, for example, B. Stivelman, "Conditions Commonly Mistaken for Pulmonary Tuberculosis: Report of a Study of 1700 Consecutive Cases", American Review of Tuberculosis 4 (1920-1), pp. 856-865. The study found erroneous diagnoses of tuberculosis in 10.4% of cases. The actual conditions were found to be (in order from highest to lowest frequency) chronic bronchitis and emphysema, various cardiac conditions, nonspecific upper respiratory diseases, neurasthenia, chronic interstitial pneumonia, bronchiectasis, chronic nontuberculous lung infections, asthma, gastric ulcer, pulmonary abscess, dysthyroidism, and an assortment of miscellaneous cases ranging from systemic syphilis and manic-depressive insanity to diabetes mellitus and pregnancy. The author concluded (p. 856) "that there is a general failure on the part of many physicians, not excluding specialists, to realize that not all chest conditions can be interpreted on a basis of pulmonary tuberculosis. Furthermore, the impression is gained that no earnest attempt is really made to differentiate between tuberculous and nontuberculous affections of the lungs..."

41. D.A. Stewart, "Tuberculosis Ten Years Ago, Today and Tomorrow". CTAAR, 1920, p. 24.

42. Ibid., p. 26.

43. Allen K. Krause, "The Tuberculosis Problem: Some Thoughts on Its Solution". American Review of Tuberculosis 5 (1921-2), p. 773.

44. A.F. Miller, "Institutional Treatment of Tuberculosis: Its Limitations". American Review of Tuberculosis 5, 10 (1921), p. 806.

45. Agnes Cox, "Historical Review". In Programme for the formal opening of the Halifax Tuberculosis Hospital, November 18, 1946. Provincial Archives of Nova Scotia (PANS) Vertical File V122 #4.

46. Later, in 1935, it would be taken over by the provincial Department of Health.

47. Sanatorium Annual Report, Journal of the Legislative Council (Nova Scotia), 1917, Part I, Appendix 3 (C).

48. Sanatorium Annual Report, JHA, 1916, Appendix 3.

49. Sanatorium Annual Report, JHA, 1922, Appendix 3 (C).

50. Eileen M. Hiltz, "Health Rays Through the Years". Health Rays 57, 11 (1977), pp. 11-13.

51. Sanatorium Annual Report, Journal of the Legislative Council, 1920, Appendix 3 (C).

52. Drs. Helen Holden and J.J. Quinlan, personal communication, 1985.

53. Sanatorium Annual Report, JHA, 1920, Appendix 3(C).

54. Excerpt from an article by a military patient at the sanatorium. Atlantic Leader, December 20, 1919, p. 4.

55. "Nova Scotia Sanatorium", CTAAR (1924), pp. 69-70.

56. Sanatorium Annual Report, JLC, 1928, Part I, Appendix 3 (C).

57. Anna Tufts Ross, Diary, Feb. 20, 1924.

58. Ibid., Feb. 22, 1924.

59. Ibid., Oct. 24, 1924. "War on T.B." refers to A.F. Miller and Jane W. Mortimer, The War on Tuberculosis (Halifax, 1919).

60. Ibid., Apr. 8, 1924.

61. Ibid., Mar. 2, 1924.

62. Ibid., Mar. 5, 1924.

63. Ibid., Mar. 12, 1924.

64. Ibid., Aug. 21, 1924.

65. Ibid., Dec. 9, 1924.

66. Ibid., Dec. 19, 1924.

67. Ibid., Mar. 4, 1924.

68. Ibid., Mar. 29, 1924.

69. Ibid., Apr. 4, 1924.

70. Ibid., dated July, 1924.

71. Ibid., Aug. 16 & 17, 1924.

72. Ibid., Oct. 22, 1924. The "him" in the note is unidentified.

73. Ibid., Nov. 6, 1924.

74. Ibid., undated entry.

75. One physician, for example, wrote of springtime as "a period when patients...generally exhibit a temporary amelioration of symptoms" (John Bell, "Fiske Fund Prize Essay: On the Effects of the Use of Alcoholic Liquors in Tubercular Disease, or in Constitutions predisposed to such Disease", American Journal of the Medical Sciences 38 (1859), pp. 407-436; quote from p. 432). A presumed seasonal pattern was cited even after Koch's discovery, in support of the view that consumptives should travel, if necessary, to seek a "uniform" and clement climate; see H.L. Lyman, C. Fenger, H.W. Jones and W.T. Belfield, The Practical Home Physician and Encyclopedia of Medicine (Guelph, Ont., 1884?), p. 148. This would suggest that Nova Scotia, or any country with damp weather and cold winters, would make a poor location for a sanatorium.

76. Anna Tufts Ross, "The Shattered Romance", dated January 17, 1925. In Songs of the "Dirty Eight", an unpublished collection of her poetry. Original volume in the keeping of her niece, Mary Earle Bourgeois.

77. Thomas Mann, "The Making of The Magic Mountain". Reprinted in The Magic Mountain (New York: Vintage Books Edition, 1969), p. 709. This commentary by Mann first appeared in The Atlantic Monthly, January, 1953.

78. Excerpt from Anna Tufts Ross, "Valediction", dated May 17, 1925. In Songs of the "Dirty Eight".

CHAPTER 3:

THE NEW AGE OF VOLUNTARISM (pp. 126-192)

1. DHAR, in JHA (1917) Appendix 16.

2. CTAAR 1941, p. 7.

3. Ibid., 1918, Appendix 16.

4. Ibid., 1919, Appendix 16.

5. Ibid., 1914, 1919.

6. DHAAR, JHA, 1919, Appendix 16.

7. DHAR, 1920, Part II, Appendix 17.

8. "The White Plague", letter to the editor, signed "M.D." Halifax Herald, Mar. 19, 1924, p. 9ee.

9. "System of Treatment Condemned". Halifax Herald, Aug. 27, 1924, p. 1.

10. Ibid.

11. "Tuberculosis and the State", CTA Bulletin, 5, 1 (1926), pp. 1, 7.

12. Miller's correspondents were G.J. Drolet, Chief Statistician, and Dr. Pattison, Supervisor of Medical Services, both of the National Tuberculosis Association.

13. "Sanatorium Idea Itself Not At Fault". Halifax Herald, Sept. 10, 1924, p. 2.

14. Allen K. Krause, "The Tuberculosis Problem: Some Thoughts on its Solution. American Review of Tuberculosis 5 (1921-2), pp. 776-777.

15. Ibid.

16. "Abstracts of Tuberculosis". In American Review of Tuberculosis 5 (1921), p. 135.

17. Joseph Hayes, Report of the Tuberculosis Commissioner, (Halifax, 1928), p. 30.

18. A.F. Miller, "Institutional Treatment of Tuberculosis: Its Limitations". American Review of Tuberculosis 5 (1921-2), p. 808.

19. Helen Creighton, A Life in Folklore: Helen Creighton (Toronto 1975), pp. 24-28. Ms. Creighton, then living in Dartmouth, witnessed the explosion and was a volunteer driver in its aftermath. Other sources give different mortality estimates. Michael J. Bird, The Town That Died (London, 1962), p. 186, gives a figure from Halifax Relief Commission records of 1,963 killed and 9,000 injured, but notes that several estimates ran much higher than this. For more detail on the explosion and its aftermath, see Janet Kitz, Shattered City: The Halifax Explosion and the Road to Recovery (Halifax, 1989) and John Weaver, "The Reconstruction of Richmond District of Halifax: A Canadian Episode in Public Housing and Town Planning, 1918-1921", Plan Canada 6, 1 (1976), pp. 36-47.

20. Agnes Cox, "Historical Review". Program Booklet for the Formal Opening of the Halifax Tuberculosis Hospital, November, 1946. PANS V/F V122 #4.

21. "Has Seen People in Halifax Living in Places Where He Would Not Think of Housing a Dog". Halifax Herald, Oct. 29, 1919, p. 16.

22. Janet F. Kitz, Shattered City: The Halifax Explosion and the Road to Recovery (Halifax, 1989), pp. 125-135, 193.

23. John G. Reid, Six Crucial Decades, pp. 161-185.

24. "System of Treatment Condemned". Halifax Herald, Aug. 27, 1924, p. 1.

25. Sheila M. Penney, "Marked for Slaughter: The Halifax Medical College and the Wrong Kind of Reform, 1868-1910". Acadiensis 19, 1 (1989), pp. 27-51.

26. Kenneth Ludmerer, Learning to Heal: The Development of American Medical Education (New York, 1985), p. 187.

27. Halifax Visiting Dispensary Annual Report, 1918.

28. Halifax Visiting Dispensary Annual Report, 1919.

29. Halifax Visiting Dispensary Annual Report, 1920.

30. Halifax Visiting Dispensary Annual Report, 1924.

31. Halifax Visiting Dispensary Annual Report, 1924.

32. CTAAR, 1926.

33. Although they were careful to deny it publicly, the great American foundations which financed North American medical reform also were prime determiners of the direction of

that reform. See Daniel M. Fox, "Abraham Flexner's Unpublished Report: Foundations and Medical Education, 1909-1928". Bulletin of the History of Medicine 54, 4 (1980), pp. 475-496.

34. B. Franklin Royer to J.B. Kenny, July 3, 1920. Copy inserted following July 22, 1920 entry in Halifax Visiting Dispensary Minutes, PANS MG 20 #179.

35. Halifax Visiting Dispensary Annual Report, 1928.

36. Halifax Visiting Dispensary Annual Report, 1929.

37. Halifax Visiting Dispensary Annual Report, 1930.

38. Halifax Visiting Dispensary Annual Report, 1932.

39. Halifax Visiting Dispensary Annual Report, 1957.

40. Halifax Visiting Dispensary Annual Report, 1932.

41. Halifax Visiting Dispensary Annual Report, 1856.

42. DHAR, JHA, 1921, Appendix 16.

43. DHAR, 1928, Part II, Appendix 16.

44. "Summary of Activities of Public Health Nurses", DHAR, JHA, 1923, 1924, Appendix 16.

45. "Nova Scotia Start", CTAB 4, 4 (1926), p. 3.

46. "Dr. McCoy", "Health and Diet Advice". Halifax Herald, Oct. 5, 1927, p. 5.

47. Ibid., Oct. 6, 1927, p. 10.

48. NSTC Minutes, Jan. 5, 1928.

49. Joseph Hayes, Report of the Tuberculosis Commissioner (Halifax, 1927), p. 41.

50. "Deaths From Tuberculosis in 1927". Canadian Tuberculosis Association Bulletin 6, 1 (1928), p. 2. Figures provided by the Dominion Bureau of Statistics.

51. Joseph Hayes, Report of the Tuberculosis Commissioner, p. 55.

52. Ibid., p. 51.

53. NSTC Minutes, Feb. 16, 1928.

54. NSTC Minutes, Mar. 7, 1928.

55. NSTC Minutes, Mar. 19, 1928.

56. "Report of Nova Scotia Department of Health", CTAAR, 1929.

57. DHAAR, 1917, Part II, Appendix 16.

58. CTAB, Supplementary Issue, December, 1929, p. 12; CTAB 5, 4 (1927), p. 6.

59. Canadian Tuberculosis Association Bulletin, Supplementary Issue, December, 1929, p. 13.

60. "The Battle Against Bovine Tuberculosis", CTAB 23, 3 (1945), p. 4.

61. "NSTC Report", CTAAR, 1927.

62. "Nova Scotia: Provincial Department of the Public Health". CTAAR, 1930, p. 58.

63. "Maritime Tuberculosis Education Committee", CTAB 5, 2 (1926), p. 3.

64. Sanatorium Annual Report, JLC, 1928, Part I, Appendix 3 (C); "Nova Scotia Sanatorium", CTAAR, 1930, p. 61.

65. NSTC Minutes, Dec. 13, 1928.

66. NSTC Minutes, Oct. 24, 1930; Feb. 17, 1931.

67. NSTC Minutes, Oct. 24, 1930.

68. The figures for 1928 are taken from the Sanatorium Annual Report, JHA, 1929, Part I, Appendix 3 (C), and those for succeeding years from "Nova Scotia Sanatorium", CTAAR, 1930, p. 61; 1931, p. 58; and 1932, p. 54. It should be noted that the 1931 figures differ from those given in the "Nova Scotia Tuberculosis Commission" report, CTAAR, 1932, p. 52; I have used the figures given by Dr. Miller.

69. CTAAR, 1930, p. 61.

70. "Nova Scotia Tuberculosis Commission", CTAAR, 1932, pp. 51-2.

71. Ibid., p. 52.

72. Katherine McCuaig, "'From Social Reform to Social Service'. The Changing Role of Volunteers: the Anti-tuberculosis Campaign, 1900-30". Canadian Historical Review 61, 4 (1980), pp. 480-501.

73. Ibid., p. 491; Halifax Visiting Dispensary Annual Report, 1908. "Our patients are poor", wrote the Dispensary administration, "only because they are sick."

74. Allen Krause, "The Tuberculosis Problem". American Review of Tuberculosis 5 (1921), p. 775.

75. "Sanatorium Situation", CTAB 8, 3 (1930), p. 8.

76. NSTC Minutes, July 9, 1929.

77. NSTC Minutes, April 17, 1930.

78. "Nova Scotia Tuberculosis Commission". CTAAR, 1930, p. 20.

79. NSTC Minutes, Sept. 22, 1932.

80. NSTC Minutes, June 7, 1937.

81. NSTC Minutes, Nov. 18, 1938.

CHAPTER 4:

A POLICY FOR THE 1930s: TO SEEK OUT AND SEGREGATE (pp. 193-241)

1. "Nova Scotia: Provincial Department of the Public Health". CTAAR, 1931, p. 54.

2. Report of Divisional Medical Health Officer, DHAR, JHA, 1930, Part II, Appendix 17.

3. DHAR, JHA, 1937, Part II, Appendix 17.

4. F.B. Smith, The Retreat of Tuberculosis, 1850-1950 (Kent, 1988), pp. 148-150.

5. See J.H. Holbrook, "Spahlinger Treatment", CTAAR (1924), p. 34-38.

6. The fascinating story of Umkaloabo (a.k.a. Sacco and Lung-Sava) and its 1932-3 emergence as a symbol of popular resistance to medical authority in the associated wrangle in the British House of Commons is given by F.B. Smith, The Retreat of Tuberculosis, pp. 155-162.

7. Reaction in Britain to BCG is, for example, summarily denounced by Smith in The Retreat of Tuberculosis (p. 194) as "professional defence by insularity, ignorance and innuendo", while Wherrett (Miracle of the Empty Beds, p. 58), virtually ignoring the Canadian opposition to BCG, regarded its history as "yet another example of the eagerness of Canadians and their research organizations to take an early interest in the most daring public health innovations and, furthermore, to take advantage of them as soon as they have proved useful." For a fairer treatment, see Georgiana D. Feldberg, "An Antitoxin of Self Respect: North American debates over vaccination against tuberculosis, 1890-1960", Harvard University Ph.D. Thesis, 1989.

8. In modern BCG preventive programs in the third world, according to the World Health Organization (WHO), "research on the factors that influence the effectiveness of BCG programmes is essential" ("Tuberculosis Control", WHO Technical Report Series No. 671 (1982) p. 22). See, for example, H.T. Waaler, G.D. Gothi, G.V.J. Baily, and S.S. Nair, "Tuberculosis in Rural South India: A survey of possible trends and the potential impact of antituberculosis programmes", Bulletin of the WHO (WHO) 51 (1974), pp. 263-271; also, for the extent of recent worldwide research on BCG efficacy in various regions, see WHO Technical Report Series, No. 651, 1980; "Magnitude of Tuberculosis Problem in the World", WHO Weekly Epidemiological Record (1981), installments in Nos. 3 (pp. 17-20), 5 (pp. 33-

36), 7 (pp. 49-51), 9 (pp. 68-71), 10 (pp. 73-76), 11 (pp. 81-85), 50 (pp. 393-396). See also sources cited by Smith, Retreat of Tuberculosis, p. 211, note 181, including D.H. Shennan, Tuberculosis Control in Developing Countries (Edinburgh, 1968), pp. 37-8; and WHO, Mass Health Examinations (Geneva, 1971), p. 17.

9. For more detail on Calmette's and Guerin's original claims and the problems with them, see F.B. Smith, The Retreat of Tuberculosis, 1850-1950 (Kent, 1988), pp. 194-198.

10. "B.C.G.". Canadian Tuberculosis Association Bulletin 8, 1 (1929), p. 7.

11. Canadian Tuberculosis Association Bulletin Supplementary Number (1930), pp. 14-5.

12. "Research Institute", Canadian Tuberculosis Association Bulletin, 9, 1 (1930), p. 5.

13. F.B. Smith, The Retreat of Tuberculosis, p. 198.

14. "The BCG Log", CTA Bulletin, 9, 1 (1930), p. 6. Dr. Watson seemed destined to be misreported. The article goes on to relate that the Canadian Press release describing his reports to the Oslo meeting of BCG-induced tuberculosis in animals was headlined "Anti-Tuberculin [sic] Vaccine Praised--Lauds Calmette Culture--Canadian Doctor at Oslo tells of its efficiency". In 1977, G.J. Wherrett, concerned with portraying BCG research as an example of Canadian progressiveness, ignores the stir Watson made at Oslo and, indeed, his opinions entirely except to state that he was "extremely cautious with the vaccine" and, in 1928, "expressed concern that BCG might regain its virulence, though his experiment had not been based on a sufficient number of cattle to prove whether this was indeed true." (Miracle of the Empty Beds, pp. 60, 61).

15. "BCG Log", Ibid.

16. Arnold Branch, "Editorial Comments", Canadian Medical Association Journal (May, 1931), as quoted in "Helpful Conservatism", CTA Bulletin 9, 4 (1931), p. 4.

17. Quebec's death rate from non-pulmonary tuberculosis was also especially high, at 22.2/100 in 1929 as compared with a national rate of 13.5. These figures are taken from Dr. P. Heffernan, "Tuberculosis Tour", CTA Bulletin 9, 4 (1931), p. 4.

18. G.J. Wherrett, Miracle of the Empty Beds, p. 64.

19. G.J. Wherrett, The Miracle of the Empty Beds, pp. 110-112.

20. "Saskatchewan in the Spotlight", CTA Bulletin 22, 3 (1944), p. 6.

21. "A Study of BCG in Saskatchewan", CTA Bulletin, 25, 1 (1946), p. 4.

22. Condensed from table "Number of B.C.G. Vaccinations in Canada", CTAAR (1949), p. 23.

23. CTA Bulletin 25, 4 (1947), p. 4.

24. CTAAR (1946), p. 55; CTA Bulletin 26, 3 (1948), p. 6.

25. CTAAR (1949), p. 22.

26. A.F. Miller and V.D. Schaffner, "The Results of Phrenic Nerve Paralysis in the Treatment of Pulmonary Tuberculosis". Canadian Medical Association Journal 40 (January 1939), p. 55.

27. A.F. Miller and V.D. Schaffner, "The Results of Phrenic Nerve Paralysis in the Treatment of Pulmonary Tuberculosis". Canadian Medical Association Bulletin 40 (1939), pp. 55-63.

28. Ibid., p. 58.

29. A.F. Miller and V.D. Schaffner, "Phrenic Paralysis", p. 57.

30. Ibid., p. 55.

31. A.F. Miller, V.D. Schaffner, J.E. Hiltz, "Thoracoplasty in the Treatment of Pulmonary Tuberculosis." Journal of Thoracic Surgery 9, 6 (1940), pp. 644.

32. A.F. Miller et. al., "Phrenic Paralysis", p. 56.

33. Ibid., p. 58.

34. Sanatorium Annual Report, JHA, 1943, Part I, Appendix 5.

35. Sanatorium Annual Report, JHA, 1944, Part I, Appendix 5.

36. Miller, "Phrenic Paralysis", p. 56. It is generally quite difficult to find sanatorium reports offering a real opportunity to analyze patients' post-treatment life expectancies. Miller and others generally reported only immediate post-surgical results, or else, for a major study, gave "present condition" of whole groups of patients whose operations might have taken place at any time during the

course of the study.

37. Ibid., p. 61.

38. A.F. Miller et. al., "Thoracoplasty", p. 634-651.

39. Miller et. al., "Thoracoplasty", p. 635-636.

40. A.F. Miller, "The Work of the Nova Scotia Sanatorium and Its Place in the Fight Against Tuberculosis." Nova Scotia Medical Bulletin, June, 1932, pp. 1-12.

41. A. F. Miller et. al., "Thoracoplasty", p. 637.

42. Ibid., p. 640.

43. Ibid., p. 648.

44. Robert Janes, "Surgery in the Treatment of Pulmonary Tuberculosis". Canadian Medical Association Journal 33 (1935), p. 389. A.F. Miller et. al., "Twenty Years' Experience with Artificial Pneumothorax". Ibid., p. 656.

45. Sanatorium Annual Report, 1935, Journal of the House of Assembly, Part I, Appendix 5.

46. A.F. Miller to Hon. G.S. Harrington, Premier of Nova Scotia, October 23, 1930. Miller Papers, privately held by Dr. J. J. Quinlan and Dr. Helen Holden, Miller Hospital for Chest Diseases, Kentville.

47. Sanatorium Annual Report, JHA, 1931, Appendix 5. Emphasis in original.

48. CTAAR, 1935, p. 68.

49. "Victoria General Annual Report", JHA, Part I, Appendix 4, 1931, 1932.

50. "Nova Scotia Sanatorium", CTAAR, 1935, p. 70.

51. Sanatorium Annual Report, JHA, 1937, Part I, Appendix 5.

52. It is much the same myopic view that has provided the blessings of ultra-modern medical facilities at staggering cost to third-world countries such as India, but which somehow forgot to provide access to simple, inexpensive fluid-replacement treatment which could help halt the ravages of the greatest single killer in the country: severe dehydration of young children due to malnutrition-induced diarrhoea. See in particular Sheila Zurbrigg, Rakku's Story: Structures of Ill-Health and the Source of Change (Madras, 1984).

53. DHAR, JHA, 1931, Part II, Appendix 17.

54. Paul Bator, Within Reach of Everyone: A History of the University of Toronto School of Hygiene and the Connaught Laboratories (Ottawa, 1990).

55. DHAR, JHA, 1931, Part II, Appendix 17.

56. "Public Health Nursing Service", JHA, 1934, Part II, Appendix 17.

57. Report of Travelling Diagnostician, DHAR, JHA, 1937, Part II, Appendix 17.

58. Report of Divisional Medical Health Officer (Eastern), DHAR, JHA, 1936, Part II, Appendix 17.

59. Sanatorium Annual Report, JHA, 1934, Part I, Appendix 5.

60. Report of Divisional Medical Health Officer (Eastern), DHAR, JHA, 1936, Part II, Appendix 17.

61. Report of Divisional Medical Health Officer J.J. MacRitchie, DHAR, JHA, 1937, Part II, Appendix 17.

62. Report of Director Administering Mothers' Allowance Act, JHA, 1939, Part II, Appendix 26.

63. Ibid.

64. See Dennis Guest, The Emergence of Social Security in Canada (Vancouver, 1980); James Struthers, No Fault of Their Own: Unemployment and the Canadian Welfare State, 1914-1941 (Toronto, 1983).

65. DHAR, JHA, 1933, Part II, Appendix 17.

66. DHAR, JHA, 1937, Part II, Appendix 17.

67. Report of Chief Medical Health Officer, DHAR, JHA, 1934, Part II, Appendix 17.

68. DHAR, JHA, 1937, Part II, Appendix 17; CTAAR, 1936, p. 76.

69. Report of Divisional Health Officer (Eastern), DHAR, JHA, 1935, Part II, Appendix 17.

70. CTAAR, 1936, p. 23.

71. Ibid., p. 16.

CHAPTER 5:

THE 1940s: TWO CURES (pp. 242-293)

1. CTAAR (1944), p. 12.

2. Report of Sanitary Engineer, DHAR, JHA, 1941, Part II, Appendix 17.

3. Northumberland Divisional Report, DHAR, JHA, 1941, Part II, Appendix 17.

4. Atlantic Divisional Report, DHAR, JHA, 1942, Part II, Appendix 17.

5. Atlantic Divisional Report, DHAR, JHA, 1943, Part II, Appendix 17.

6. Atlantic Divisional Report, DHAR, JHA, 1946, Part II, Appendix 17.

7. Western Divisional Report, DHAR, JHA, 1945, Part II, Appendix 17.

8. "President's Message", CTAAR, 1945, p. 11.

9. "The 48th Annual Meeting". CTA Bulletin 26, 4 (1948), p. 3.

10. The real advantages of the patch test, which was developed in 1937, seem to have been its economy and ease of use. Adhesive tape, impregnated with tuberculin and allowed to dry, was simply applied to the skin and left for 48 hours. Because the test has been found to yield an unacceptably high number of inaccurate results as compared with other methods, it is not currently recommended as a mass-survey tool. See, for example, Karl Pfuetze and David Radner (eds.), Clinical Tuberculosis: Essentials of Diagnosis and Treatment (Springfield, Illinois, 1966), p. 54.

11. Cape Breton Health Unit Report, DHAR, JHA, 1946, Part II, Appendix 17.

12. Figures calculated from reports of all Divisions in DHAR, JHA, 1942, Part II, Appendix 17.

13. Ibid., Western Divisional Report.

14. Ibid., Cape Breton Health Unit Report.

15. Cape Breton Health Unit Report, DHAR, JHA, 1946, Part II, Appendix 17.

16. Fundy Division Report, DHAR, JHA, 1942, Part II, Appendix 17.

17. Fundy Division Report, DHAR, JHA, 1946, Part II, Appendix 17.

18. Atlantic Divisional Report, DHAR, JHA, 1943, Part II, Appendix 17.

19. City of Halifax Report, DHAR, JHA, 1943, Part II, Appendix 17.

20. CTAAR, 1946, p. 55; Halifax City Report in Atlantic Division Report, DHAR, JHA, 1944, Part II, Appendix 17.

21. Cape Breton Health Unit Report, DHAR, JHA, 1941, Part II, Appendix 17; Northumberland Divisional Report, DHAR, JHA, 1943, Part II, Appendix 17.

22. Cape Breton Health Unit Report, DHAR, JHA, 1942, Part II, Appendix 17.

23. DHAR, JHA, 1953, Part II, Appendix 17.

24. Western Divisional Report and Cape Breton Health Unit Reports, DHAR, JHA, 1946, Part II, Appendix 17.

25. Northumberland Division Report, DHAR, JHA, 1943, Part II, Appendix 17.

26. Sanatorium Annual Report, JHA, 1945, Part I, Appendix 5.

27. DHAR, JHA, Part II, Appendix 17, 1941, 1943, 1945, 1946.

28. Earlier diagnosis and "immediate" institution of collapse therapy were also cited as reasons for more rapid patient turnover. Cape Breton Health Unit Report, DHAR, JHA, 1942, Part II, Appendix 17.

29. DHAR, Part II, Appendix 5, JHA, 1941, 1946; ratios have been calculated using provincial death figures from Wherrett, Miracle of the Empty Beds, p. 253.

30. Sanatorium Annual Report, JHA, 1945, Part I, Appendix 5.

31. CTAAR, 1944, p. 12.

32. Fundy Divisional Report, DHAR, JHA, 1943, Part II, Appendix 17; Sanatorium Annual Report, JHA, 1947, Part I, Appendix 5.

33. This development is given detailed treatment in most general works on twentieth-century Canadian history. See, for example, the Introduction to M.S. Cross and G.S. Kealey (eds.), Modern Canada (Toronto, 1984), pp. 12-13; also D.A. Wolfe, "The Rise and Demise of the Keynesian Era in Canada: Economic Policy, 1930-1982", Ibid., pp. 46-78.

34. "CTA Sees Dream Realized in Federal Grants". CTA Bulletin 26, 4 (1948), p. 2; Paul Bator, Within Reach of Everyone, pp. 103-104.

35. "Former Prime Minister Had Special Interest in Tuberculosis". CTA Bulletin, 29, 1 (1950), p. 3.

36. "Federal Grants Stimulates [sic] Projects". CTA Bulletin 27, 4 (1949), p. 3.

37. "President's Address", CTAAR, 1943, p. 12.

38. "Saskatchewan Pioneers Again". CTA Bulletin 26, 1 (1947), p. 2.

39. Ibid.

40. Atlantic Division Report, DHAR, JHA, 1945, Part II, Appendix 17.

41. CTAAR, 1948, pp. 11-12.

42. CTA Annual Report, 1944, p. 17.

43. "Newfoundland's Problem Will Be Canada's Problem", CTA Bulletin 27, 2 (1948), p. 2; "The Problem in Newfoundland", Ibid. 26, 1 (1947), p. 7. Actually, the Newfoundland tuberculosis death rate in the late 1940s, while apparently quite high, was anyone's guess; fully 60% of deaths there were uncertified by physicians.

44. CTA Bulletin 14, 1 (1935), p. 1.

45. Sanatorium Annual Report, JHA, 1946, Part I, Appendix 5.

46. CTA Bulletin 24, 4 (1946), p. 8.

47. CTA Annual Report, 1939, pp. 24, 50; 1940, p. 59.

48. CTA Annual Report, 1946, p. 56.

49. Approximate figures for beds are used since sources often vary slightly. Point Edward, for example, contained 214 beds according to the CTA Annual Report, 1948, p. 66 (figure supplied by the Nova Scotia Department of Health), but only 182 according to an article entitled "TB Patients Move Into Naval Hospital" in CTA Bulletin, 27, 3 (1949), p. 2. Bed capacity was also somewhat elastic depending on the demand and staffing situation at individual institutions. Provincial bed capacity as of 1949 is given in the CTA Annual Report, 1948, p. 66; beds per death has been calculated according to the number of 1949 deaths as given in Wherrett, Miracle of the Empty Beds, p. 254.

50. "TB Patients Move Into Naval Hospital", CTA Bulletin, 27, 3 (1949), p. 2.

51. CTA Annual Report, 1943, p. 16.

52. CTA Annual Report, 1951, p. 19.

53. G.J. Wherrett, Miracle of the Empty Beds, p. 112.

54. CTA Annual Report, 1951, p. 22.

55. G.J. Wherrett, Miracle of the Empty Beds, pp. 117-119.

56. CTA Annual Report, 1943, p. 16; see also "The Challenge of Tuberculosis", CTA Bulletin, 22, 2 (1943), p. 4.

57. Sanatorium Annual Report, JHA, 1942, Part I, Appendix 5; Anna Tufts Ross, Diary, entries for April 1 and April 8, 1924.

58. This was well-known to anyone familiar with contemporary American tuberculosis literature. See, for example, Marion Torchia, "Tuberculosis Among American Negroes: Medical Research on a Racial Disease, 1830-1950", Journal of the History of Medicine and Allied Sciences 32 (1977), pp. 252-279; "The White Man's Burden", Journal of the Outdoor Life 7 (1910), pp. 274-275; Louis Dublin, "The Health of the Negro", Annals of the American Academy of Political and Social Science 140 (1928), pp. 77-85; P.P. Jacobs, The Control of Tuberculosis in the United States (revised edition) (New York: 1940), pp. 200-214. The U.S. National Tuberculosis Association created a Committee on Tuberculosis among Negroes in 1930, which published a five-year study report in 1937.

59. Anna Tufts Ross, Diary, entry for April 1, 1924.

60. Lloyd States, Halifax: personal interview, October, 1990.

61. Anna Tufts Ross, Diary, 1 and 8 April, 1924.

62. The Highland View Hospital, for one, actually "closed" beds for this reason in 1942; DHO Simms reported that patients were "unusually reluctant to be admitted." Northumberland Division Report, DHAR, JHA, 1943, Part II, Appendix 17.

63. "How Nova Scotia Deals with Recalcitrant Patients". CTA Bulletin, 33, 1 (1954), p. 7.

64. "Death Rate Falls in Halifax". CTA Bulletin, 26, 3 (1948), p. 6.

65. Laws of Nova Scotia, 1948: Public Health Act, Chap. IV, Part II, Sections 127 to 141.

66. David McCurdy, "The Recalcitrant Tuberculosis Patient". Canadian Journal of Public Health 43 (August 1954), p. 351.

67. CTAAR, 1952, p. 81.

68. J.E. Hiltz and H.M. Holden, "Sanatorium Milestones". Health Rays 57, 11 (1977), pp. 23-27.

69. Ibid., pp. 350-352.

70. "Compulsory X-raying". CTA Bulletin 26, 2 (1947), p. 4.

71. Edmund Pellegrino, "The Sociocultural Impact of Twentieth-Century Therapeutics". In Morris Vogel and Charles Rosenberg (eds.), The Therapeutic Revolution: Essays in the Social History of Medicine (Pennsylvania, 1979), p. 254.

72. Atlantic Division Report, DHAR, JHA, 1944, Part II, Appendix 17.

73. "Experimental Work with Diasone". CTA Bulletin 22, 3 (1944), p. 4. "Evaluating the New Drugs". Ibid., 22, 4 (1944), p. 5.

74. H.C. Hinshaw and W.H. Feldman, "Streptomycin in treatment of clinical tuberculosis: a preliminary report". Proceedings of Staff Meetings of the Mayo Clinic 20 (1945), p. 313. Cited in R.Y. Keers, Pulmonary Tuberculosis: A Journey Down the Centuries (London, 1978), p. 212.

75. Sanatorium Annual Report, JHA, 1946, Part I, Appendix 5.

76. Sanatorium Annual Report, JHA, 1954, Part I, Appendix 5.

77. R.Y. Keers, Pulmonary Tuberculosis, pp. 234-242.

78. "President's Address". CTAAR, 1949, p. 13.

79. Ibid. See also CTAAR, 1948, p. 66; "Death Rate Drops Almost Four Points", CTA Bulletin 27, 1 (1948), p. 2; G.J. Wherrett, Miracle of the Empty Beds, p. 255. Nova Scotia's steep decline was temporarily interrupted in 1950, but accelerating decline in the succeeding two years more than compensated for this.

80. CTA Bulletin 26, 3 (1948), p. 6.

81. "Empty Beds in Sask." CTA Bulletin 27, 3 (1949), p. 7.

82. CTAAR, 1949, p. 19.

83. CTAAR, 1951, pp. 19-20.

84. "Problem of Vacant Beds Discussed by Dr. G.C. Brink". CTA Bulletin 38, 2 (1954), p. 6.

85. "30% Reduction in TB Mortality, Largest for Any One Year". CTA Bulletin 32, 1 (1953), p. 2.

86. D.J. Rooney, "The Story of Rehabilitation at the Nova Scotia Sanatorium 1916-54", Health Rays 57, 11 (1977), pp. 36-40; CTAAR, 1951, pp. 68-69; Ibid., 1952, pp. 80-82; Ibid., 1953, pp. 85-89; "Progress in Nova Scotia", CTA Bulletin 28, 4 (1950), p. 3; "Experiment in Rehabilitation", Ibid., 33, 2 (1954), p. 7.

87. CTAAR, 1952, p. 83.

88. CTAAR, 1953, p. 90.

89. CTAAR, 1953, p. 82.

90. CTAAR, 1952, p. 78; Ibid., 1953, p. 81.

91. CTAAR, 1952, p. 29.

92. Richard Carter, The Gentle Legions (New York 1961), p. 27.

93. CTAAR, 1948, pp. 26-27; Ibid., 1953, p. 25.

94. This information on the waning years of Nova Scotia's tuberculosis institutions is from J.E. Hiltz and H.M. Holden, "Sanatorium Milestones", Health Rays 57, 11 (1977), pp. 23-27; E. M. Hiltz, "Health Rays Through the Years", Ibid., pp. 11-13; J.J. Quinlan, "Nova Scotia Sanatorium 1904-1975: A Historical Review", Ibid., pp. 15-18; D. M. Brown, "Health Rays Through the Years", Ibid., pp. 66-88.

95. J.J. Quinlan, "The Nova Scotia Sanatorium, 1904-1975", Nova Scotia Medical Bulletin 55, 3 (1976), pp. 72-74.

96. Sanatorium Annual Report, JHA, 1946, Part I, Appendix 5.

97. D.J.B. to A.F. Miller. Sanatorium Annual Report, JHA, 1944, Part I, Appendix 5.

98. Antony Tsouris to A.F. Miller. Sanatorium Annual Report, JHA, 1944, Part I, Appendix 5.

99. Unsigned. Sanatorium Annual Report, JHA, 1946, Part I, Appendix 5.

100. G.W. Guy to A.F. Miller. Sanatorium Annual Report, JHA, 1944, Part I, Appendix 5.

101. "Recollections of Early Editors", Health Rays 57, 11 (1977), pp. 6-10.

CONCLUSION: WHOSE TRIUMPH? (pp. 294-314)

1. Oliver MacDonagh, "The Nineteenth Century Revolution in Government: A Reappraisal", Historical Journal 1 (1958), pp. 52-67; for an analysis of the workings of this model in the public health sphere, see Royston Lambert, Sir John Simon (1816-1904) and English Social Administration (London, 1963).

2. A.K. Krause, "The Tuberculosis Problem: Some Thoughts on its Solution", American Review of Tuberculosis 5 (1921), pp. 773-775.

3. Provincial Board of Health Annual Report, JHA, 1903, Appendix 16.

4. A.D. Kelly, "Foreword", in G.J. Wherrett, The Miracle of the Empty Beds, p. xiii.

5. Marsha A Chandler, William Chandler, Public Policy and Provincial Politics (Toronto, 1979), p. 204.

6. J.B. Hawes, Talks on Tuberculosis with Patients and Their Friends (Cambridge, Mass., 1931), pp. 177-178.

7. Atlantic Divisional Report, DHAR, JHA, 1946, Part II, Appendix 17.

8. CTAAR, 1948, p. 15.

9. G.H. Cox and J.W. MacLeod [eds.], Consumption: Its Cause, Prevention and Cure (London, 1912), p. 13.

10. J.B. Hawes, Talks on Tuberculosis with Patients and Their Friends (Cambridge, Mass., 1931), p. 179.

11. A.F. Miller, "The New Knowledge of Tuberculosis", Canadian Medical Association Journal 50, 3 (1944), p. 247.

12. Ibid.

13. L. G. Wilson, "The Historical Decline of Tuberculosis in Europe and America: Its Causes and Significance", Journal of the History of Medicine and Allied Sciences 45, 3 (1990), pp. 366-396.

14. Report of Western Divisional Officer, in DHAR, JHA, 1941, Part II, Appendix 17.

15. S. Szreter, "The Importance of Social Intervention in Britain's Mortality Decline c. 1850-1914: a Re-interpretation of the Role of Public Health", Social History of Medicine

(1988), pp. 1-37.

16. Reports of the Factory Inspector, JHA, 1910-1914, Appendix 15.

17. "Is Tuberculosis Inherited? Ex Visitors Ask", Canadian Tuberculosis Association Bulletin 33, 1 (1954), p. 7.

18. "TB Association Queries Public", Canadian Tuberculosis Association Bulletin 33, 4 (1955), p. 7.

19. "System of Treatment Condemned", Halifax Herald, 27 August 1924, p. 1.

20. John Kosa, Aaron Antonovskv, Irving Zola (eds.) Poverty and Health: A Sociological Analysis. (Cambridge, Mass. 1969) is one representative modern "rediscovery" of the links between poverty and illness.

21. B. Inglis, The Diseases of Civilization (London, 1981), pp. 152-158.

22. The possible significance of the native experience was not lost on Kissen, who noted Rene Dubos's earlier observation that the highest incidence of tuberculosis occurred on the reservations, "after they lost the freedom of their favorite hunting grounds."

23. Edward Kass, "Infectious Diseases and Social Change", The Journal of Infectious Diseases 123, 1 (1971), pp. 110-114.

24. G. Wolff, "Tuberculosis and Civilization", Part II, Human Biology 10, 2 (1938), p. 281.

APPENDIX: TABLES AND GRAPHS

Note on Statistics

Nova Scotia began to collect death and other vital statistics in 1908, and the Canadian federal government in 1921. But federal tuberculosis mortality figures sometimes differ slightly from provincial post-1921 figures as published in the appendices to the Journal of the House of Assembly; and both sometimes differ, again slightly, with figures published regularly by the Canadian Tuberculosis Association in its annual reports and the CTA Bulletin. In order to keep this section as consistent, yet as informative, as possible, I have used provincial statistics for intraprovincial comparisons (such as county mortality patterns) and for pre-1921 data. Comparisons of post-1921 Nova Scotia figures with national ones use the figures compiled by Statistics Canada for the Canadian Tuberculosis Association. Those prior to 1937 were assembled by then-Executive Secretary G.J. Wherrett for the CTA's presentation to the Rowell-Sirois Royal Commission, and these were updated by Wherrett for publication in his Miracle of the Empty Beds (Toronto, 1977), p. 255. Because of internal discrepancies, I have not used CTA figures as they appeared in contemporary bulletins or reports in this section at all, though they occasionally appear in the text with appropriate citations.

Nova Scotia's pre-1921 statistics cover the years 1908-09 to 1920-21, after which the system changed to count whole calendar years. Thus there are separate, different figures for 1920-21 and 1921, which is followed by 1922 and so on. In this section, a reference to a year prior to but not including 1921 refers to the period ending in that year: i.e., "1910" means 1909-1910, but "1921" means the calendar year.

Unless otherwise stated, tuberculosis mortality rates refer to deaths per 100,000 population, using estimated population in intercensal years.

Key to Abbreviations in this Section:

Nova Scotia Counties: Ap = Annapolis, Ag = Antigonish, CB = Cape Breton, Co = Colchester, Cu = Cumberland, Di = Digby, Gu = Guysboro, Hf = Halifax, Ha = Hants, In = Inverness, Ki= Kings, Lu = Lunenburg, Qu = Queens, Ri = Richmond, Sh = Shelburne, Vi = Victoria, Ya = Yarmouth.

Other terms: TB = tuberculosis, a.f. = all forms, pul. = pulmonary, non-pul. = non-pulmonary, mort. = mortality rate, M = 1,000. gen. = general. Due to software limitations, graphs use abbreviations extensively; they should be read with reference to the accompanying table.

A. PATTERNS IN MORTALITY

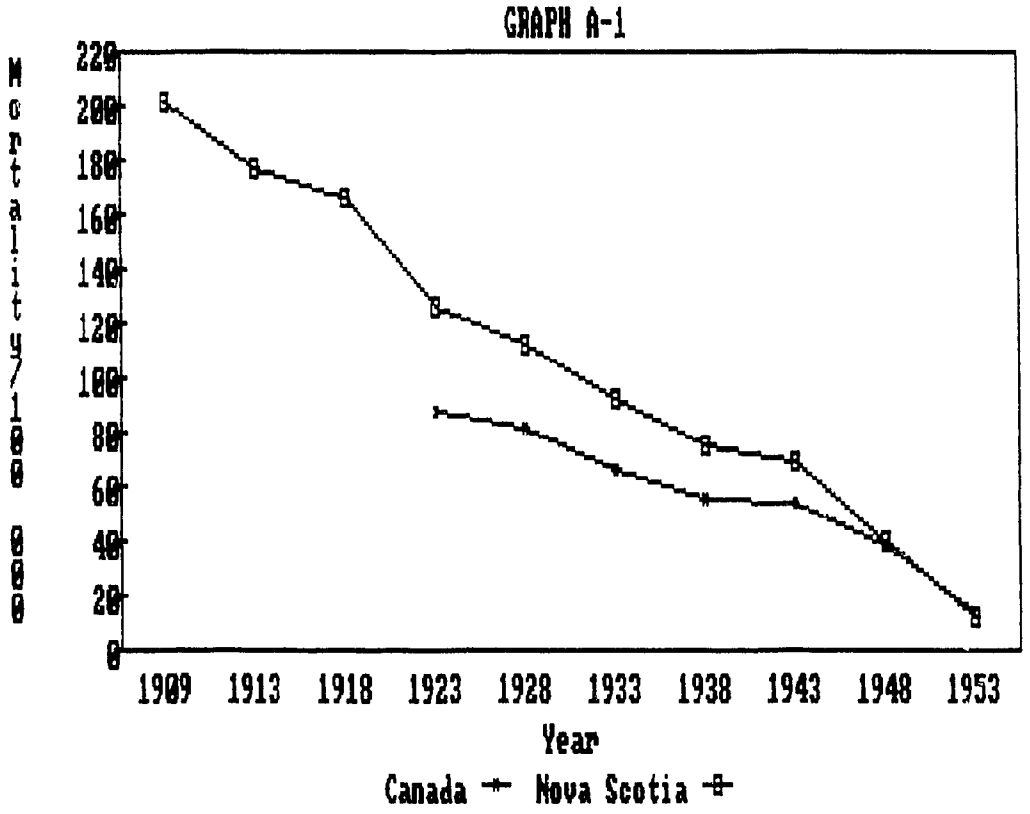
Table A-1: Tuberculosis Mortality (All Forms), Canada and Provinces, 1909-1953

YEAR	TUBERCULOSIS MORTALITY PER 100,000 POP.					
	Can.	Nfld.	PEI	NS	NB	Que.
1909				201.0		
1910				196.8		
1911				216.0		
1912				182.8		
1913				175.8		
1914				182.6		
1915				181.7		
1916				180.3		
1917				168.5		
1918				165.2		
1919				168.4		
1920				146.9		
1921	87.7		144.4	134.0	106.4	123.2
1922	86.0		125.8	133.1	107.5	121.3
1923	87.2		106.9	125.9	112.9	123.8
1924	84.1		116.3	128.9	107.2	121.2
1925	80.5		100.0	112.6	103.1	115.2
1926	84.0		103.4	125.0	105.3	125.9
1927	81.1		82.8	124.9	103.5	118.4
1928	80.5		113.6	110.9	100.5	118.1
1929	77.9		85.2	101.4	93.8	118.5
1930	79.8		117.0	106.6	96.6	118.6
1931	73.7		77.3	102.2	83.0	110.6
1932	68.5		98.9	100.0	79.2	102.0
1933	65.7		80.0	91.0	84.0	98.5
1934	60.3		102.2	87.9	67.4	88.9
1935	61.4		65.2	91.0	78.3	92.0
1936	62.5		65.6	89.3	82.4	93.3
1937	60.9		69.9	84.0	88.8	88.2
1938	55.3		86.2	74.8	77.4	82.2
1939	53.6		67.0	76.3	64.0	83.0
1940	51.4		58.9	72.9	65.3	76.4
1941	53.5		73.6	74.2	68.6	80.6
1942	52.0		47.8	64.1	71.1	80.2
1943	53.1		46.2	68.8	48.6	82.2
1944	49.0		63.7	58.4	51.6	75.0
1945	47.2		45.7	54.6	57.0	71.8
1946	48.3		58.5	62.8	57.9	72.4
1947	44.4		67.0	50.2	53.5	65.7
1948	38.1		39.8	39.5	46.2	58.5
1949	32.6	82.6	23.4	29.3	38.4	48.9
1950	26.8	70.4	30.2	27.6	31.1	39.6
1951	24.8	70.9	17.3	19.6	26.0	38.3
1952	17.6	46.8	24.0	14.4	19.0	26.5
1953	12.5	29.0	12.9	10.9	12.9	19.8

Table A-1: Tuberculosis Mortality (All Forms), Canada and Provinces, 1909-1953 (Continued)

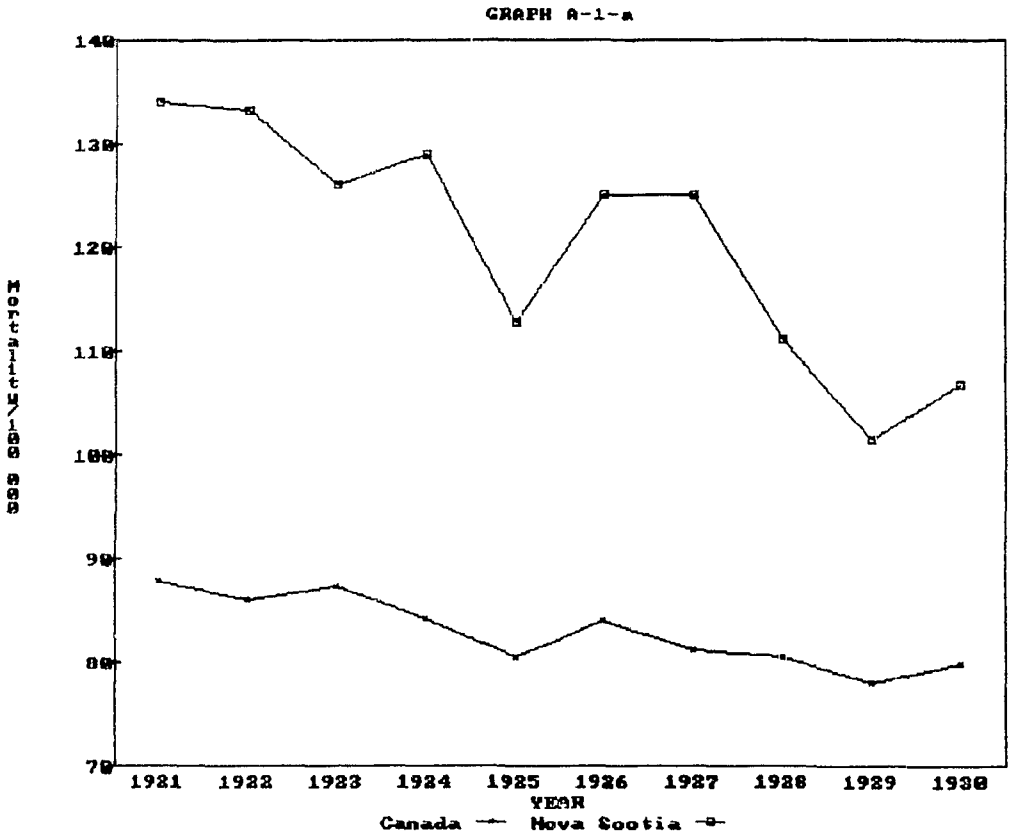
YEAR	TUBERCULOSIS MORTALITY PER 100,000 POP.				
	Ont.	Man.	Sask.	Alta.	B.C.
1921	71.0	68.8	42.5	53.2	77.8
1922	66.4	61.0	44.5	52.7	93.7
1923	66.0	64.9	45.2	61.7	94.6
1924	59.6	62.1	45.9	61.1	92.3
1925	59.2	60.6	42.7	58.8	91.5
1926	58.0	60.6	46.5	60.0	87.8
1927	56.0	56.7	46.5	62.6	88.4
1928	55.9	60.1	43.9	51.4	98.8
1929	51.1	62.6	42.7	57.2	93.3
1930	52.9	66.2	45.1	57.6	91.7
1931	50.4	61.3	35.4	52.2	92.5
1932	46.2	56.3	30.4	54.2	79.9
1933	41.7	58.5	32.1	52.0	75.9
1934	37.7	54.9	31.6	42.0	78.3
1935	36.4	60.8	29.2	43.0	76.8
1936	36.8	59.1	30.0	49.4	75.4
1937	36.2	59.6	32.9	43.8	79.3
1938	33.7	48.5	29.6	35.9	69.0
1939	29.3	50.6	25.7	36.0	69.7
1940	27.0	50.7	26.8	40.6	71.8
1941	29.0	44.9	31.7	41.3	65.2
1942	28.1	46.4	29.6	34.9	64.1
1943	28.1	53.1	29.8	37.5	68.1
1944	26.9	47.9	26.7	36.0	55.5
1945	25.4	43.3	27.3	32.5	55.3
1946	25.8	44.6	26.8	37.6	57.4
1947	25.0	41.7	27.6	31.9	51.3
1948	19.3	38.6	27.3	30.3	40.9
1949	15.7	29.6	22.2	23.8	36.5
1950	13.1	23.3	18.4	18.7	27.5
1951	12.6	20.4	18.8	15.5	25.1
1952	8.3	14.4	12.3	12.8	17.8
1953	6.3	11.0	10.1	6.7	11.7

Source: Figures for 1908 through 1918 from Department of Public Health Annual Report, Journal of the House of Assembly (Nova Scotia) [JHA], 1920, Part II, Appendix 16; figures thence to 1920, Report of the Registrar of Vital Statistics, JHA, 1925, Part II, Appendix 25. All figures after 1921 are from G.J. Wherrett, Miracle of the Empty Beds, Appendix 6, p. 255.



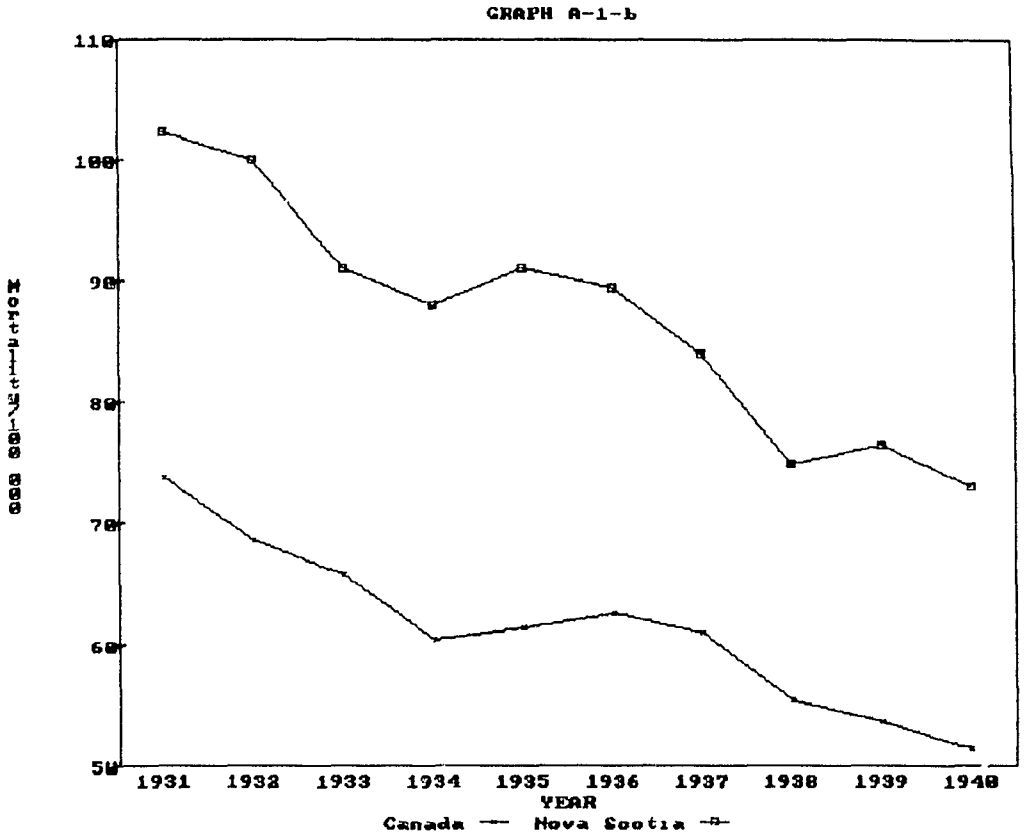
TUBERCULOSIS MORTALITY, ALL FORMS:

Canada and Nova Scotia, 1909-1953



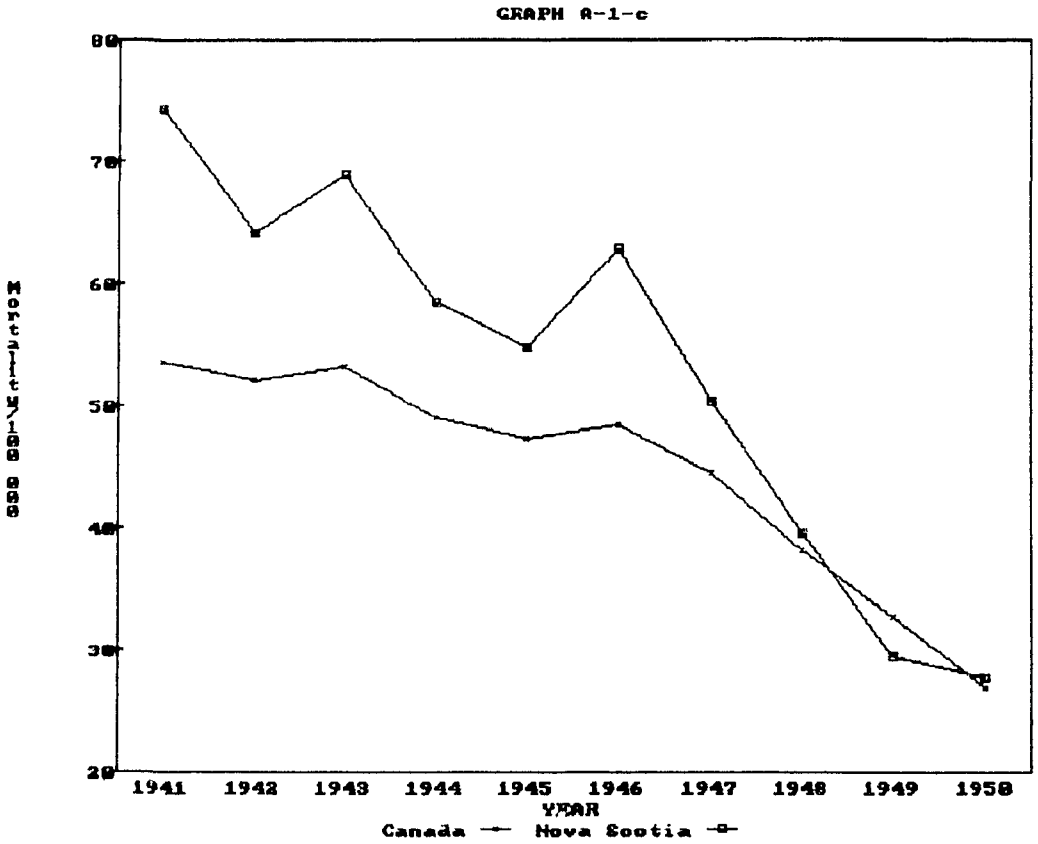
TUBERCULOSIS MORTALITY, ALL FORMS:

Canada and Nova Scotia, 1921-1930.



TUBERCULOSIS MORTALITY, ALL FORMS:

Canada and Nova Scotia, 1931-1940



TUBERCULOSIS MORTALITY, ALL FORMS:

Canada and Nova Scotia, 1941-1950

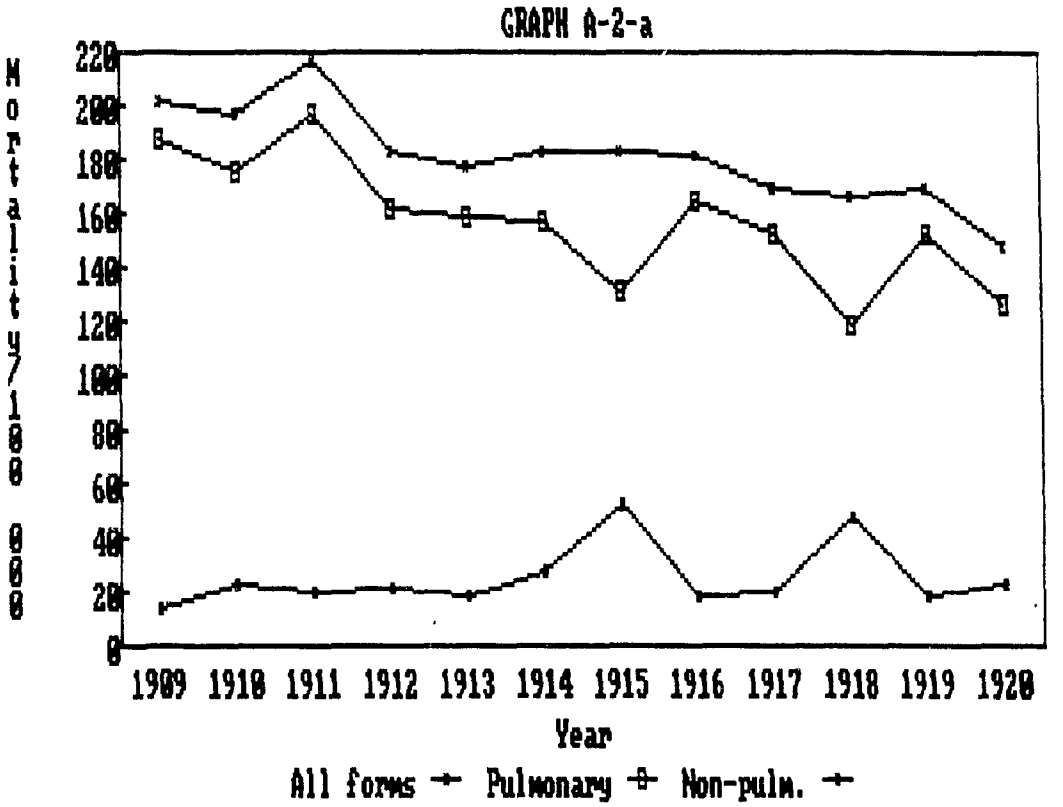
TABLE A-2: Tuberculosis Mortality by Disease Types, Nova Scotia, 1909-1950

YEAR	TB MORTALITY/100,000 POP.		
	All forms	Pulmonary	Non-pulm.
1908-09	201.0	187.2	13.8
1909-10	196.8	174.4	22.3
1910-11	216.0	196.6	19.4
1911-12	182.8	161.2	21.5
1912-13	175.8	157.5	18.2
1913-14	182.6	155.9	26.7
1914-15	181.7	130.1	51.6
1915-16	180.3	163.8	17.5
1916-17	168.5	150.8	18.5
1917-18	165.2	117.9	47.3
1918-19	168.4	151.2	17.2
1919-20	146.9	125.0	21.9
1921	134	111	23
1922	131	106	25
1923	123	105	18
1924	125	103	22
1925	108	93	15
1926	119	94	25
1927	118	102	16
1928	104	87	17
1929	95	82	13
1930	106	91	15
1931	102	83	19
1932	101.1	84.0	17.1
1933	91.5	76.0	15.5
1934	88.9	74	14.9

TABLE A-2: (Continued) Tuberculosis Mortality by Disease Types, Nova Scotia, 1909-1950

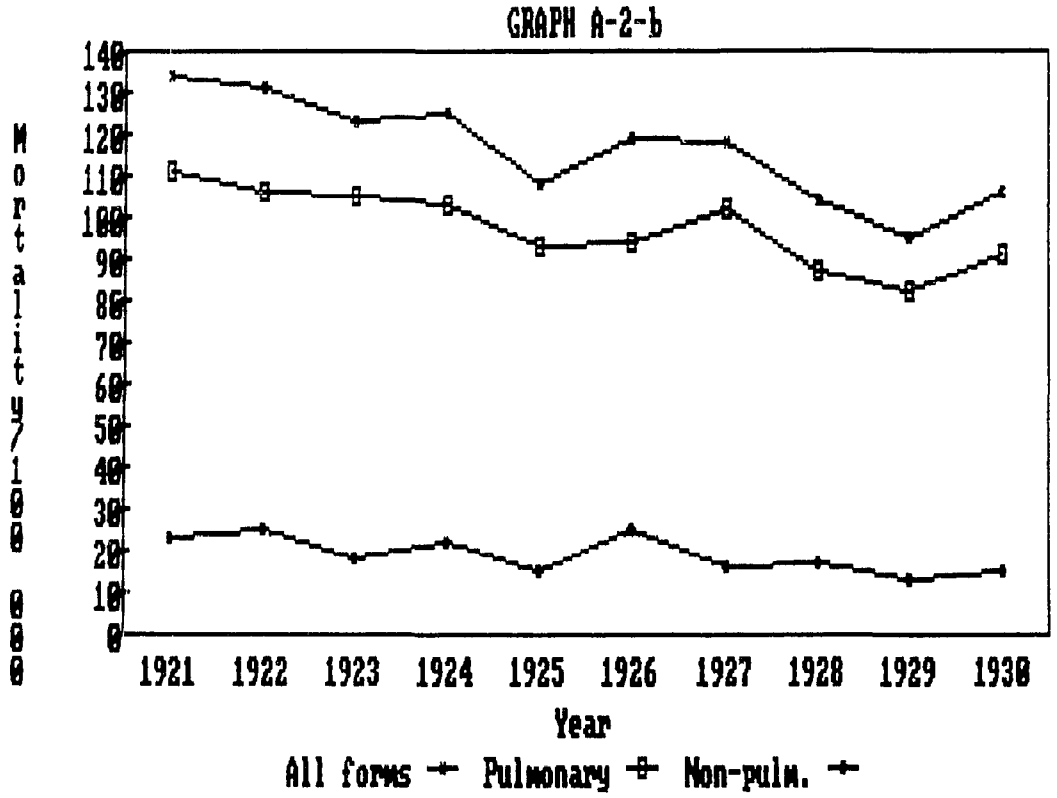
YEAR	TB MORTALITY/100,000 POP.		
	All forms	Pulmonary	Non-pulm.
1935	92.6	79	13.6
1936	90.3	75	15.3
1937	85.1	70.0	15.1
1938	75.7	63.5	12.2
1939	77.2	67.5	9.7
1940	73.8	59.8	14.0
1941	74.2	63.3	10.9
1942	64.9	53.9	11.0
1943	70.6	55.5	15.1
1944	59.8	51.1	8.7
1945	56.0	46.2	9.8
1946	62.6	50.5	12.1
1947	50.1	42.0	8.1
1948	39.6	33.5	6.1
1949	29.2	23.7	5.5
1950	27.7	22.2	5.5

Source: Figures for 1908 through 1918 from Department of Public Health Annual Report, Journal of the House of Assembly (Nova Scotia) [JHA], 1920, Part II, Appendix 16; figures thence to 1920, Report of the Registrar of Vital Statistics, JHA, 1925, Part II, Appendix 25; all other figures, Report of Registrar-General, JHA, 1953, Part III, Appendix 34.



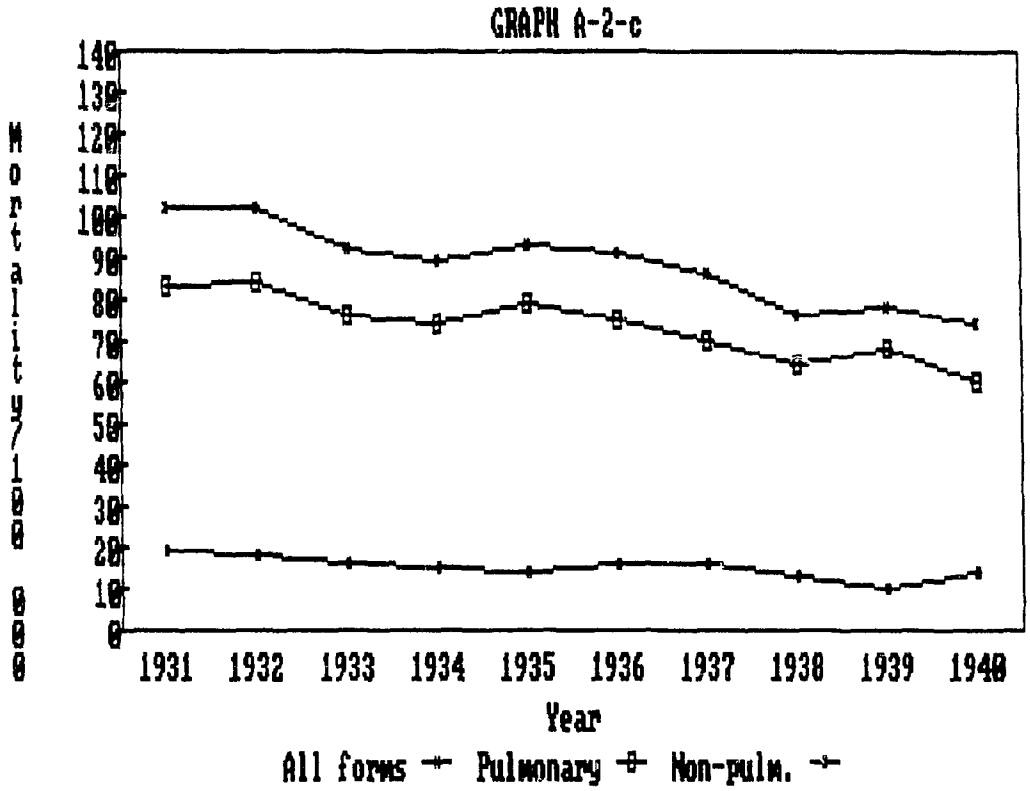
TUBERCULOSIS MORTALITY BY DISEASE TYPES:

Nova Scotia, 1909-1920



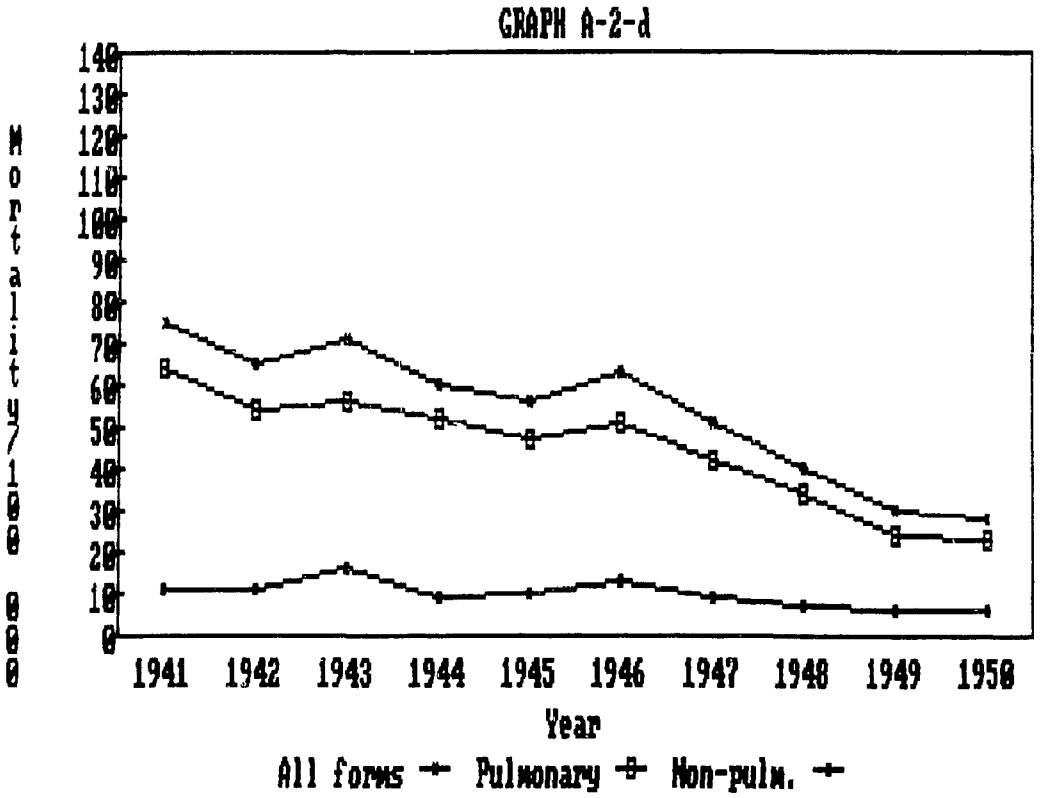
TUBERCULOSIS MORTALITY BY DISEASE TYPES:

Nova Scotia, 1921-1930



TUBERCULOSIS MORTALITY BY DISEASE TYPES:

Nova Scotia, 1931-1940



TUBERCULOSIS MORTALITY BY DISEASE TYPES:

Nova Scotia, 1941-1950

TABLE A-3: Tuberculosis Mortality by Disease Type, Provincial, Urban and Rural, 1909-1920

Part I: All Forms

YEAR	TUBERCULOSIS MORTALITY (A.F.)/100,000 POP.		
	Provincial	Urban	Rural
1908-09	201.0	204.7	198.9
1909-10	196.8	185.5	203.4
1910-11	216.0	201.4	224.6
1911-12	182.8	162.9	194.4
1912-13	175.8	175.6	179.1
1913-14	182.6	194.4	175.1
1914-15	181.7	200.6	169.6
1915-16	180.3	186.3	177.8
1916-17	168.5	188.3	156.4
1917-18	165.2	172.5	160.3
1918-19	168.4	174.0	164.5
1919-20	146.9	180.2	122.0

Part II: Pulmonary

YEAR	TUBERCULOSIS MORTALITY (PULM.)/100,000 POP.		
	Provincial	Urban	Rural
1908-09	187.2	189.3	186.0
1909-10	174.4	161.3	182.1
1910-11	196.6	190.4	200.1
1911-12	161.2	148.6	168.6
1912-13	157.5	156.3	161.4
1913-14	155.9	159.4	153.6
1914-15	130.1	140.7	123.3

TABLE A-3: Tuberculosis Mortality by Disease Type, Provincial, Urban and Rural, 1909-1920

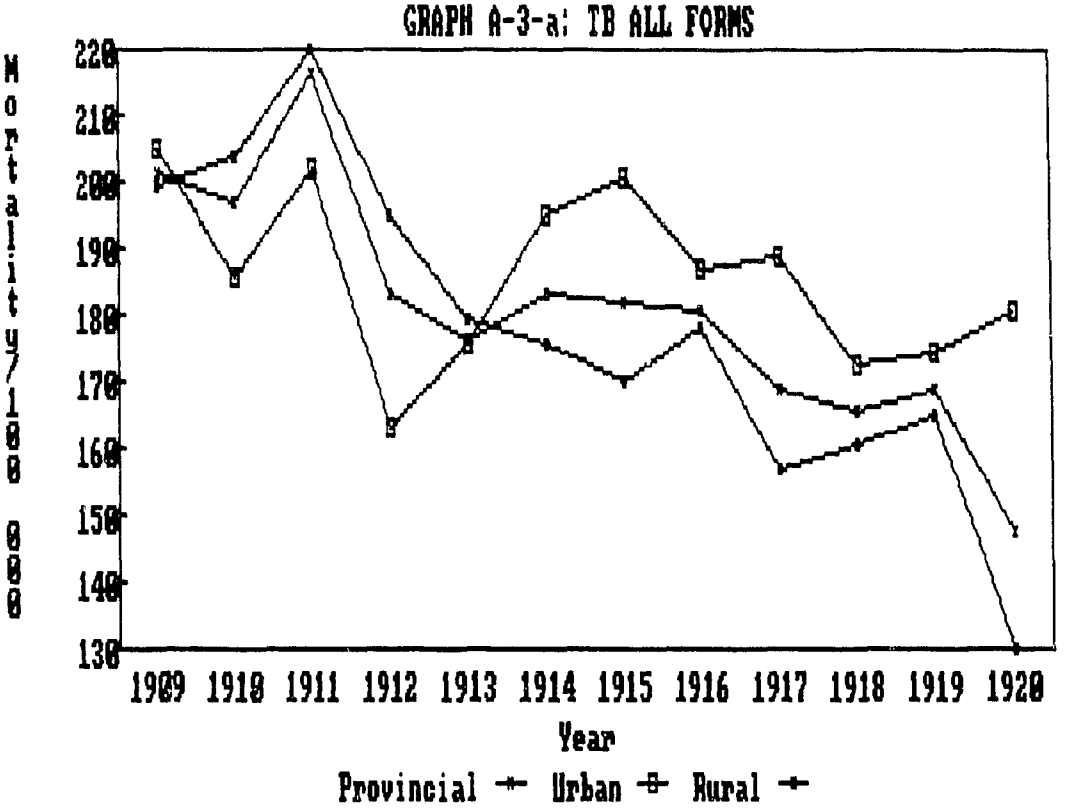
Part II: Pulmonary (continued)

YEAR	TUBERCULOSIS MORTALITY (PULM.)/100,000 POP.		
	Provincial	Urban	Rural
1915-16	163.8	162.9	164.3
1916-17	150.8	160.0	144.6
1917-18	117.9	123.1	114.4
1918-19	151.2	154.3	149.0
1919-20	125.0	150.6	106.5

Part III: Non-Pulmonary

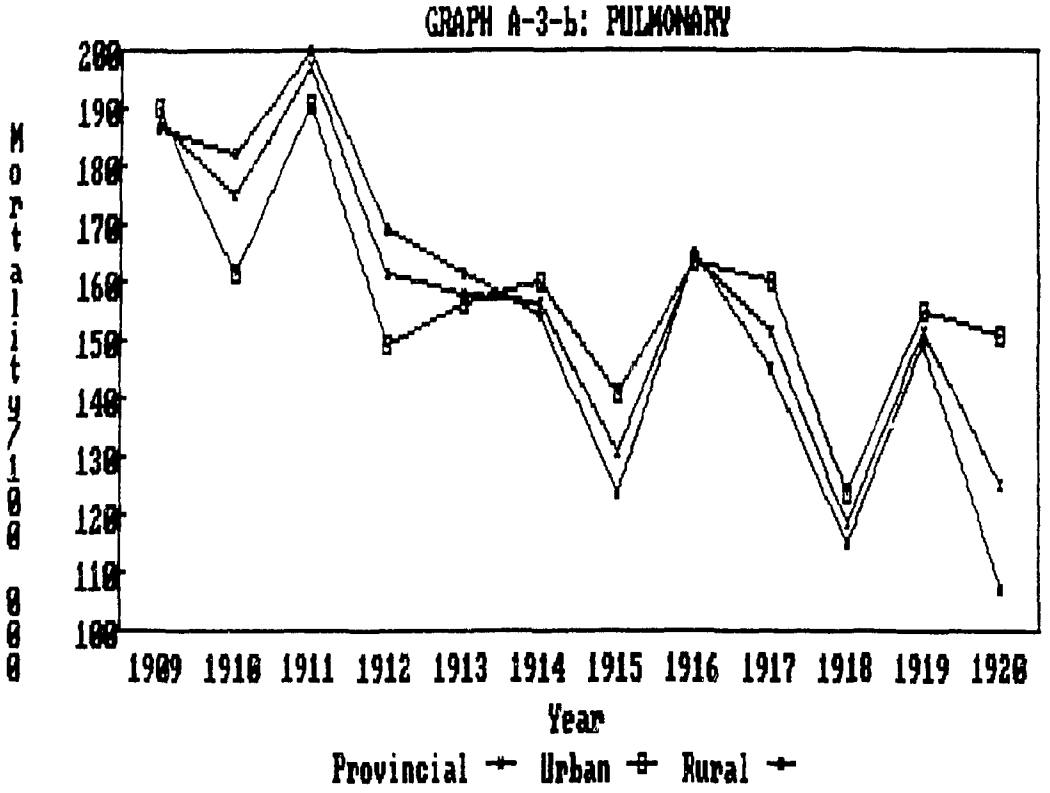
YEAR	TUBERCULOSIS MORTALITY (NON-PUL)/100,000 POP.		
	Provincial	Urban	Rural
1908-09	13.8	15.4	12.8
1909-10	22.3	24.2	21.2
1910-11	19.4	11.0	24.4
1911-12	21.5	14.3	25.7
1912-13	18.2	19.3	17.6
1913-14	26.7	34.9	21.4
1914-15	51.6	59.9	46.3
1915-16	17.5	23.4	13.5
1916-17	18.5	28.3	11.8
1917-18	47.3	49.4	45.9
1918-19	17.2	19.7	15.5
1919-20	21.9	29.6	15.5

Source: Figures prior to 1918-19, Nova Scotia Dept. of Health Annual Report, JHA, 1920, Pt.II, Appdx. 16; otherwise, Report of Registrar, Vital Statistics, JHA, 1925, Pt. II, Appdx. 25.



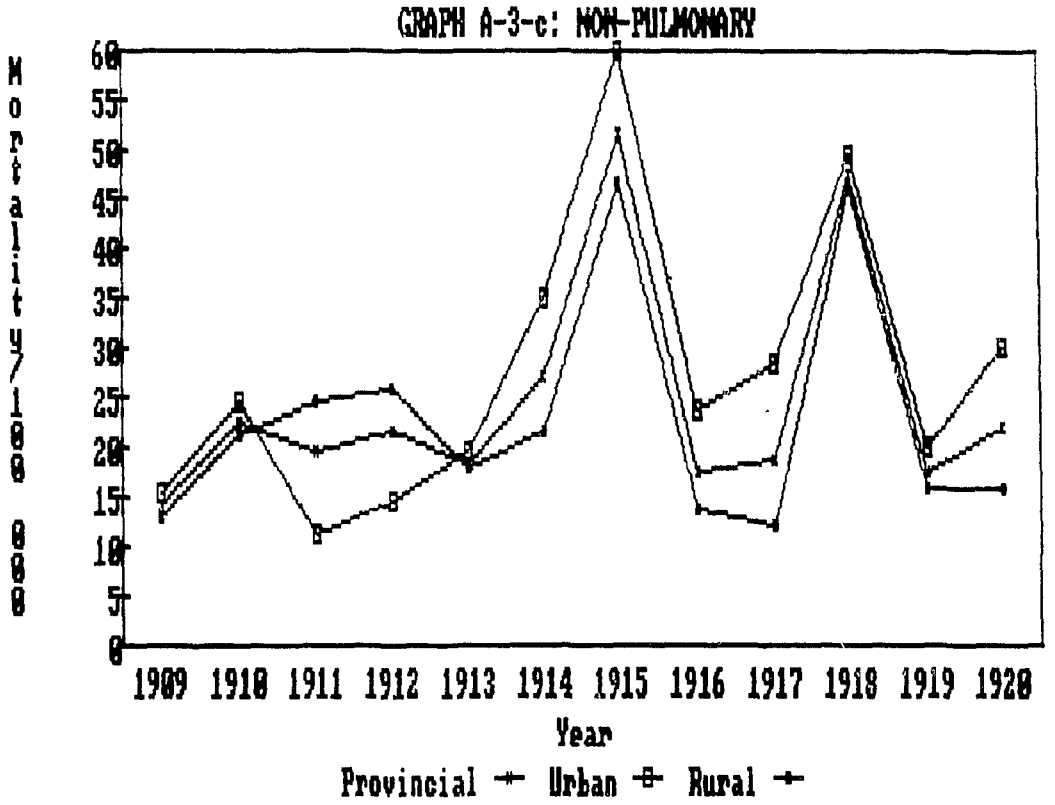
TUBERCULOSIS MORTALITY, ALL FORMS:

Provincial, Urban and Rural, 1909-1920



TUBERCULOSIS MORTALITY, PULMONARY:

Provincial, Urban and Rural, 1909-1920



TUBERCULOSIS MORTALITY, NON-PULMONARY:

Provincial, Urban and Rural, 1909-1920

TABLE A-4: Pulmonary Tuberculosis Mortality by County, 1909-13 (avg.), 1914; Mortality by County and Disease Type, 1941, 1946, 1951

Part I: 1909-13 (average), 1914

COUNTY	PULM. TB MORT/100,000 POP.	
	avg. 1908-13**	1914
Ap	155	138
Ag	291	219
CB	162	160
Co	146	109
Cu	142	131
Di	215	187
Gu	196	138
Hf	189	175
Ha	193	160
In	171	132
Ki	134	119
Lu	169	158
Pi	159	129
Qu	180	78
Ri	259	232
Sh *	--	--
Vi	137	170
Ya	195	200

* Missing data

**First column based on 1911 Census figures

Source: Department of Health Annual Report, Journal of the House of Assembly (Nova Scotia), 1916, Part II, Appendix 16.

TABLE A-4: Pulmonary Tuberculosis Mortality by County, 1909-13 (avg.), 1914; Mortality by County and Disease Type, 1941, 1946, 1951 (continued)

Part II: 1941

COUNTY	TUBERCULOSIS MORTALITY/100,000 POP., 1941		
	All forms	Pulmonary	Non-pulm.
Ap	50.9	33.9	17.0
Ag	322.4 *	322.4 *	0.0
CB	54.2	40.6	13.6
Co	63.1	56.4	6.7
Cu	38.0	38.0	0.0
Di	66.8	61.6	5.2
Gu	58.2	58.2	0.0
Hf	83.2	65.2	18.0
Ha	81.7	63.5	18.2
In	38.9	38.9	0.0
Ki	242.0	224.8	17.2
Lu	36.4	33.4	3.0
Pi	51.5	39.2	12.3
Qu	33.3	33.3	0.0
Ri	46.1	46.1	0.0
Sh	52.8	52.8	0.0
Vi	74.8	62.3	12.5
Ya	75.8	58.0	17.8

* This figure is presented as published, with the caution that it is almost certainly an error. In his 1943 report, the Divisional Health Officer gave a rate of 124/100,000 for 1941, noting that it had been 134 in 1940 and was 105 for 1942. While calculation methods commonly lead to small discrepancies in such figures, a difference of this magnitude is very questionable. The DHO's figure seems more likely.

Source: Annual Report of the Department of Health, Journal of the House of Assembly, Nova Scotia, 1943, Part 2, Appendix 17

TABLE A-4: Pulmonary Tuberculosis Mortality by County, 1909-13 (avg.), 1914; Mortality by County and Disease Type, 1941, 1946, 1951 (continued)

Part III: 1946

COUNTY	TUBERCULOSIS MORTALITY/100,000 POP., 1946		
	All forms	Pulmonary	Non-pulm.
Ap	22.6	16.9	5.7
Ag	85.3	75.8	9.5
CB	92.1	67.7	24.4
Co	26.5	19.9	6.6
Cu	60.7	53.1	7.6
Di	102.7	82.1	20.6
Gu	71.1	71.1	0.0
Hf	63.5	48.1	15.4
Ha	36.3	31.7	4.6
In	72.9	63.1	9.8
Ki	31.1	27.6	3.5
Lu	48.5	39.4	9.1
Pi	66.0	61.2	4.8
Qu	66.5	49.8	16.7
Ri	110.5	92.1	18.4
Sh	98.1	90.5	7.6
Vi	24.9	12.4	12.5
Ya	71.3	62.4	8.9

Source: Annual Report of the Department of Health, Journal of the House of Assembly, Nova Scotia, 1948, Part 2, Appendix 17.

TABLE A-4: Pulmonary Tuberculosis Mortality by County, 1909-13 (avg.), 1914; Mortality by County and Disease Type, 1941, 1946, 1951 (continued)

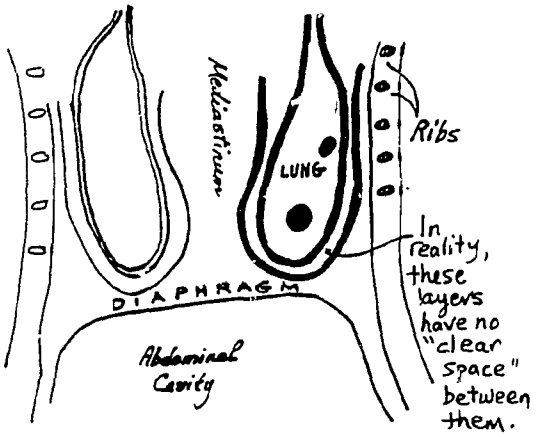
Part IV: 1951

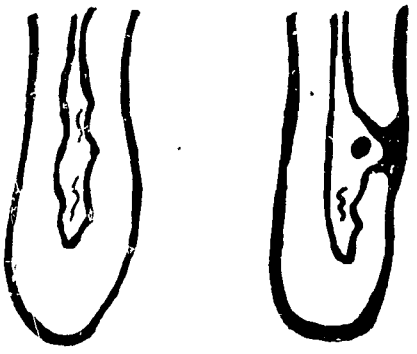
COUNTY	TUBERCULOSIS MORTALITY/100,000 POP., 1951		
	All forms	Pulmonary	Non-pulm.
Ap	13.8	9.2	4.6
Ag	25.1	25.1	0.0
CB	18.3	15.8	2.5
Co	9.5	9.5	0.0
Cu	15.1	12.6	2.5
Di	6.0	3.5	2.5
Gu	28.0	28.0	0.0
Hf	12.9	9.9	3.0
Ha	12.8	12.8	0.0
In	38.1	32.6	5.5
Ki	3.0	3.0	0.0
Lu	15.0	15.0	0.0
Pi	27.3	20.5	6.8
Qu	55.8	55.8	0.0
Ri	37.1	27.8	9.3
Sh	48.6	48.6	0.0
Vi	12.2	12.2	0.0
Ya	21.9	21.9	0.0

Source: Report of Registrar-General, Journal of the House of Assembly, Nova Scotia, 1954, Part 3, Appendix 34.

B. TREATMENT AND ITS RESULTS

a) (right): NORMAL CHEST
The schematic drawing shows the location of the lungs, mediastinum, diaphragm and ribs. The lung on the right shows two tuberculous cavitations.





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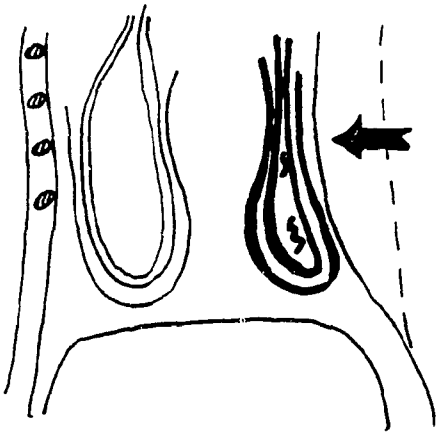
b) (left): ARTIFICIAL PNEUMOTHORAX

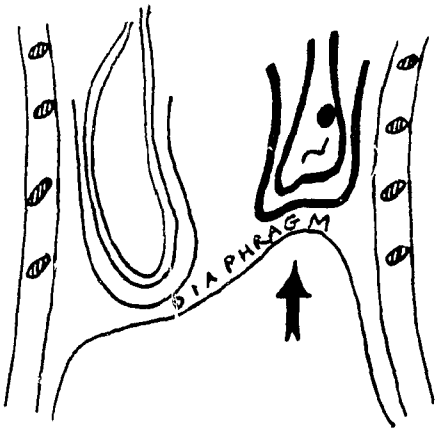
i: The introduction of gas between the parietal pleura and pulmonary pleura (the heavy black lines) has succeeded in collapsing the lung and obliterating both cavities.

ii: An adhesion has prevented the lung from collapsing completely. One cavity is still patent.

c) (right): THORACOPLASTY

The ribs on the right side have been removed, collapsing the chest wall and reducing space within the thorax. A successful collapse has resulted; both cavities are obliterated.





d) (left): PHRENIC PARALYSIS

This procedure has interrupted the connection between the phrenic nerve on the right side, and the right side of the diaphragm. The diaphragm lifts, constricting available space above. Successful obliteration of the lower cavity has resulted.

NOTE: THESE DRAWINGS ARE NOT INTENDED TO GIVE AN ACCURATE REPRESENTATION OF ANATOMY, BUT ONLY TO GIVE SOME IDEA OF HOW COMMON PROCEDURES WERE MEANT TO FUNCTION.

Table B-1-a: Condition in 1932-3 of 363 Patients treated with Artificial Pneumothorax after 1914 According to Degree of Compression Achieved

DEGREE OF COMPRESSION	MODERATELY ADVANCED DISEASE			FAR ADVANCED DISEASE		
	% of patients			% of patients		
	WELL	LIVING	DEAD	WELL	LIVING	DEAD
Less than 50%	58	0	42	10	56	32
50% -- 75 %	62	17	17	31	30	39
75% or greater	69	8	15	40	23	37

Table B-1-b: Condition in 1932-3 of 363 Patients treated with Artificial Pneumothorax after 1914 Compared with 97 Patients not receiving this treatment in the same period

	MODERATELY ADVANCED DISEASE			FAR ADVANCED DISEASE		
	% of patients			% of patients		
	WELL	LIVING	DEAD	WELL	LIVING	DEAD
Treated	59	10	27	25	36	39
Untreated	23	41	36	6	30	34

Source: A.F. Miller, C.J.W. Beckwith, A.A. Giffin, H.R. Corbett and A.V. Fraser, "Twenty Years' Experience with Artificial Pneumothorax: A Study of 460 Cases", Canadian Medical Association Journal 33 (1935), pp. 650-656.

C. MISCELLANEOUS

TABLE C-7: Comparison of Population, Tuberculosis Deaths, Available Institutional Beds and Numbers of Patients Treated in the Province, 1911-1951.

YEAR	N.S. Population	TB Deaths	TB Beds*	Patients Treated
1911	500,000	1,064	18	55
1921	523,827	702	433	(629)**
1931	512,846	524	401	(457)**
1941	577,962	429	681	1,434
1951	642,584	126	1,251	1,974***

* The number of tuberculosis beds in actual use was never static; these are "nominal" beds and sometimes represent estimates in the reports.

** These statistics available for Provincial Sanatorium patients only. The corresponding numbers of Sanatorium beds for 1921 and 1931 were 385 and 315.

*** No figure was reported for total patients treated; this figure represents the number of admissions for 1951, which of course were additional to the number already present at the beginning of the year.

Note: This is a compilation of figures from several sources. Population figures 1921 and later are from Report of the Registrar General, JHA, 1953, Part III, Appendix 34; 1911 population (which appears to have been rounded) and death figures from DHAR, JHA, 1911, Part II, Appendix 16; numbers of deaths 1921 and later from G.J. Wherrett, Miracle of The Empty Beds, Appendix 5, p. 253. Other figures from Canadian Tuberculosis Association, N.S. Dept. of Health and Sanatorium Annual Reports for the appropriate years.

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