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## A Community Hospital in Upper Canada in mid-Nineteenth Century

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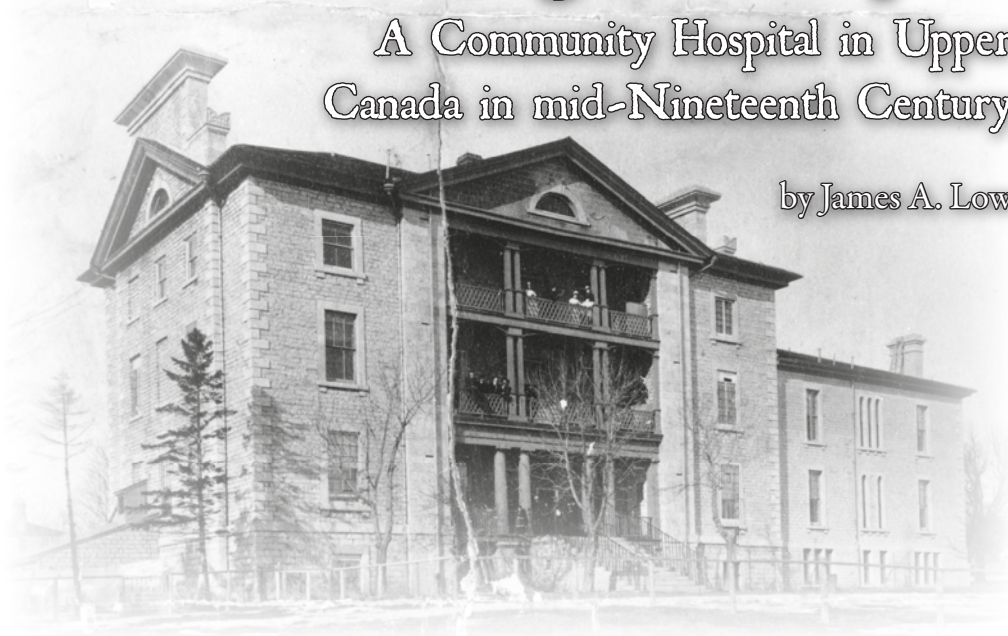
### Résumé de l'article

Dans la première moitié du 19<sup>e</sup> siècle, les populations des grandes agglomérations dans le Haut-Canada avaient construit les premiers hôpitaux et un petit groupe de médecins formés en Grande-Bretagne y dispensaient des soins. Les registres d'admissions et de décès de l'hôpital de Kingston couvrant la période de 1853 à 1866 offrent un aperçu des personnes admises et de leurs affections. En se basant sur les diagnostics de fièvres, de maladies vénériennes et de lésions inflammatoires, il est possible de constater que les infections constituaient un problème de santé majeur, soulignant ainsi leur importance à une époque où on approfondissait nos connaissances à propos de leur nature et de leurs causes. En ce qui concerne les autres patients, ils furent fréquemment atteints de lésions cardiaques et neurologiques ainsi que de cancers, qui allaient gagner de l'importance dans l'avenir avec la hausse de l'espérance de vie. Le taux de mortalité dans ces hôpitaux était similaire à celui des hôpitaux publics en Grande-Bretagne.

# Kingston Hospital

## A Community Hospital in Upper Canada in mid-Nineteenth Century

by James A. Low



**E**xamination of the patient admission register of the Kingston Hospital for the period 1853 to 1866 provides an understanding of those admitted and their ailments. The diagnosis by the attending physicians reveals nineteenth century medical knowledge of the diseases occurring in the poor and immigrant population in Upper Canada at this time.

Books and articles on this subject tend to deal with the subject of patient admissions and ailments only peripherally. John Woodward, Guenter B. Risse, and Waddington have focused on govern-

ance, architecture, finances and organization of voluntary hospitals, but patients and their illnesses were dealt anecdotally, although Risse provides an outline of diagnoses to the academic unit supervised by the faculty during the academic year.<sup>1</sup>

The experience of the military stationed in Upper Canada is documented in a number of cases including John Douglas in 1819, J. MacTaggart in 1829, and more recently by Jacalyn Duffin. These provide insight into military injuries and some of the diseases encountered by soldiers and sailors.<sup>2</sup>

Following the war of 1812-1814, be-

<sup>1</sup> John Woodward, *To do the sick no harm; a study of the British voluntary hospital system to 1875* (London: Routledge & Keegan Paul, 1974). Guenter B. Risse, *Hospital Life in Enlightenment Scotland: Care and teaching at the Royal Infirmary of Edinburgh* (Cambridge; New York: Cambridge University Press, 1986).

<sup>2</sup> John Douglas, *Medical topography of Upper Canada* (London: Burgess and Hill, 1819); MacTaggart,

cause of annual immigration including some destitute and sick immigrants, the need for a hospital in Kingston was identified. However the efforts to raise the necessary funds were unsuccessful. In the absence of a hospital, community organizations in York and Kingston provided assistance for the poor sick. These are studied by Edith G. Firth and Margaret Angus, and contemporaneously by the Female Benevolent Society.<sup>3</sup>

By 1830, York and Kingston were the two largest port communities in Upper Canada. The need for a community hospital was pressing because of the increasing immigration, the majority of which entered Upper Canada through these ports. The need of health care facilities was highlighted during the

### *Abstract*

*By the mid-nineteenth century, the major population centres in Upper Canada had built the first hospitals and a small number of British trained physicians provided care. The admission and death records of the Kingston Hospital for 1853-1866 provide insight into those admitted to hospital and the nature of their ailments. Infection based on the admission diagnosis of fevers, venereal disease and inflammatory lesions in the general and organ system categories was the major illness occurring in these patients, highlighting the importance of infection at a time when there was a growing understanding of its nature and cause. The remaining patients were more frequently diagnosed with cardiac and neurological lesions and cancers that would later become more important as lifespans increased. Hospital mortality was similar to that in the established voluntary hospitals in Britain.*

**Résumé:** *Dans la première moitié du 19e siècle, les populations des grandes agglomérations dans le Haut-Canada avaient construit les premiers hôpitaux et un petit groupe de médecins formés en Grande-Bretagne y dispensaient des soins. Les registres d'admissions et de décès de l'hôpital de Kingston couvrant la période de 1853 à 1866 offrent un aperçu des personnes admises et de leurs afflictions. En se basant sur les diagnostics de fièvres, de maladies vénériennes et de lésions inflammatoires, il est possible de constater que les infections constituaient un problème de santé majeur, soulignant ainsi leur importance à une époque où on approfondissait nos connaissances à propos de leur nature et de leurs causes. En ce qui concerne les autres patients, ils furent fréquemment atteints de lésions cardiaques et neurologiques ainsi que de cancers, qui allaient gagner de l'importance dans l'avenir avec la hausse de l'espérance de vie. Le taux de mortalité dans ces hôpitaux était similaire à celui des hôpitaux publics en Grande-Bretagne.*

cholera pandemics in 1832, 1834, 1849 and 1854 as well as the typhus epidemic of 1847. A number of publications have

*Three Years in Canada, an Account of the country in 1826-7-8* Vol 2 (London: H. Collins 1829); Jacalyn Duffin, "Soldiers' Work: Soldiers health: Morbidity, Mortality, and their causes in 1840s British Garrison in Canada," *Labour/Le Travail*, 37 (1996), 37-80.

<sup>3</sup> Edith Firth, *The Town of York 1815-1834* (Toronto: Champlain Society for the Government of Ontario, 1966), 221, F1; 231, F11; 226, F5. Margaret Angus, *Kingston General Hospital: A Social and Institutional History* (Montreal: McGill-Queen's University Press, 1973), 3; The Female Benevolent Society 1821-1847, 14.

described these epidemics but provide only snapshots of catastrophic events.

Jacalyn Duffin describes the experience of a rural physician in Ontario and usefully outlines the range of illness encountered in this practice during the latter half of the nineteenth century.

The Toronto General Hospital was finally opened in 1829 and incorporated in 1847 and the Kingston Hospital was built in 1835, although not opened as a hospital until 1845 and incorporated in 1849. As Richard B. Splane recounts, these were the two principal community hospitals in Ontario in the mid-nineteenth century. C.K. Clarke, W.G. Cosbie and James Connor have written major publications on the Toronto General Hospital. Connor reviewed the archives of the hospital for the years 1847 to 1855. Although not providing individual diagnoses, an overview of the principal ailments was provided that is included in this article. The Toronto General Hospital was relocated in 1855 but apparently no archives survive for this period.<sup>4</sup>

The unique resource for the Kingston Hospital is the archival records for 1853-1866 leading up to confederation. The admission and death registries for this period are the only detailed archival records of the patients admitted to hospi-

tal and their ailments. Although many of the patients were poor, it provides insight to the nature of disease occurring generally in the community at that time.

Upper Canada was a British colony developed in the nineteenth century, governed from Westminster and secured by the British army. The colonial legislature symbolized the essential unity between Westminster and Upper Canada. British forts and garrisons at Kingston and Niagara and the role of Britain during the war of 1812 were a constant reminder of importance of Britain. Out of the war there arose a sense of community and awareness of being Upper Canadian.<sup>5</sup>

Disease was a constant challenge for the settlers in the province. In the urban communities, illness among the poor and some of the destitute immigrants arriving from overseas required care. To assist immigrants, York's community leaders established the Society for the Relief of Strangers in Distress in 1817; it became the Society for the Relief of the Sick and Destitute in 1828. In 1820, the women of the established society formed the Female Society for the Relief of Poor Women in Childbirth.<sup>6</sup> The Kingston Compassionate Society was established in 1817 "to

<sup>4</sup> Richard B. Splane, *Social Welfare in Ontario 1791-1893. A Study of Public Welfare Administration* (Toronto: University of Toronto Press, 1965). C.K. Clarke, *A History of the Toronto General Hospital including an account of the medal of the Loyal and Patriotic Society of 1812* (Toronto, W. Briggs, 1913). W.G. Cosbie, *The Toronto General Hospital 1819-1965: a Chronicle* (Toronto, MacMillan Company of Canada 1975). James Connor, *Doing good: the life of the Toronto's General Hospital* (Toronto: University of Toronto Press 2000).

<sup>5</sup> Jane Errington, *The Lion, the Eagle, and Upper Canada: A developing Colonial Ideology* (Montreal: McGill-Queen's University Press, 1987).

<sup>6</sup> Firth, *Town of York*, 221, F1; 231, F11; 226, F5.

relieve the sick poor in their homes and to help in forwarding the destitute to their destinations.” The society flourished until 1820 when it became evident that more assistance was required. Beginning in 1820 the Female Benevolent Society provided a temporary facility by fitting up a room in the abandoned Blockhouse #1 to serve as a temporary hospital; it opened from November to May providing food and shelter. This facility, the only hospital for sick poor for twenty years, operated on private donations with occasional government grants. The community doctors gave free medical care for the poor and the destitute immigrants in the blockhouse <sup>7</sup>

The elite and established immigrants continued to receive health care in their homes, provided by family and friends with the assistance of a physician if their problems persisted. However, by 1830 there was an increasing need for hospitals to provide for the poor. This was because of immigration, principally from Britain and Europe, led to a rapid growth of the population of Upper Canada and the principal urban centres, Toronto and Kingston <sup>8</sup> (See Table 1).

Hospitals were an eighteenth-century British necessity and became a requirement in Upper Canada in the nineteenth century. Voluntary hospitals were developed in Britain principally in the

Table 1: *Population Trends in Upper Canada*

	<u>Upper Canada</u>	<u>Toronto</u>	<u>Kingston</u>
1814	95,000		
1830	213,000	2,800	3,587
1850	915,000	30,750	11,585
1867	1,500,000	65,000	14,000

capitals and the main provincial centres for the “labouring” and “deserving” poor. At the end of the eighteenth century in England there were five voluntary hospitals in London and twenty-eight in the provinces, while in Scotland there were five.<sup>9</sup>

An example was the Royal Infirmary in Edinburgh, opened in 1729. Edinburgh became known as the “Athens of the North,” the hub of a remarkable social and cultural development. Medicine played an important role. After 1750, the university there was a prominent centre of medical learning and the Infirmary meshed into medical education as the locus for clinical teaching. By 1770, the Royal Infirmary, with 220 beds, operated with two salaried physicians-in-ordinary providing constant attendance of patients on the medical wards. Fellows of the Royal College of Physicians were selected to consult with the house physicians. The Infirmary welcomed professors from the Edinburgh Medical School responsible for patients admitted to the “clinical” or teaching ward during the academic year.<sup>10</sup>

<sup>7</sup> The Female Benevolent Society 1821-1847, 14

<sup>8</sup> Statistics Canada Website, Census of Canada, 1851 to 2011

<sup>9</sup> John Woodward, *To do the sick no harm; a study of the British voluntary hospital system to 1875* (London: Routledge & Keegan Paul 1974).

In Upper Canada, the British first established small garrison hospitals where regimental surgeons cared for soldiers and sailors. The initial hospital in York was a small garrison hospital north of the fort. In Kingston, the British military built a garrison hospital to the west of their fortifications in 1783 and it served until 1820. Several other sites were used for temporary garrison hospitals until one with accommodation for thirty-seven patients was built on Point Henry overlooking the St Lawrence River in 1834. (See Figure 1).

The first community hospitals in Upper Canada, modeled after the voluntary hospitals in Britain, were in the urban centres. Toronto General Hospital and Kingston Hospital were the principal hospitals operating between 1847 and 1866, but smaller hospitals also existed: the Hotel Dieu in Kingston and Ottawa Roman Catholic Hospital opened in 1845; the Hamilton General Hospital in 1850; and St. Catherine's General Hospital in 1865.

The design, governance and staffing of the Upper Canadian hospitals reflected the British model. Toronto General Hospital, a Georgian style building with accommodation for about fifty patients, was built in 1820 with the support of the government and the Loyal and Patriotic Society of Upper Canada.<sup>11</sup> Its first board, appointed in 1822, took no ac-

tion and the building remained empty. In 1829, faced with increasing immigration, the hospital was finally opened for sick immigrants and the indigent poor.<sup>12</sup> In 1847, the Toronto General Hospital was incorporated. The hospital staff included five professors from Kings College Medical School who served as medical officers, a steward, matron, an apothecary, usually a young physician, a head nurse, day and night nurses and a porter.

Kingston Hospital, built in 1835, finally opened in 1845 and was incorporated in 1849 to "supply necessities and relieve the condition of sick and destitute immigrants and other transients and the mariners of the lake"<sup>13</sup> In 1861, in response to increasing admissions, the Watkins wing was added. (See Figure 2). The physicians, principally from the Queen's Faculty of Medicine, who cared for the patients in hospital on a two-week rotation, were responsible for admission and discharge of patients and supervised a resident senior medical student.<sup>14</sup> The staff included a steward, matron and two orderlies.

Medical schools played an important role providing leadership in the development of the hospital and as a teaching hospital. In Toronto, the King's College/University of Toronto Medical School operated as a teaching faculty from 1844 until 1853, and again after being reconstituted in 1887. Other To-

<sup>10</sup> Risse, *Hospital Life in Enlightenment Scotland*.

<sup>11</sup> Cosbie, *Toronto General Hospital*, 70. Connor, *Doing good*, 22.

<sup>12</sup> Firth, *Town of York*, 230, F10.

<sup>13</sup> Splane, *Social Welfare in Ontario*, 79.

<sup>14</sup> KGH Archive, Board of Governors fonds, minute book and annual reports, 1856.

ronto medical schools in the mid-to-late nineteenth century included the Trinity College Medical School, John Rolph's Medical School, Victoria College Medical School, Toronto School of Medicine and the Women's Medical College of Toronto.<sup>15</sup> In Kingston, Queen's College opened a medical school in 1854. One physician in particular, James Sampson, was to play a leadership role in the community, the hospital and the faculty of medicine. In 1835, he was responsible for the construction of the Kingston hospital to accommodate 120 patients. In 1854, he chaired the committee that recommended the proposed faculty to the university and subsequently served as the first president of the faculty. In 1856, following revision of the bylaws of the Kingston Hospital, he was appointed as life governor and consulting surgeon and collaborated in the introduction of clinical teaching that initiated the transition of a community hospital into an active teaching hospital<sup>16</sup>

## Knowledge and Classification of Disease

Notions of classification based on the essence of the group stems from Aristotle. The orderly classification of disease dates particularly back to the eighteenth century. A review of the

strengths and weakness of classifications proposed during this period concluded that most fell into obscurity because of cumbersome nomenclature and limited knowledge of science.<sup>17</sup>

In Britain in the eighteenth century, physicians favoured a classification proposed by William Cullen: *Synopsis Nosologiae Methodicae* designed for medical students and young physicians.<sup>18</sup> This classification reduced the number of disease classes to four; the first three (pyrexiae, neurosis, cachexiae) based on traditional functions; the fourth (local disease) attempted to account for local pathological changes. In the nineteenth century, a committee of the Royal College of Physicians resolved that "the classification should be based on anatomical considerations." The recommended classification included general diseases that affect the whole frame rather than any special part of it, and local diseases arranged under the part attacked.<sup>19</sup> This classification was used in the medical texts written at this time.

There were no Upper Canadian guidelines for the classification of disease. Therefore, the physicians in the community and medical schools relied on the practices encountered during their medical education and training in Britain. For example, the day book of James Lang-

<sup>15</sup> Edward Shorter, *Partnership for Excellence* (Toronto: University of Toronto Press).

<sup>16</sup> Margaret Angus, "Doctor James Sampson: a Brief Biography," *Historic Kingston*, 32 (1982), 3-17.

<sup>17</sup> Lester S. King, *The medical world of the eighteenth century* (Chicago: University of Chicago Press, 1958).

<sup>18</sup> William Cullen, *Synopsis nosologiae methodica* (Edinburgh, 1769). Cullen, *English nosology* (C. Stewart and Co. for William Creech, sold, in London, by Messrs. Robynsons, T. Kay, and F. Cox 1800).

<sup>19</sup> Thomas Tanner, *A Manual of clinical Medicine and Physical Diagnosis* (London 1855).

Table 2: *Kingston Hospital Medical Staff, 1854*

[Source: William Canniff, *The Medical Profession in Upper Canada 1783-1850* and Hilda Neatby, *Queen's University*, Vol. 1, 1841-1917 (Montreal McGill-Queens University Press 1978), 70.]

Name	MD degree and training	arrival in Kingston
James Sampson	Trinity College / London	1820
Horatio Yates	Pennsylvania / London	1842
John Dickson	Belfast / Glasgow	1842
John Stewart	Edinburgh / Edinburgh	1839
John Mair	Aberdeen / Aberdeen	1852
Fife Fowler	Glasgow / Edinburgh	1854

Kingston Hospital was the responsibility of the attending physicians, all of whom had been educated or trained in Britain. (See Table 2). Eighty-three diagnostic terms were used for the 4,907 patients admitted from 1853 to 1866. Although the diagnoses were listed alphabetical-

Table 3. *General Diseases*

	Admissions	Deaths
Inflammation		
Abscess	130	14
Inflammation	121	2
Tumours		
Cancer	49	13
Benign tumours	47	1
Dropsy	57	10
Rheumatism	217	0

staff, a community physician, includes a list of 229 diagnostic terms with no evidence of a broad classification during the period from 1851 to 1889.<sup>20</sup> Physicians in the Toronto General identified over 100 diagnostic conditions for admission to the hospital. Connor provided an aggregate summary into broad categories of the admissions—some diagnoses around an organ, some around a system with undifferentiated disease—of the 5,500 cases admitted between 1847 and 1855.<sup>21</sup> The admission diagnosis in the

ly in the annual reports, for this review, diagnoses have been classified as recommended by the Royal College of Physicians in Britain.

### Diseases leading to admission to the Kingston Hospital 1853 to 1866

The admission diagnosis for 4,907 medical or surgical patients and 371 maternity patients were available from the hospital admission and death records.<sup>22</sup> Application of the classification system to the admission diagnosis and deaths provides insight into the nature and frequency of ailments admitted to the Kingston Hospital. The age of the patients admitted to the Kingston Hospital include: children and adolescents, 27%; young adults between 21 and 40 years of age, 44%; and 28% over 40 years of age. The general diseases category accounted for 13% of admissions and 16%

<sup>20</sup> Duffin, "Soldiers' Work"; Langstaff, *A nineteenth century medical life* (Toronto: University of Toronto Press), 1993.

<sup>21</sup> James Connor, *Doing good: the life of the Toronto's General Hospital* (Toronto: University of Toronto Press 2000), 58.

<sup>22</sup> KGH Archive, Patient Records and Registration fonds Admission and Death Register Series AD 2.



of deaths. (See Table 3). Inflammation recognized by pain, swelling, heat and redness, was common in bone and tendon sheaths. When inflammation went on to suppuration, abscesses occurred in various sites including eyelids, necks, breasts, pelvis, groin, scrotum, arms and legs. Benign tumors and cancers occurred with equal frequency. The cause of dropsy, an excessive accumulation of fluid, was not identified in the admission diagnosis. Rheumatism was a problem in the military garrisons<sup>23</sup> and the community leading to frequent admission to the hospital

Fevers accounted for 11% of admissions and 12% of the deaths. (See Table 4). Fever was a constant problem in Upper Canada and was a frequent occurrence in the military.<sup>24</sup> In the absence of a known cause, the classification of fevers continued to be based on clinical characteristics as either continued, intermittent, or eruptive fevers. A few admissions were classified as continuous fevers without a specific diagnosis. Continuous fevers with a specific diagnosis included typhus and typhoid fever. Typhus fever had occurred frequently in the immigrants to Canada in the past and, when severe, resulted in many deaths<sup>25</sup> Typhoid fever was often confused with typhus until

Table 4. *Fevers*

	Admissions	Deaths
Continued	45	
Typhus	9	3
Typhoid Fever	29	7
Intermittent / Remittent	173	
Ague	53	
Eruptive Fevers		
Smallpox	86	16
Scarlet fever	22	3
Erysipelas	54	

1842 when the clinical characteristics of a hectic fever with gastrointestinal symptoms were clearly described.<sup>26</sup> Although the cause of these continuous fevers was yet to be determined, William Budd in 1856 demonstrated that the transmission of typhoid fever was due to contaminated water.<sup>27</sup> In spite of their importance in the nineteenth century, typhus and typhoid fever were an infrequent admission diagnosis to hospital during this period. Remittent and intermittent fever, sometimes referred to as ague or lake fever attributed to marshy miasma, was endemic in summer and autumn leading to frequent admissions. The debilitating ague had been a problem for the early settlers in Upper Canada. The clinical presentation was similar to malaria with fever and chills that may vary in inten-

<sup>23</sup> John Douglas, *Medical topography of Upper Canada* (London: Burgess and Hill, 1819).

<sup>24</sup> *Ibid.*, 21. J. MacTaggart, *Three Years in Canada, an Account of the country in 1826-7-8*, Vol 2 (London: H. Collins 1829). Duffin, "Soldiers' Work," 37-80.

<sup>25</sup> *The unveiling of an historic plague at the new site of the Angel of Mercy monument in St. Mary's Cemetery: Kingston, Ontario, commemorating 'the typhus epidemic 1847'* (Kingston, Ont.: Kingston Historical Society, 1966).

<sup>26</sup> William Osler, *The Principles and Practice of Medicine* 4th ed. (New York: Appleton, 1901).

<sup>27</sup> William Budd, *Typhoid Fever, Its nature, Mode of Spreading and Prevention* (New York: Published for the Delta Oega Society by the American Public Health Association, 1931).

Table 5. *Venereal disease*

	Admissions	Deaths
Gonorrhoea	73	
Syphilis	221	4

sity every second day.<sup>28</sup> Eruptive fevers with a distinctive skin eruption included smallpox, scarlet fever, and erysipelas. Historically, smallpox had been a serious problem. Vaccination with cowpox vaccine introduced by Jenner at the end of the eighteenth century was leading to a decreased prevalence of the disease. No epidemic occurred in Upper Canada during this period; however a number of cases were admitted to hospital each year. Although a separate isolation facility was not initially available, these patients were isolated in smallpox wards in the Watkins wing after 1861. Outbreaks of scarlet fever and erysipelas led to occasional hospital admission.

The venereal diseases accounted for 6% of admissions and 2% of the deaths. (See Table 5). Venereal disease was common in the eighteenth century, at which time the three phases of constitutional syphilis—primary, secondary and tertiary—were well known.<sup>29</sup> Syphilis accounted for 75% of admissions in Kingston and gonorrhoea 25%.

The admission diagnosis assigned to organs and systems are outlined in the Table.6 Respiratory and circulatory diseases accounted for 13% of admissions and 42% of deaths. Inflammatory com-

plications of the bronchial tree—bronchitis in the lungs and pneumonia—were common. Consumption or phthisis was most frequent admission diagnosis of the respiratory diseases. The nature of heart lesions was not noted in the admission diagnoses.

The nervous system accounted for 12% of admissions and 17% of deaths. The frequent admission for delirium tremens reflects the occurrence of advanced alcoholism in the community. Paralysis, neuralgia and epilepsy were recognized nervous disorders. Since Rockwood Asylum was not completed until 1865, some mentally ill patients were admitted to hospital with a diagnosis of either insanity or dementia.

Diseases of the alimentary canal and liver, including cholera, accounted for 11% of admissions and 26% of deaths; excluding the cholera epidemic they accounted for 7% of admissions and 5% of deaths. Although the cause was not known, gastro-enteritis, dysentery and diarrhea based on clinical presentation and course were recognized ailments of the alimentary canal. Liver congestion was a frequent diagnosis in the nineteenth century, attributed to an active or passive vascular congestion. Hepatitis and cirrhosis of the liver was an admission diagnosis due to increased understanding of their clinical presentation.

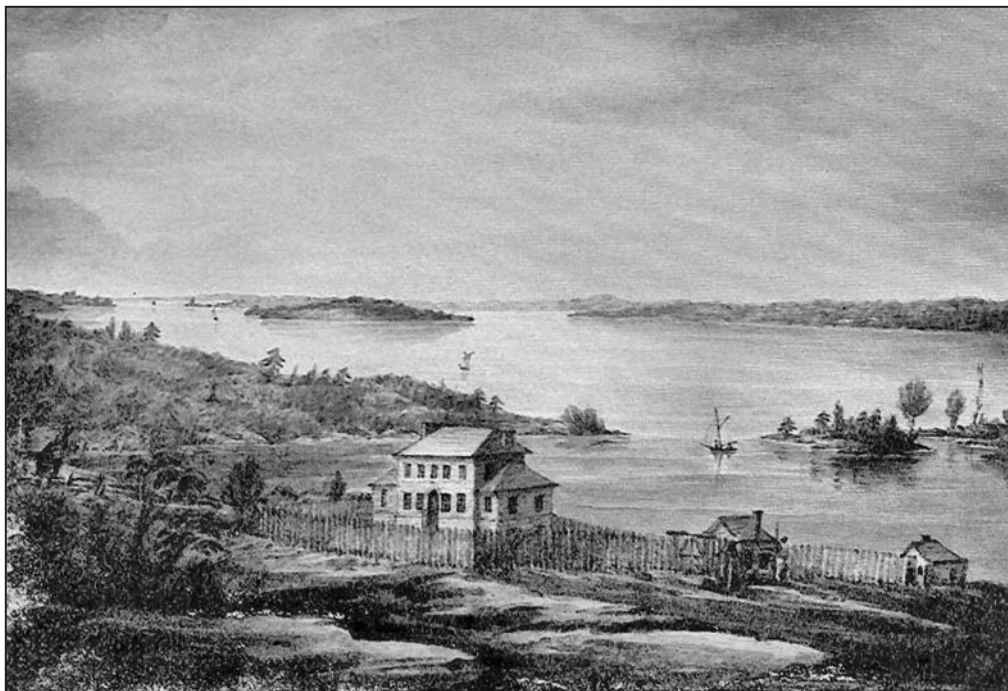
Cholera pandemics were frequent challenges in the western world in the nineteenth century. The port communi-

<sup>28</sup> A. Murray Fallis, "Malaria in the 18th and 19th centuries in Ontario, *Bull Can Hist Med*, 1 (1984), 25-38.

<sup>29</sup> Thomas Tanner, *The practice of medicine* (London: H. Renshaw, 1869).

Table 6. *Diseases of Organs and Systems*

	<u>Admission</u>	<u>Death</u>		<u>Admissions</u>	<u>Death</u>
<u>Nervous</u>			<u>Respiration/Circulation</u>		
Delirium Tremens	180	14	Bronchitis	154	6
Insanity	115	1	Pneumonia	91	18
Dementia	108	13	Pleurisy	52	3
Paralysis	85	10	Phthisis	164	54
Epilepsy	38	1	Influenza	84	0
Neuralgia	68	3	Asthma	18	1
			Pertussis	3	0
			Heart Lesions	66	20
			Aneurysm	2	1
<u>Alimentary Canal</u>			<u>Liver</u>		
Gastro-enteritis	84	1	Liver congestion	20	
Dysentery	59	1	Hepatitis	43	
Diarrhea	120	4	Cirrhosis	7	2
Cholera	162	75			
Peritonitis	4	2			
Ascites	4	2			
Constipation	9				
Hemorrhoids	8				
<u>Urinary Organs</u>			<u>Female Organs</u>		
Nephritis	2		Oophoritis	16	
Cystitis	9	1	Cervicitis	30	
Orchitis / Prostatitis	20		Vaginitis	24	1
Urinary retention	7		Leukorrhoea	21	
Urinary Incontinence	1	1	Mastitis	10	
			Peritonitis	5	
			Abortion	9	
			Amenorrhoea	41	
			Menorrhagia	24	
			Tumor	9	
			Prolapse / fistula	17	1
<u>Diseases of Skin</u>			<u>Diseases of the Eye</u>		
Scabies	44		Ophthalmia	213	
Favus	14		Conjunctivitis / Iritis	35	
Eczema	27		Cataract	37	
Psoriasis (lepta)	17		Glaucoma	5	
Impetigo	9		Injury	13	
Herpes	6		Ulcer	4	
Purpura	2		Amourosis	4	
Acne	2				
Urticaria	2				
Pemphigus	1				
Ulcers	402				



*Military Hospital / Kingston / Canada 1834 [Public Archives of Canada, C-2752]*

ties along the St Lawrence River and Lake Ontario had been challenged by cholera epidemics arriving with the immigrants from overseas in 1832, 1834 and 1849. The cholera pandemic in 1854 was particularly significant in Kingston. John Balmer records: "I must not forget that in 1854 we were visited at Kingston with a severe grip of cholera."<sup>30</sup> John Clark noted in his diary on 17 June, "Cholera is bad in Kingston." On 8 July, his son-in-law died of cholera following a three-day illness.<sup>31</sup> Toronto as other port communities continued to use fever sheds to house cholera patients. With the arrival

of the disease in Kingston, the Board of Health met daily for the next six weeks. It acted in unison with the trustees of the hospital to ensure facilities for the care of cholera patients, thereby avoiding the need for a temporary cholera hospital or fever sheds. The city provided a conveyance to take the sick from their homes and wagons for the sick immigrants from the steam boats to the hospital. The hospital had 159 admissions of which 75 died between July and December.<sup>32</sup> The transmission of cholera by contaminated water was demonstrated by John Snow in London in 1849 and 1854 highlighting

<sup>30</sup> John Balmer, "Kingston Document," *Historic Kingston*, 5 (1956), 49.

<sup>31</sup> Queen's Archives 1972-037, photocopied daily diary of John C. Clark, 2184, 8 July 1854.

<sup>32</sup> Queens Archives, Board of Health, 1854.

the need for a sanitary system in the community.<sup>33</sup>

Diseases of urinary and female generative organs accounted for 5% of admissions. Inflammatory lesions affecting the kidney, bladder and prostate were the major admitting diagnoses affecting the urinary system. Inflammatory lesions of the breast and reproductive organs with extension to pelvis cellulitis and pelvic peritonitis were recognized clinical entities. Disturbances of menstrual function as expressed by amenorrhea or menorrhagia were recognized but without identification of the cause. Anatomic displacements of the reproductive system, such as prolapse of the uterus, led to admission.

Diseases of skin and the eye accounted for 17% of admissions with no deaths. A range of skin lesions was identified on admission. An ulcer of the leg without an indication of the cause was a remarkably frequent indication for admission. Inflammatory lesions of the eye were the common diagnoses leading to admission. The diagnosis of blindness or amaurosis was usually specific due to cataracts or glaucoma.

Injuries and surgical admissions accounted for 14% and 5% of the deaths. (See Table 7). Injuries were a common cause for admission. The hospital had an amputation room in 1861, also used as a lecture room for the medical students. Elsewhere, surgery was infrequent because anaesthesia had been recently introduced and antisepsis was yet to come. Surgeons were reluctant to open the chest or abdomen because of the high op-

Table 7: *Injuries and Surgical admissions*

<u>Injuries</u>	Admissions	Deaths
Wounds	201	2
Contusions	70	1
Fistula	22	0
Stricture	24	1
Frost bite	67	1
Burns	42	0
Dislocations	52	0
Fractures	178	5
<u>Surgery</u>		
Amputations	14	1
Hernia	21	1

Figure 1. Military Hospital / Kingston / Canada 1834 [Public Archives of Canada, C-2752]

erative mortality reported in the limited experience in Britain. Amputations were for fingers or toes in most cases because of gangrene. Hernias were admitted for consideration of surgery if necessary. Surgery remained a treatment of last resort in the hospital.

## Comparison of the Kingston Hospital with the Toronto General Hospital

The Toronto General Hospital for the period 1847 to 1855, and the Kingston Hospital from 1853 to 1866, were the principal community hospitals in Upper Canada. The illnesses admitted were influenced to some degree by admission policies and circumstances in the community. Toronto General accepted neither

<sup>33</sup> John Snow, *On the mode of communication of cholera* (London: John Churchill, 1855).



*Kingston Hospital, 1861*

maternity patients, nor the mentally ill because they were sent to the lying-in hospital or the asylum respectively. In Kingston, with neither an asylum nor lying-in facility, some mentally ill and maternity patients were admitted to hospital

An overview of the disease categories in these two hospitals is outlined in Table 8. There are some similarities and noteworthy differences. Fever was the leading admission diagnosis in Toronto. Although intermittent and eruptive fevers were identified, over 50% were continuous fevers without a specific diagnosis. Fever was a less frequent admission diagnosis in Kingston; however inflammatory lesions were included in the general and organ system categories. Nervous diagnosis was more common in Kingston, in

part due to the admission of mentally ill patients. Injuries were common in both hospitals. However surgical admissions were more frequent in Toronto.

Mortality rates were the most sensitive indicators of hospital performance. In the voluntary hospital in Britain, overall mortality rates between 1850 and 1865, derived from the annual reports of the hospitals, varied subject to the size of the hospital. In the Edinburgh Royal Infirmary, a large teaching hospital, mortality rates ranged from 9.3 to 10.8%. The Liverpool Royal Infirmary, a large provincial hospital, rates ranged from 6.1 to 8.4%. The Salisbury General Hospital, a small provincial hospital, mortality ranged from 2.3 to 4.4%<sup>34</sup> The hospital mortalities in Upper Canada were of the

<sup>34</sup> John Woodward, *To do the sick no harm; a study of the British voluntary hospital system to 1875*, Ap

Table 8: *Disease Categories in the Kingston Hospital and Toronto General Hospital*

Classification	Admissions		Deaths	
	Toronto	Kingston	Toronto	Kingston
	1847 – 1855	1853 – 1866	Toronto	Kingston
	%	%	%	%
General		12.6		16.2
Fevers	27.7	9.6	23.7	11.7
Venereal disease	1.6	6.0	1.1	1.6
Nervous disease	6.4	12.1	6.3	17.0
Resp/Circulatory	8.7	12.9	18.3	41.7
Gastro-intest/Liver	13.8	10.6	22.0	8.3
Genito-urinary		0.8	0.8	
Gynaecological		4.2	0.8	
Skin / Ulcers	4.5	10.7	1.4	
Eye Problems	7.4	6.3		
Injuries	12.9	13.1	11.3	3.8
Surgery	13.1	1.0	9.5	0.8
Pregnancy		6.9		

same order as the voluntary hospitals in Britain. The Toronto General Hospital reported a mortality rate of 10% for the period 1847 to 1855. The mortality rate in the Kingston Hospital for the period 1853 to 1866 was 6.6%. The mortality rate adjusted for the cholera pandemic was 5.2%

The distribution of deaths was somewhat at variance between the two hospitals. In Toronto, fevers, gastro-intestinal, respiratory diseases and injuries, including surgical deaths, accounted for the majority of deaths. In Kingston, the leading causes of death were respiratory complications, and particularly phthisis, followed by general diseases (especially abscesses and cancer), nervous diseases (particularly delirium tremens), demen-

tia and paralysis. Fever deaths were less frequent with typhoid fever and small-pox accounting for most deaths

### Comments

Upper Canada rapidly developed as a new colony in the nineteenth century. The urban communities built and opened the Toronto General Hospital and the Kingston Hospital, modeled after the voluntary hospitals in Britain, while a small number of British-trained physicians provided patient care for the poor and destitute new immigrants. The staffing of the hospitals was smaller but similar to the teaching hospitals in Britain. The major deficiency was the absence of trained nurses until the development of the hospital apprenticeship nursing schools in

the later part of the nineteenth century.

The admission diagnosis and deaths in Kingston Hospital between 1853 and 1866 provide a window of insight into the nature and frequency of disease in Upper Canada at this time. The physicians responsible for admission diagnosis were using terminology consistent with the recommendations of the Royal College of Physicians in Britain. Analysis of the admission register shows that 72% of the patients admitted were children, adolescents or young adults less than 40-years-old. It is evident from the admission diagnosis due to fever, venereal disease or inflammatory lesions in the general or local classification that infection was the predominant illness leading to admission to hospital. On the other hand, 28% of patients were over age 40, with an increasing admission diagnosis of cardiac or neurological ailments and cancers. Injuries including wounds, fractures,

burns, dislocations and frostbite, which occurred frequently. However the physicians in Kingston were conservative in the use of surgery during this period

The mid-nineteenth century was an interesting period with particular reference to infection. The transmission and contagious nature of fevers was understood based on experience in epidemics while the water borne transmission of cholera and typhoid fever was first demonstrated in the mid-nineteenth century. However the cause of infections remained to be determined. The requirements for safe surgery had to await the development of skilled anaesthesia as well as asepsis and antisepsis.

The patients admitted to the Kingston hospital had a mortality rate equivalent to the voluntary teaching and large provincial hospitals in Britain. This was a source of satisfaction to the community and the professional staff of the hospital.<sup>35</sup>

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<sup>35</sup> KGH Archives, Board of Governors fonds, annual report 1868.