

A STUDY OF MEDICAL SPECIALIZATION:
THE HISTORY OF THE DEPARTMENT OF PATHOLOGY
OF THE WINNIPEG GENERAL HOSPITAL (1883-1957)

by

Guillermo Emilio Quinonez

A Thesis submitted to the Faculty of Graduate Studies of

The University of Manitoba

in partial fulfillment of the requirements of the degree of

MASTER OF ARTS

Department of History

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Dedication

To

Zachary

Who was born at the beginning of this project

Joelito

Who was born at the completion of the project

And

Mariadela, Carlos, Rocio, Luicky and Miguelito

Abstract

This thesis is designed to study the origin and development of medical specialization using the history of a department of pathology in a university affiliated hospital. The assumption is that events that occurred at the Department of Pathology of the Winnipeg General Hospital can explain the history of specialization in pathology in Manitoba.

Data for the study was obtained from the Nurses Alumni Association of the Winnipeg General Hospital and Health Sciences Archives, the Neil John Maclean Library of the University of Manitoba, and the Department of Pathology. The local literature was reviewed and complemented by selected readings.

This thesis argues that once institutional and professional interests determined the origin of the specialty, the fundamental explanation for the development of pathology in Manitoba was the social transformation of the Winnipeg General Hospital, as the forces that supported such a transformation also impacted on pathology.

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Chapter I: Introduction

Contemporary medicine rests on the practice of specialties.¹ Medical specialization has been referred to as the historical response of modifying the practice of medicine as a result of local conditions (i.e., social environment, economic conditions and scientific-technological progress).² Pathology, understood as laboratory medicine, was one of the specialties that supported the transformation of medicine from “hospital medicine,” based on the art of bedside observation to “laboratory medicine,” based on the science of experimentation.³ Before the contributions of Pasteur and Koch in the last quarter of the nineteenth century, the practice of the specialty of pathology was based on the autopsy. Pathology was the “science of the death.”⁴ By incorporating bacteriology, the specialty began rapidly evolving. After bacteriology, pathology evolved by incorporating initially new technology to anatomical pathology (i.e., frozen section and tissue biopsy) and later to hematology (i.e., blood banking) and microbiology (i.e., bacterial cultures). These technological advances were directed to support developments

¹ The concept “specialization” is closely related to professionalization. Common sense would argue that a condition for specialization is the presence of professionalization. In other words, specialization cannot occur without professionalization. As a result of their interconnectedness, the terms are sometimes used as synonyms in historical writing. Conceptualisations on professionalization are found in Hannes Siegrist, “Professionalization as a process: patterns, progression and discontinuity,” in *Professions in Theory and History: Rethinking the Study of Professions*, eds. Michael Burrage and Rolf Torstendahl (London: Sage, 1990), 177.

² George Weisz, “The Emergence of Medical Specialization in the Nineteenth Century,” *Bulletin of the History of Medicine* 77 (2003): 536-575.

³ A history of these terms is found in L.S. Jacyna, “The Laboratory and the Clinic: The Impact of Pathology on Surgical Diagnosis in the Glasgow Western Infirmary, 1875-1910,” *Bulletin of the History of Medicine* 62 (1988): 384-406.

⁴ The origin of “Pathology,” the ‘study of disease,’ blends with the origin of medicine in general and of anatomy in particular. The founders of modern pathology are Morgagni, Bichat and Virchow. The anatomist Giovanni Battista Morgagni (1682-1771) in his book *De Sedibus et Causis Morborum* (1761) systematized the correlation of symptoms of disease with post-mortem pathological findings. Marie-Francois-Xavier Bichat (1771-1802) in *Treatise on Membranes* moved the attention from organs to tissues as the site of disease. Rudolph Virchow (1821-1902) in *Cellular Pathologie* (1858) drew the attention to the cell as the primary site of disease by using the microscope. They established the principles on which pathology is practiced today. The logarithmic increase of knowledge in medicine by the end of the nineteenth century involved pathology as well. Classical pathology, so-called anatomical pathology, became integrated with other sciences such as physiology (the study of normal function), bacteriology (the study of micro-organisms), immunology (the study of the body defence mechanisms) and genetics (the study of the genome). As a result, pathology became divided into two large fields: anatomical and clinical pathology. See Esmond R. Long, *A History of Pathology* (1928; reprint, New York: Dover, 1965).

in medicine in general and in surgery in particular, transforming pathology from the “science of the death” to the “science of the living.”⁵

In Manitoba, pathology contributed initially to resolve public health issues and to introduce the scientific practice of medicine at the Winnipeg General Hospital. Later, it contributed to revolutionize surgery through the application of technologies such as the frozen section and the surgical biopsy in the first third of the twentieth century, and blood transfusion and bacterial cultures in the second half of the century. This was made possible by the social transformation of the Winnipeg General Hospital supported by the socio-economic and scientific-technological conditions present in Manitoba.

In this thesis, institutional history (i.e., hospital department) and the histories of professional conflict, economics, and technology will support the history of specialization in pathology at the Winnipeg General Hospital. The approach of combining several varieties of history under a common related concept is a common practice in current medical history writing.⁶ It will become clear that it is impossible to ignore anyone of them if one desires a more complete explanation of events.

⁵ The sub-divisions of anatomical pathology today respond to specific needs in medicine. Autopsy pathology is the post-mortem examination of bodies with the intention to determine the causes of death and to explain the mechanisms of disease in the living body. Closely associated with the latter is forensic pathology that is the scientific contribution to medico-legal investigations. Surgical pathology is the study of the specimens resected by surgeons. Clinical pathology includes microbiology, clinical chemistry and hematopathology. Basic and clinical research is an integral component of all of them when pathology is practised in a university hospital.

⁶ John C. Burnham discusses the possibility of subsuming institutional history; the history of professions; the impact of technology; the existence of hierarchies; the exercise of power in economic, social, or gender terms; and the process of specialization, in terms of professional functioning. He does this based on his opinion that the concept of profession has been always present in the mind of medical historians independently of their field of studies; John C. Burnham, “How the Concept of Profession Evolved in the Work of Historians of Medicine,” *Bulletin History of Medicine* 70 (1996): 1-24. Not judging if he is correct or not, empirically, this approach is useful, as the present study will illustrate.

Presentation of the literature on medical specialization

Professional historians and physician historians have written extensively on medical specialization.⁷ Generally, the former use the analytical and the latter the narrative paradigms. Sociologists have also contributed meaningfully to the historiography of specialization.

George Rosen's *The Specialization of Medicine* is the seminal book on the subject of specialization.⁸ The work is now more than sixty years old, and deals mainly with the nineteenth century origins of medical specialization. Rosen defined a medical specialty as "a field of medical activity organized about a focus of interest." According to Rosen, specialization in medicine was a social product influenced by medical and sociological factors. He grouped the medical factors into scientific (intellectual) and technological (technical achievements). The scientific factors gave a new understanding of diseases whereas the technological ones permitted the application of procedures indicated by particular problems. In his opinion, specialization resulted from different conceptions about the nature of disease that permitted the application of knowledge to particular areas

⁷ Daniel G. Morton, "The Changing Aspect of Specialization," *American Journal of Obstetrics and Gynecology* 102 (1968): 619-623; C. Rollins Hanlon, "Specialization in Medicine," *The Journal of Thoracic and Cardiovascular Surgery* 64 (1972): 179-185; Toby Gelfand, "The Origins of a Modern Concept of Medical Specialization: John Morgan's Discourse of 1765," *Bulletin of the History of Medicine* 50 (1976): 511-535; O. Swenson, "Specialization: What It Holds for the Future of Medicine," *The Canadian Journal of Surgery* 23 (1980): 154-156; B.E. Blustein, "New York Neurologists and the Specialization of American Medicine," *Bulletin of the History of Medicine* 53 (1979): 170-183; S.E.D. Shortt, "Physicians, Science, and Status: Issues in the Professionalization of Anglo-American Medicine in the Nineteenth Century," *Medical History* 27 (1983): 51-68; Audrey B. Davis, "Twentieth Century American Medicine and the Rise of Specialization: The Case of Anesthesiology," in *Technology in the Twentieth Century*, eds. F. J. Coppa and R. Hammond (Iowa: Kendall/Hunt, 1983), 73-88; Lester S. King, "XXI. Medical Practice: Specialization," *Journal of the American Medical Association* 251 (1984): 1333-1338; G. Weisz, "The Development of Medical Specialization in Nineteenth-Century Paris," in *French Medical Culture in the Nineteenth Century*, eds. Ann Le Burge and Mordechai Feingold (Amsterdam: Rodopi, 1994), 149-182; George Weisz, "Medical Directories and Medical Specialization in France, Britain, and the United States," *Bulletin History of Medicine* 71 (1997): 23-68; Davis Innes Williams, "The Acceptance of Specialization," *Journal of the Royal Society of Medicine* 93 (2000): 642-645; George Weisz, "The Emergence of Medical Specialization in the Nineteenth Century," *Bulletin of the History of Medicine*, 77 (2003): 536-575.

⁸ George Rosen, *The Specialization of Medicine: With Particular Reference to Ophthalmology* (New York: Froben Press, 1944).

of the body. Its application required specialized experience and skills to carry out procedures indicated by particular problems. Technical achievements (i.e., instruments and techniques) were necessary to convert knowledge into action. This led to the appearance of completely new foci of interest or to the expansion of an already existing focus. For instance, Rosen used the example of the laryngoscope, the bronchoscope, and the gastroscope as developed from the ophthalmoscope, to show how an instrument introduced for diagnosis ended up being more useful for therapy (e.g., radiation therapy), and how some professionals started using a technical procedure utilized by other specialists. The end-result was a re-structuring of the specialties involved.

Rosen also concluded that medical specialization was the result of sociological factors within the profession and the society in which the specialist functioned. These factors favored or opposed specialization by promoting social interaction and cultural exchange. Among them, he included the economic, the demographic and the psychological. The first two are closely related since both are dependent on urban population growth that creates increased morbidity and mortality but also the economic conditions for attracting physicians to metropolitan areas. He illustrated them with the origin of ophthalmology in New York City.⁹ The psychological factors refer to the

⁹ Another example of economic factors is the free market practices that reflected the type of society emerging in the U.S. in the nineteenth century. Neurologists in New York, for instance, insisted that medicine was both a scientific and a commercial profit-making enterprise; Bonnie E. Blustein, "New York Neurologists and the Specialization of American Medicine," *Bulletin of the History of Medicine*, 53 (1979): 170-183. An example of demographics in the origin of specialization is the impact of cities' growth; Charles E. Rosenberg, introduction to *The Origins of Specialization in American Medicine: An Anthology of Sources*, ed. Charles E. Rosenberg (New York: Garland Publishing Inc., 1989).

beliefs, values and behavior of the medical profession as a group and of the public in general.¹⁰

Rosen set the basis for studying the history of medical specialization from a social perspective. Following him, and according to Burnham, sociologists, not historians, followed Rosen's lead at the middle of the twentieth century.¹¹ However, professional historians made the topic theirs from a perspective of social history in the last thirty years of the century.¹² Although their work is not directly connected to Rosen—he is only rarely quoted—his study established an outline of the topic and called attention to the forces that determined medical specialization. Nevertheless, sociologists have continued contributing to the literature in later years (e.g., on politics and authority).¹³ In short, within the field of medical social history, historians have studied specialization from

¹⁰ Among the psychological factors, the mixed attitude of the public and general practitioners toward medical specialization is one example; Rosen, *Specialization of Medicine*, 47; whereas indoctrination through teaching as exemplified by the influence that British students brought back to London from Paris in the first half of the nineteenth century is another. The influence was crucial for the development of anatomical pathology in Britain; Russell C. Maulitz, *Morbid Appearances: The Anatomy of Pathology in the Early Nineteenth Century* (Cambridge: Cambridge University Press, 1987), 140-141.

¹¹ John C. Burnham, *How the Idea of Profession Changed the Writing of Medical History* (London: Wellcome Institute for the History of Medicine, 1998), 69-88.

¹² *Ibid.*, 98.

¹³ Sociologists have studied specialization with the intention of developing social models using historical data. A historically oriented analysis is well represented by Rosen's book; Rosen, *Specialization of Medicine*. In the last third of the twentieth century, however, sociologists continued contributing analyses on medical specialization from a modern sociological perspective. An example is Rosemary Stevens who studied the effects of specialization in the political and professional aspects of medicine in the U.S.; Rosemary Stevens, *American Medicine and the Public Interest* (New Haven: Yale University Press, 1973). Another contribution is that of P. Starr about authority and how the medical profession obtained it; Paul Starr, *The Social Transformation of American Medicine: The Rise of a Sovereign Profession and the Making of a Vast Industry* (New York: Basic Books, 1982). He successfully presented a historical analysis of the socioeconomic developments in medicine in terms of the historical patterns in culture, economy and politics in the U.S. in order to explain the raise of the medical profession. The work edited by Michael Burrage, a sociologist, and Rolf Torstendahl, a historian, is still another contribution of sociologists using historical data to review their models; Burrage and Torstendahl, *Professions in Theory and History*. The intention of the editors was to use history for a new approach to study the sociological concept of profession. However, they failed since the content of the book is basically sociology and not history. An important conclusion from this work, however, is the clear distinction made by sociologists between professionalization and specialization.

several points of view, as illustrated with the history of institutions,¹⁴ medical specialties,¹⁵ societies (e.g., French, British and American), feminism,¹⁶ the idea of professions,¹⁷ and technology.¹⁸

¹⁴ C.E. Rosenberg, a professional historian, wrote one of the first books dealing with medical specialization from an institutional context using the history of the American hospital; Charles E. Rosenberg, *The Care of Strangers: The Rise of America's Hospital System* (Baltimore: The Johns Hopkins University Press, 1987). Chapter seven, "A Marriage of Convenience: Hospital and Medical Careers," specifically addresses the issue of specialization. He also recognized a multiplicity of factors but, in contrast to Rosen, clearly established a hierarchy of importance, as not everything was equally relevant to explain specialization at the hospital. Rosenberg considered that nursing, administration and economics had shaped the modern hospital. However, all had been subordinated to the role played by the medical profession. Rosenberg also edited a second book; Rosenberg, *Origins of Specialization*. This is a collection of essays published at the end of the nineteenth and early twentieth century that present the controversy associated with specialization in the medical community at that time. In particular, some refer to the role of laboratory medicine in the evolution of specialization in general. Cheryl Krasnick Warsh also contributed a book on the history of specialized hospitals, a theme only mentioned briefly by Rosen and in keeping with Rosenberg's style; Cheryl Krasnick Warsh, *Moments of Unreason: The Practice of Canadian Psychiatry and the Homewood Retreat, 1883-1923* (Montreal: McGill-Queen's University Press, 1989). It is the history of the first large private mental asylum of Canada. As the author concludes, this asylum performed a necessary medical and social function for middle class patients.

¹⁵ Jan Goldstein, in her book on the origin of psychiatry in France, incorporated intellectual, social and political history to focus on the historical roots of the specialty of psychiatry: the moral treatment and the diseases of monomania and hysteria; Jan Goldstein, *Console and Classify: The French Psychiatric Profession in the Nineteenth Century* (Cambridge: Cambridge University Press, 1987). Goldstein's style of writing medical history is much more advanced than Rosen's book that only covered a currently outdated sociological point of view.

¹⁶ From a feminist and socialist historical perspective, Ornella Moscucci studied the origin and development of the specialty of gynecology in England since the creation of the modern medical theories of femininity to the establishment of the Royal College of Obstetrics and Gynaecologists; Ornella Moscucci, *The Science of Women: Gynaecology and Gender in England, 1800-1929* (Cambridge: Cambridge University Press, 1993). Moscucci researched the medical and social context of these events and concluded that medical specialization cannot be understood if professional rivalries (i.e., conflict) and the belief that women are dominated by their sexual functions are ignored. Moscucci illustrates the new style in writing social history distinct from Rosen's book. At this time, feminist history had become an important area of research.

¹⁷ John C. Burnham, a professional historian, wrote a historiographical analysis about the way profession, a systematic concept, has affected the writing of medical history in the past and in the present; John C. Burnham, *How the Idea of Profession Changed*, 9. He supports the contention by demonstrating that the bibliographical literature from the 1690s to the 1900s was the study of professionals. By the early twentieth century the interest continued on physicians as professionals and not on the professional existence of physicians. At the middle of the twentieth century, sociologists took the lead by developing the sociology of professions. Rosen's book can be catalogued in this category. Later in the century, social historians incorporated and subordinated the work of sociologists and made it their own. Burnham has also made the contention explicit in another publication; Burnham, "How the Concept of Profession Evolved."

¹⁸ S.J. Reiser, a physician historian, wrote a book in a modern style that illustrates the history of some specialized techniques, an issue emphasized by Rosen; Stanley Joel Reiser, *Medicine and the Reign of Technology* (Cambridge: Cambridge University Press, 1978). Reiser's intention, however, was different. His goal was to understand the transformation from the subjective to the objective practice of medicine as a result of technology. From this, he used the cognitive approach of physicians and patients in relation to the incorporation of technology that have converted the physician into the prototype of what he calls "a technological man." Furthermore, he analyzed the impact of technology in medical specialization and practice and in medical ethics.

Presentation of the literature on specialization of pathology in North America and Great Britain

Physician historians have used descriptive narrative to produce the literature on the history of specialization in pathology in North America and Great Britain.¹⁹ For instance, Esmond R. Long, an academic pathologist, was one of the most prolific physician historians in the North American literature. His extensive bibliography written in a span of fifty years is only one indication of his scholarly interest. The monograph, *A History of Pathology*, is a chronological history of developments in pathology since antiquity to the middle of the twentieth century.²⁰ Since Long's intention was to create a book for medical students based on biographies and books produced by pathologists, he left out the social movements of concomitant historical development. The book was published in 1928 and is still one of the few systematic accounts of the subject. By the same author and in the same style, *A History of American Pathology* emphasizes teaching and research.²¹ According to Long, the book stresses the growth of ideas. In reality, it is a chronological description of names, books, and institutions from the U.S. and Canada. Its

¹⁹ Single papers written in this style are found in medical journals. A few examples follow. In institutional history: Herbert Derman and Loyd R. Wagner, "The College of American Pathologist, 1946-1996: Anatomic and Consultative Pathology Practice," *Archives of Pathology and Laboratory Medicine* 121 (1997): 1214-1222. In pathology in general: Magnus Haines, "The Emergence of Pathology in Gynaecology," *Journal of Clinical Pathology* 24 (1971): 375-384; W.B. Ober, "American Pathology in the 19th Century: Notes for the Definition of a Specialty," *Bulletin of the New York Academy of Medicine* 52 (1976): 326-347; W.G. Rothstein, "Pathology: The Evolution of a Specialty in America," *Medical Care* 17 (1979): 975-988; William W. McLendon, "A Historical Perspective as a Compass for the Future of Pathology," *Archives of Pathology and Laboratory Medicine* 110 (1986): 284-288. In technology: S.J. Reiser, "Technology, Specialization, and the Allied Health Professions," *Journal of Allied Health* 12 (1983): 177-182; D.J. Lanska, "The Role of Technology in Neurologic Specialization in America," *Neurology* 48 (1997): 1722-1727. In surgical pathology: George Rosen, "Beginnings of Surgical Pathology," *The American Journal of Surgical Pathology* 1 (1997): 361-364; Anthony A. Gal, "In Search of the Origins of Modern Surgical Pathology," *Advances in Anatomic Pathology* 8 (2001): 1-13.

²⁰ Long, *History of Pathology*.

²¹ Esmond R. Long, *A History of American Pathology* (Springfield: Charles C. Thomas, 1962).

emphasis is on academic pathology (i.e., autopsy and research). Only one chapter contains information relevant to the social factors involved in specialization.

Juan Rosai edited a collection of essays, *Guiding the Surgeon's Hand: The History of American Surgical Pathology*, dealing with the history of pathology in North America from the point of view of a practitioner.²² In it, several contributors wrote the history of some departments of pathology in the United States. Rosai's book argued that surgical pathology resulted from the need created by surgeons at a time when knowledge and technology became available, as it would in Manitoba.

In Great Britain, two of the most influential books in the history of pathology are *The History of British Pathology* and *Pathology as a Profession in Great Britain and the Early History of the Royal College of Pathologists*.²³ Both works do not differ in style from their American counterparts. The first is a chronological description of events organized by topics. The second is a narrative on the origin of the events that culminated with the creation of the College of Pathologists, an organization of practitioners.

All these authors indicate that intra-professional conflict is an important factor in the evolution of pathology. In North America, Long notes the dichotomy between the academic and the practitioner.²⁴ Rosai is more explicit than Long in relation to professional interactions between specialists.²⁵ Rosai uses the history of the origin of pathology to explain the distinct professional tensions between academics and

²² Juan Rosai, ed., *Guiding the Surgeon's Hand: The History of American Surgical Pathology* (Washington: Armed Forces Institute of Pathology, 1997). Rosai is a leading practitioner and author of the most popular textbook of surgical pathology in North America today.

²³ George J. Cunningham and G. Kemp McGowan, *The History of British Pathology* (London: Royal College of Pathologists, 1992); W.D. Foster, *Pathology as a Profession in Great Britain and the Early History of the Royal College of Pathologists* (London: Royal College of Pathologists, n.d.).

²⁴ Long, *History of American Pathology*, 370.

²⁵ Rosai, *Guiding the Surgeon's Hand*, 3.

practitioners. Both Rosai and Long argue that the nature of knowledge has led to a professional division in pathology. According to Rosai, academic pathologists study the causes, mechanisms and consequences of disease as developed by the Germans. Practitioners, in contrast, answer clinically relevant questions.²⁶ Institutional location (i.e., university versus hospital) has also played a role here, providing a context for such professional conflict which is importantly not unique to North America and is also described in the history of pathology in Great Britain.²⁷

The history of individual specialty societies is also dominated by the work of physician historians. As such, the style is that of narratives relying on common-sense interpretations of a description of sequential events. Examples include the history of professional Canadian and American Associations.²⁸

Biography of specialists (i.e., bio-bibliography) is another genre frequently explored by physician historians. It has the limitation of the author becoming identified with the subject of the biography and losing, therefore, objectivity. It is also devoid of proper social context.²⁹

²⁶ *Ibid.*, 27.

²⁷ The origins of the Royal College of Pathologists was an enterprise initiated by the practitioners. However, time and time again the literature refers to the lack of support on the part of academicians to the creation of the College. It becomes clear in this literature that the lack of support was ideological, the result of fundamental conceptual differences. Academicians considered the type of work done by practitioners as being only routine examinations whereas they considered their mission to be the advancement of knowledge and teaching; Cunningham and McGowan, *History of British Pathology*, 312, 337; Foster, *History of the Royal College of Pathologists*, 21, 34.

²⁸ Harry Letts and John Jacques, *A History of the Canadian Association of Pathologists*, 2nd ed. (Kingston, Ontario: Allan Graphics, 1994); Esmond R. Long, "History of the American Association of Pathologists and Bacteriologists," *American Journal of Pathology* 77 (sup. No. 1) (1974): 1s-218s.

²⁹ Venita Jay, "The Legacy of Alexis Carrell," *Canadian Journal of Medical Laboratory Science* 61 (1999): 195-196; Amy V. Rapkiewicz, Alan Hawk, Adrienne Noe, David M. Berman, "Surgical Pathology in the Era of the Civil War: The Remarkable Life and Accomplishments of Joseph Janvier Woodward, MD," *Archives of Pathology and Laboratory Medicine* 129 (2005): 1313-1316.

In summary, the history of pathology in the British-North American literature is not extensive and has been written mainly by physician historians. As the traditional literature of specialization, it is based on the history of departments of pathology, professional institutions and individuals and ignores the prevalent social context. Its emphasis rests on the conflict between university and hospital based pathologists.³⁰

A summary of the argument

This thesis utilizes the history of the Department of Pathology of the Winnipeg General Hospital to study the origin and development of medical specialization in pathology at the hospital.³¹ One could argue that the introduction of a new technology, a scientific discovery, the prestige of an individual, or even the birth of a professional organization could be the only determinant in the origin of a medical specialty in an

³⁰ As an exception, R.C. Maulitz has written a book on intellectual history almost unique in this type of literature, because the author, being a physician, has used the style of a professional historian. This excellent work was originated in the doctoral thesis of Maulitz and focuses in the development of medical ideas (i.e., pathological anatomy) in the French culture and their transfer and unfolding in Great Britain. The book discusses the forces that moved ideas and technology across national boundaries. Specifically, it tells the history of the idea of anatomical pathology and the origins of the specialty in Paris, and its transfer to London by British students who came to France to study under the guidance of pioneers such as Bichat, Laennec and Bayle; R.C. Maulitz, *Morbid Appearances: The Anatomy of Pathology in the Early Nineteenth Century* (Cambridge: Cambridge University Press, 1987).

³¹ The term "pathology" does imply pathologists only. Pathologists, medical technologists, technicians, clerical personnel and support staff share work performed at the laboratories. This thesis, however, addresses the pathologists only. It is not a study of the laboratory as a place of work, science or even medicine but of the idea of pathology as a medical specialty.

institution.³² Yet this study will argue that the origin of the specialty in Manitoba involved broader more encompassing socio-economic and scientific-technological factors. For example, the conversion to a medical practice based on laboratory medicine, the sanitary conditions of the city, and the development of the hospital and the medical college were all factors determining the origin of the specialty of pathology in Manitoba. One result was the creation of a Chair in Pathology by the College, an event that itself has been described elsewhere as the hallmark for the origin of a specialty.³³ Simultaneously with this event, however, the factors represented by professional (i.e., physicians) and hospital interests further shaped the creation of the department, which continued to develop closely linked with the development of the specialty.

³² The local literature is focused on the Department of Pathology at the University of Manitoba, and is limited to three books, three journal papers, and two unpublished manuscripts. They are written from the point of view of the university and not of the affiliated hospital. Two of the three books are on the history of medicine in general with only occasional references to pathology. The first book written by Ross Mitchell and dealing with the beginnings of medicine in Manitoba was published in 1954; Ross Mitchell, *Medicine in Manitoba: The Story of its Beginnings* (Winnipeg: Manitoba Medical Association, 1954). Reference to pathology is made through brief biographies of the pioneers of pathology in the Province until the middle of the twentieth century. The second book, published in 1993, is a biography of William Boyd by Ian Carr; Ian Carr, *William Boyd: Silver Tongue and Golden Pen* (Markham: Association Medical Services, Fitzhenry & Whiteside, 1993). Some references to the history of pathology in Winnipeg are found in relation to Boyd's tenure at the university. The third book is on history of medicine in Manitoba by Ian Carr and Robert Beamish, and it was published in 1999; Ian Carr and Robert E. Beamish, *Manitoba Medicine: A Brief History* (Winnipeg: Manitoba University Press, 1999). The lack of reference to pathology in the first and third books is expected since pathology was not the focus of the authors. The three journal papers deal with particular aspects of the history of pathology at the University of Manitoba. One by L.C. Bartlett, a surgeon, tells us about the history of the museum in the pathology department; L.C. Bartlett, "The Changing Role of the Pathology Museum," *Manitoba Medical Review* 147 (1967): 197-200. The other two, by D.H. Bowden, describe the contributions of the department's heads from 1897 to 1980, and the concept of academic pathology as developed at the University of Manitoba from 1970 to 1990; Drumond H. Bowden, Pathology 100: 1890-1990," *Manitoba Medicine* 60(1990): 55-57; and *Idem*, "Academic Pathology in Manitoba," *Manitoba Medicine* 60 (1990): 54. Bowden also produced an unpublished manuscript in which he reflects on his tenure as head of the department of pathology from 1981 to 1991; Drumond H. Bowden, "University of Manitoba, Department of Pathology: A Personal Perspective" (Manuscript, Department of Pathology, Faculty of Medicine, University of Manitoba, 1993). Copies of this document are also located at the Neil John Maclean Health Sciences Library, University of Manitoba. It contains some historical information of relevance. Finally, J. Hoogstraten left the text of a lecture he delivered to the "Manitoba Medical History Club" on May 1st, 1985; J. Hoogstraten, Untitled, paper presented at the Manitoba Medicine History Club, Winnipeg, May 1987, Archives, Individual Files, Neil John Maclean Health Sciences Centre Library of the University of Manitoba. In it, he described the events and development of the pathology department during the tenure of William Boyd as Professor and Head.

³³ Cunningham and McGowan, *British Pathology*, 42.

Once institutional and professional interests initiated the formation of the pathology department, the social transformation of the Winnipeg General Hospital became the fundamental explanation for its expansion, and consequently, for the development of the specialty.³⁴ The forces that supported the hospital transformation also influenced the development of pathology given their close relationship. For instance, initially, it was middle-class patients and later hospital insurance and the provincial government that afforded the needed economic support for such a transformation. The approach taken by this thesis permitted the periodizing of the history of pathology according to the influence of the social transformation at different periods of time.³⁵

Chapter II will offer an explanation on the origins and early development of the specialty in Winnipeg from 1883 to 1915. Before 1902, clinicians performed simple tests themselves and there was neither leadership nor a department of pathology. The specialty did not exist because the practice of medicine did not demand it. The return to Winnipeg from Europe of medical specialists with their own interests and knowledge in pathology and bacteriology, and the hospital's need to present a "scientific" image to the community as a means to attract paying patients, explain the prestige acquired by the specialty in the new century. Those were the years when medical care began to be transferred from home to hospital. Under these circumstances, the conditions were given

³⁴ Hospitals are described in the literature as a crucial factor in the origin and development of a specialty since specialized departments are created in hospitals. Hospital development, consequently, is linked to the development of the respective specialties and it is not possible to evaluate the history of one ignoring the history of the other. The medical profession and the hospital have developed mutual socio-economic dependency. They are inextricably linked by convenience; David Gagan and Rosemary Gagan, *For Patients of Moderate Means: A Social History of the Voluntary Public General Hospital in Canada, 1890-1950* (Montreal & Kingston: McGill-Queen's University Press, 2002); Charles E. Rosenberg, *Care of Strangers*; Rosemary Stevens, *In Sickness and in Wealth: American Hospitals in the Twentieth Century* (New York: Basic Books Inc. Pub., 1989).

³⁵ This argument is not accepted by Andrew Cunningham and Perry Williams in the introduction of *The Laboratory Revolution in Medicine*, eds. Andrew Cunningham and Perry Williams (Cambridge: Cambridge University Press, 1992), 1-13. A discussion of their reasons is found in chapter V: Conclusions. See also Bruno Latour, "The Costly Ghastly Kitchen," in *Idem., Laboratory Revolution*.

for establishing a department of pathology at the Winnipeg General Hospital.³⁶ The department then contributed to the implementation of laboratory medicine at the hospital, its growth for the first 13 years largely determined by the growth of the hospital as this institution underwent its social transformation. To be sure, the rise of the hospital as the preferable site for treating illness was a social phenomenon mainly supported by the middle class. By 1915 the department had consolidated as a hospital institution under the philosophy of the hospital administration.

Chapter III addresses the development of specialization as it occurred at the Department of Pathology of the Winnipeg General Hospital from 1916 to 1937. In this period, the continued social transformation of the hospital was also the main force behind the growth of the department. Middle class patients continued to give the necessary economic support and by 1920, represented 58 percent of the hospital budget. However, by 1933, the Great Depression dropped contributions to 26 percent, creating a crisis in hospital care that also affected the department. In spite of these shifts in financial support, pathology developed as a result of an increment of 55 percent in the number of surgical procedures that brought as a consequence an increment on the number of surgical biopsies. The latter impacted not only in the expansion of pathological services but also heralded the beginnings of a fundamental transformation of the practice of the specialty

³⁶ The origin of the specialty responded to social (societal) and professional needs, the latter it appears presenting as the predominant factor. The sanitary conditions of the City of Winnipeg represented the societal needs whereas the introduction of the teaching of pathology at the Manitoba Medical College, international developments in laboratory medicine, and the foundation of the hospital created the professional needs. The social needs demanded immediate solutions by the authorities. They were critical as described in Alan F. J. Artibise, *Winnipeg: A Social History of Urban Growth, 1874-1914* (Montreal: McGill-Queen's University Press, 1975), 223-245. The department, however, did not participate in the technical solution of the city's sanitary conditions since a provincial laboratory functioning independently and directed by the same individual addressed them; J.G. Fox and J.C. Wilt, "The History of Provincial Health Laboratory Services in Manitoba," *University of Manitoba Medical Journal* 49 (1979): 118-124. The professional needs stemmed from events that focussed medical practice on the laboratory, the so-called scientific medicine as practiced today.

from an emphasis on the autopsy to investigate the mechanisms of disease to an emphasis on the biopsy for immediate clinical application.

Importantly, 1916 signalled the beginnings of a new period in the history of the pathology department, since that year it became administratively dependent on the university.³⁷ That year, William Boyd was appointed Chairman of the Department of Pathology and Bacteriology at the Medical College.³⁸ This appointment created a conflict that has received unusual attention, confusing the history of the discipline of pathology at the Faculty of Medicine, with that of the history of the specialty as a clinical practice at the Winnipeg General Hospital.³⁹ Boyd's departure in 1937 occurred at a crucial time in the history of the hospital. The direct economic support by the middle class was collapsing as a result of the Depression, and when new sources of funding were necessary to maintain the hospital transformation and concomitantly, the development of the speciality.

Chapter IV continues with an analysis of the evolution of the speciality at the Winnipeg General Hospital from 1938 to 1957 as a consequence of the transformation of the General Hospital, this time supported by provincially non-profit pre-paid insurance

³⁷ Teaching hospitals are highly specialized institutions that may belong to a faculty of medicine (i.e., university hospital) or may be affiliated to a university (i.e., an affiliated hospital). Affiliation is only an association. The Winnipeg General Hospital is one example of an affiliated university hospital. The importance of a teaching hospital resides in its function of service being closely linked to that of teaching and research. The aim of the university is learning and research; therefore, it complements the function of service of the other institution. See S.C. Martin and J.D. Howell, "Creating University Hospitals: Rationales and Realities," *Academic Medicine* 70 (1995): 1012-1016; this article on the history of medical education analyses and discusses the reasons for founding the three oldest university hospitals in the U.S., namely, the hospitals of the Universities of Michigan, Pennsylvania and Baltimore.

³⁸ Boyd eventually became the main figure of pathology in English Canada.

³⁹ The resulting conflict would be expressed in institutional agreements, authorities' perceptions, control of appointments, goals, and how hospital management related to the department. Fundamentally, the appointment serves to illustrate two distinct ideological conceptualizations of pathology, i.e., pathology as a basic science and pathology as a clinical science. R.J. Glaser has made this dilemma clear for an affiliated hospital. Historically, in his opinion, there are factors that have prevented or at least inhibited the relationship of academics and practitioners. They are the lack of academic orientation of the practitioners and the failure by hospital trustees to appreciate the advantages that teaching offers to service. Glaser specifically addresses common sources of difficulties such as control of staff appointments, cost of teaching and discordance in philosophical points of view; R.J. Glaser, "Medical Care, Education and Research: The Medical School and the Teaching Hospitals," *The New England Journal of Medicine* 271 (1964): 1398-1403.

plans, private insurance companies, and by the Provincial government. This funding replaced the support of direct payments by the middle class that had collapsed as a result of the Great Depression. Third party funding became indispensable to support the technological advances in laboratory medicine that were contributing to the development of surgery at this time. These advances were in surgical pathology, hematology and microbiology. The biopsy progressively replaced the autopsy as the core of the practice of the speciality, whereas blood banking technology and bacterial sensitivity tests represented the beginnings of the therapeutic revolution that was initiated in World War II and transformed the practice of surgery in the second half of the twentieth century. All of these technological advances brought authority to hospital pathologists as specialists, creating the conditions for a renewed administrative independence from the Faculty of Medicine. They also advanced the evolution of pathology from the “science of the dead” to the “science of the living.” At the end of the period, the new provincial sources of support became insufficient and the Federal government took responsibility to support the hospital transformation and consequently, the development of pathology. It represented a new chapter in the history of pathology in Manitoba.

To conclude, this thesis addresses the history of medical specialization in pathology from two perspectives: origin and development. The goal is accomplished by studying the conditions that gave rise to the specialty, and those conditions that determined its development in a department of pathology of a university-affiliated hospital. The study was designed from the point of view of local experience as distinct from the role of professional societies, patient-physician interaction, government, biographies, and so on, so commonly utilized to study the history of medical

specialization. The fundamental explanation for the development of pathology was the social transformation of the hospital, since both historical processes were influenced by the same events.

Chapter II: From “bedside” to “laboratory medicine”: The genesis and early development of pathology in Manitoba (1883-1915)

Interrelated developments played a role in creating the specialty of pathology in Manitoba. They were the sanitary conditions of the City of Winnipeg, the foundation of the Manitoba Medical College, the creation of the Winnipeg General Hospital and advances in laboratory sciences.¹ These developments created the social and professional needs that stimulated the establishment of a Chair of Pathology and Bacteriology at the Manitoba Medical College in 1897, which is often considered as the essential historical starting point for the development of a specialty.² The latter coincided with the arrival in Winnipeg of medical specialists trained in Europe knowledgeable about pathology and bacteriology, a common event for all specialists in the last quarter of the nineteenth century.³ The historical explanation for the role played by these developments is incomplete without understanding their background.⁴

¹ These factors are no different than the scientific-technological developments and the socio-economic needs postulated by George Rosen in *The Specialization of Medicine: With Particular Reference to Ophthalmology* (New York: Froben Press, 1944), 28. Following Rosen's conclusions, professional needs were more influential than the needs of society. Gagan and Gagan make a similar claim grouping the factors in social and medical; David Gagan and Rosemary Gagan, *For Patients of Moderate Means: A Social History of the Voluntary Public General Hospital in Canada, 1890-1950* (Montreal & Kingston: McGill-Queen's University Press, 2002), 13-14, 31-32, 34-36.

² George J. Cunningham and G. Kemp McGowan, *The History of British Pathology* (London: Royal College of Pathologists, 1992), 42.

³ One of the many examples of this trend was Gordon Bell, the founder of the Department of Pathology at the Winnipeg General Hospital. See biographical appendices.

⁴ Similar developments were occurring in the U.S. and in England and Scotland, and one can only assume that events in Winnipeg were influenced by them. American anatomical pathology developed in the German tradition as an independent biological science concerned with deviations from normal structure and function; Alvin E. Rodin, *Osslerian Pathology: An Assessment and Annotated Atlas of Museum Specimens* (Kansas: Coronado Press, 1981), 17. It profited from the modifications in teaching at medical schools and from the association of these institutions with hospitals; Esmond R. Long, *A History of American Pathology* (Springfield: Charles C. Thomas, 1962), 179. The origin of modern pathology in Great Britain was similar to that in North America and followed the model practiced in Germany and Vienna. Scotland and Ireland saw pathology as an ancillary science to clinical medicine and surgery whereas the English provinces saw it as a basic science discipline. The first *Journal of Pathology and Bacteriology* was published in 1892; Cunningham and McGowan, *British Pathology*, 59-73, 96-115, 170-188.