

Case History/Notes et dossiers de recherche

Abraham Groves (1847-1935): A Pioneer Ontario Surgeon, Sufficient Unto Himself*

WILLIAM B. SPAULDING

Some medical schools today strive diligently to turn out doctors who, in the awkward phrases of current jargon, will be "effective problem-solvers" and "life-long, self-directed learners." Behind the effort lurks the assumption that such individuals are not born, but made—if not created, at least molded—by particular methods of education. The nineteenth-century Ontario physician Abraham Groves could be described as an instinctive life-long, self-directed learner and problem-solver. Without any training or ever having seen the abdomen of a living human opened surgically, he taught himself and applied the principles of antiseptic surgery with skill and imagination. A country doctor, remote from surgeons of medical schools, he took part in, and contributed to, the advances of surgery when anesthesia and antisepsis first permitted the skilful operator to open body cavities with acceptable survival rates. Blessed with an ability to reason out approaches from his experience and knowledge, and stimulated by exciting advances being reported in the medical journals of the day, Groves devised novel approaches to solve a variety of surgical problems throughout a long career. This study reviews Groves' clinical experiences and relates them to the broader contemporary medical and surgical scene. In so doing, it develops a profile of a highly indi-

William B. Spaulding, Program in Medical History, McMaster University, Hamilton, Ontario L8S 4L8.

vidualistic practitioner but yet one who was not completely out of step with his times.

GROVES' FAMILY BACKGROUND AND MEDICAL EDUCATION

Abraham Groves' parents were both Irish. His father, Abraham, was born in Ireland in 1811 and sailed from Cork in 1825 with his mother and three brothers. He and his family were recruited by the British Government from County Wicklow for settlement in Upper Canada. Aided by supplies of food and tools provided by the government, the family settled on their land grant of 200 acres in the wilderness.

His mother, Margaret, came from County Down, Ireland. Margaret's father, Gideon Gibson, had a colorful career with the British regular army in Canada in the war of 1812, seeing action at the battles of Crysler's Farm and Queenston Heights. In the latter engagement he was only a few feet from General Isaac Brock when Brock fell from his horse, mortally wounded. Gideon was shot in the wrist and left knee. Subsequently the leg was bent backwards, requiring him to wear a wooden peg from the knee to the ground. Gideon returned to Ireland but, in 1832, brought his wife and their three daughters and two sons to live in Canada. The Atlantic crossing took six weeks and cholera was rampant on the boat, the first victim dying with his head on 12-year-old Margaret Gibson's lap. After landing in Montreal the family, which had escaped the cholera, travelled by flat-bottomed boat up the St. Lawrence River, eventually reaching the village of Peterborough in Upper Canada, where the Gibsons settled and Gideon taught school.

Abraham Groves (1811-92), the father of our subject, married Margaret Gibson (1819-99) of Peterborough on 1 May 1839 and they began farming nearby. Their fifth child, Abraham, was born on 8 September 1847, in or near Peterborough.¹ In April 1856, Margaret and Abraham moved their family west 100 miles by sleigh to take possession of a 200-acre farm of solid bush in West Garafraxa township, four miles from Fergus. By this time they had three sons and two daughters, of whom only two sons survived early childhood.

For several months the family stayed near their farm, with a first cousin, William Gibson, until they had cleared a little land and built a log cabin of two or three rooms. A fourth son was born in June of that year. Enjoying good health and working hard, the family cleared the land and, in 1869, built a brick house. This family story epitomizes the struggles of many immigrants to Canada who overcame hardships and established themselves on fertile farm land in southern Ontario.²

After attending primary school in the country and high school in Fergus, Abraham left home in 1867 to register in the Toronto School of Medicine, from which he graduated in 1871.

The details of Groves' medical education are scanty. He would have had solid grounding in anatomy: Cushing noted that the anatomy course at the Toronto School of Medicine included experience in the dissecting room and extended over two years.³ One existing record from the School in those years listed Groves as one of the 67 students registered for the 1869-70 session, which featured a six-month course of lectures.

Clinical education in Toronto was then going through a difficult period. What Groves experienced as practical, bed-side instruction must have been fragmented and inadequate. In August 1868, the Toronto General Hospital had to close its doors for a year through lack of funds. Clinical teaching suffered; institutions such as the Jail, the House of Industry, and the Boys' Home had to be used for medical instruction. The Toronto medical schools were discussing the need to strengthen clinical teaching by appointing more clinical teachers, but this did not take place until after Groves had graduated. It is significant that William Osler was also enrolled in the Toronto School of Medicine in 1869-70 for his second year and that Osler then moved to McGill because of the better clinical teaching in Montreal.⁴ The year Groves graduated he was licensed to practise by the College of Physicians and Surgeons of Ontario and the following year he received his MD from Toronto.⁵

GROVES' SURGICAL EXPERIENCES

During Groves' days as a medical student, operations on the abdomen were rare. He later recalled that "During my undergraduate course there was not, so far as I know, one abdomen opened in the Toronto General Hospital."⁶ He was sufficiently impressed by the possibilities of abdominal surgery to remember—years later—that one of his teachers, James Bovell, a man revered by Osler, dared to tell the class "The time is coming, and is not far distant, when the abdomen will be opened as a matter of routine for diagnostic purposes."⁷ At this time, Groves was probably keenly interested in the newly published findings of Lister, whose first paper on antiseptics appeared in 1867. Within a few months, Canadian journals began to reprint articles from British periodicals about "Listerism": dozens of separate items appeared, ensuring that any Canadian medical student or physician reading the medical journals would be aware of the new ideas.⁸ He may also have been aware that Pasteur demonstrated the presence of micro-organisms in wine and, in 1868, showed that heating to 55° to 60° centigrade destroyed the organisms and prevented the spoiling of wine.⁹

Unlike many of his contemporaries and teachers, Groves would apply these ideas early in his practice, for he had a mind quick to

incorporate innovations and eager to put new knowledge to use. Confronted with a novel problem he would often improvise on the basis of his reading or reason out an approach from his understanding of the scientific principles underlying surgery and the newly emerging fields of bacteriology and antisepsis. An impatient man, he would not wait for others to show that an approach was both feasible and safe.

Like most of his contemporaries, however, Groves began practice soon after graduation without the benefit of internship or any other form of postgraduate training. He established himself in his home town of Fergus, Ontario, 70 miles west of Toronto and 45 miles north of Hamilton. He apparently was not given a staff appointment at the only nearby hospital—St. Joseph's in Guelph;¹⁰ the nearest large hospitals were in Hamilton and Toronto, too far away to be accessible. Young Groves therefore did all his surgery in private homes or in lodgings, without the help of trained nurses,¹¹ for when he began practice not one nurse had been trained in Canada.¹² To assist at operations and pour ether or chloroform, the surgeon might call on fellow practitioners, medical students, if available, or apprehensive relatives or friends of the patient who followed directions as best they could. The country doctor travelled by horse and buggy in warm weather, by cutter in winter if the roads were tolerably clear, otherwise on horseback. Groves' stamina under these conditions was legendary: one notable house call, which was made on horseback to see a child 25 miles away, began at sunset and concluded on returning home as the sun was rising.¹³ In the 1870s Fergus did not lack doctors. One man wishing to dissolve an unsatisfactory partnership wrote "there are now so many doctors in the place" that he would not consider establishing an independent practice.¹⁴

Despite the competition from other doctors, Groves' resourcefulness and self-confidence, perhaps aided by a measure of good luck in several life-and-death situations, attracted patients. People must soon have learned of his successful transfusion of blood from a husband to "his apparently dying wife" in 1871, his first year in practice.¹⁵ Groves probably learned about this procedure from the medical literature. In 1828 Blundell of London, England published an influential paper on blood transfusion;¹⁶ one author collected reports of 200 cases of blood transfusions carried out between 1820 and 1875;¹⁷ and in the 1850s and 1860s extensive experience in the use of blood transfusion in obstetrical cases was described.¹⁸ The next year Groves used his penknife to perform a tracheostomy on an unconscious man who recovered after a piece of meat was dislodged from the larynx.¹⁹ Although a rare operation, tracheostomy had been described long before. Garrison and Morton cite eighteenth-century authors who performed tracheostomies; in 1829 Bretonneau reported its successful use in diphtheria.²⁰

Groves' inauguration as a surgeon was spectacular. After being in practice for only three years, he was consulted by a 40-year-old woman with a tumor filling the whole abdomen. Careful examination of its location and physical characteristics led him to conclude that the tumor was ovarian and monocystic. Tapping yielded about 25 pints of clear fluid, but the fluid rapidly accumulated, two further aspirations bringing only transient relief. Groves operated on her on 5 May 1874 in the presence of six other medical men, none of whom, including the intrepid novice surgeon, had ever seen the abdomen of a live patient opened. The operation, which was successful, featured the rigorous application of antiseptic principles. Groves boiled all the water, used carbolized cat-gut to tie the pedicle, and dressed the wound with cotton saturated with a solution of carbolic acid.²¹ To his knowledge instruments and dressings had never been sterilized by boiling before that time. This became his surgical practice from then on.

Each aspect of this case has its own particular historical context. The first intra-abdominal lesions which could be diagnosed in life with reasonable assurance were large tumors. Such masses could be assessed by physical examination, thereby allowing deductions to be made about their nature and anatomical origin. The history and follow-up observations revealed the rate of growth and provided an indication of whether the lesion was benign or malignant. Ovarian tumors, which often grew slowly, could reach a huge size. The fact that they were commonly cystic could be confirmed by aspiration, thereby reassuring the surgeon that the lesion was probably benign. McDowell, who is credited with the first successful ovariectomy in 1809, reported that he had performed a total of 13 such operations with eight recoveries.²² By 1874, when Groves performed it, the operation was well-known.

When surgeons first boiled the water used in operations is not known precisely. Lister, perceiving that Pasteur's heat sterilization would avail nothing in surgical procedures, turned to chemical antiseptics by the 1870s.²³ Koch and his assistants perfected the idea of steam sterilization in 1881,²⁴ it was introduced into surgery by Von Bergmann in 1886.²⁵ Davidsohn in 1888 is said to have taught surgeons of the United States to sterilize instruments by boiling.²⁶

Although he routinely began to boil his instruments and dressings with this case in 1874, from the very outset of his career as a surgeon Groves applied antiseptic principles. He did not slavishly attempt to apply Listerism but instead reasoned that boiling instruments was one way of reducing the risk of infection during surgery. In general, surgeons were slow to introduce Listerism and its subsequent modifications, partly because of practical difficulties that eventually led Lister to abandon his use of carbolic spray. Even in the surgical units of large hospitals the use of the spray was cumbersome and a nuisance to those

working in the irritating mist that filled the operating room. In the home the technique would have been almost impossible to apply because it required special apparatus, trained assistants, and created unpleasant fumes difficult to tolerate in small country houses.

Other of Groves' surgical cases involved the appendix. When Groves was a medical student the lecturer in anatomy told his class that the vermiform appendix was an organ of no importance "because it had no . . . uses and . . . no diseases."²⁷ As his surgical practice grew he encountered patients with abscesses in the right iliac fossa. He wrote,

In one case, I passed a large hypodermic needle into this mass . . . and found pus. . . I did this on several subsequent operations, and in one when the pus escaped I saw in the cavity the appendix inflamed with a perforation near its tip. This at once, made it clear to me that the appendix was the point of origin of the so-called inflammation of the bowels, and that removal of the appendix at the earliest possible moment would be the proper treatment.²⁸

Sighting the appendix in the abscess cavity was a revelation. In the 1870s and 80s such cases of inflammation in the right lower quadrant were labelled inflammation of the bowels, as Groves said, or "typhlitis." Chance allowed him to see how the abscess originated. How could this key observation have been made through a hole left by a large hypodermic needle? Perhaps, after aspiration, a sizeable fistula channel formed from the abscess to the surface through which the appendix tip could be seen. The important point is that Groves, from then on, was convinced that early appendectomy was the treatment of choice for appendicitis.

Groves asserted that the first opportunity to employ what he called "the proper treatment" arose on 10 May 1883 when he saw a boy with pain and tenderness in the right iliac fossa. He performed surgery in the log cabin where the boy lived.²⁹ At operation he removed an inflamed appendix after ligating its base and the mesentery. The appendiceal stump was sterilized by means of a probe heated in the flame of a lamp.³⁰

Groves' comments about subsequent events illustrate vividly how negative could be the attitudes of the public and the profession toward the operative treatment of appendicitis.

On the third day, when I went to see the boy, he was doing well, but his father was very much dissatisfied. A neighbour, suffering apparently from the same disease, had been poulticing and had recovered. The father told me that if I had known how to treat the case properly no operation would have been necessary, and that if the boy did not recover, it would not be well for me. Fortunately the patient recovered. At a meeting of medical men a short time later, I referred to the above operation and to this method of treating such cases, but found no supporters. In fact, one doctor went so far as to say that if such treatment became wide-spread the death rate would be appalling. In spite of

this I continued the treatment successfully. So far as I am aware this was the first time that an appendix had ever been removed.³¹

Unknown to Groves, the appendix had certainly been removed before 1883. Lawson Tait of Birmingham reported 24 cases of "typhlitis." Of the 21 treated surgically, incision and/or drainage without appendectomy was the treatment in all but two. In one case (1880), he removed the appendix and drained a large abscess. The other case (1886), which resembled Groves', had no abscess and was treated by appendectomy alone. If Groves' assertion is correct that he performed this elective appendectomy in 1883, he could not have known of these cases because Tait's paper was not published until 1890, seven years after Groves' first appendectomy. On his part, Groves failed to publish his experience with appendicitis until 1934, over 50 years after his first appendectomy. Tait, who operated on nearly all his 21 cases *after* the appendix had ruptured, was unenthusiastic about appendectomy, being "disposed to think that the risk of the operation [surgical treatment of typhlitis] is somewhat increased by this detail [removal of the appendix]. . . ." ³² In America, Kelly and Hurdon credited Hall of New York with performing the first appendectomy in the United States in 1886,³³ the same year that Fitz published his well-known paper describing the clinical features of appendicitis.³⁴ Hall's operation was performed to relieve an incarcerated inguinal hernia: the lesion of the appendix was discovered incidentally, and there were abscess cavities and free pus in the abdomen. In 1889, Senn reported two cases of appendicitis without abscess or peritonitis that he had diagnosed and treated by appendectomy; he advocated excision of the appendix in all cases of "catarrhal and ulcerative appendicitis," pointing out that appendectomy in cases of uncomplicated appendicitis is "one of the easiest and safest of all intra-abdominal operations."³⁵

The fact that some patients with the clinical findings of appendicitis recovered without surgery provided good grounds for questioning the advantage of surgical over expectant treatment. Furthermore, the debate could not be scientifically resolved because the only "gold standard" for the diagnosis of appendicitis was the study of the microscopic appearance of the organ, a step which required either a surgical operation or a postmortem examination. The clinical findings of early appendicitis could easily be confused with other conditions such as mesenteric adenitis. Only when enough experience had been accumulated to show that early appendectomy could be carried out with a low mortality rate and could prevent potentially lethal complications such as abscess, peritonitis, pylephlebitis, and septicemia did early surgery become the preferred treatment of appendicitis.

Groves' early operative work was done under very primitive conditions. The operating room was generally the patient's kitchen, there

being no other room large enough in the houses of those days. The kitchen table or a couple of boards laid on trestles made do as an operating table. Milk pans were used as basins, sea-sponges for wiping, and horse-hair, taken directly from the horse's tail (generally the doctor's horse), for sutures. At night a coal-oil lamp supplied the light.

Chloroform was his only anesthetic.³⁶ There are several reasons why he may have preferred chloroform over ether. Chloroform provided more rapid induction of anesthesia and less frequent after-effects. Deaths were ultimately found to be commoner with chloroform, but fatalities were sufficiently infrequent that the individual practitioner, like Groves, could use chloroform for years without anesthetic mortality. Ether was inflammable and could explode, a significant hazard when the operative field was illuminated by a coal-oil lamp.³⁷ Complications of anesthesia and rare deaths were not well publicized. Neither of the two agents were administered with sophistication, Groves' method being to drop the chloroform from a bottle with a split cork onto a towel used as an inhaler.

In the early days of abdominal surgery instruments were scarce and limited in design. Groves prided himself on using the minimum number because he believed that "instruments are just aids to human incompetence."³⁸ Groves was not averse to showing off his prowess with minimal instrumentation. On one occasion, while performing an appendectomy, he remarked to a colleague who was giving the anesthetic that a knife and a needle were really the only instruments necessary for such an operation. Soon afterwards, in the presence of the same doctor, he went one step further. Before beginning he announced that he intended to use no instrument but a Hagedorn needle (which has a cutting edge so it can be used to cut and suture). After making the incisions, Groves ligated and severed the appendix and mesoappendix; then he sterilized the needle before putting in the closing sutures. Groves claimed that the operation took less than 10 minutes, but he did not record how the needle was adequately re-sterilized in this brief period.³⁹ On another occasion a nurse timed an appendectomy from the moment when Groves took up the scalpel until he laid down the needle. It took exactly five minutes and 20 seconds.⁴⁰

In November 1885 Groves saw a patient with acute appendicitis requiring immediate operation. He had just completed an operation where there was considerable pus in the abdomen. He fully realized the risk to the next patient of operating with infected bare hands. Because it was a rainy night he had worn what were known in those days as pure rubber gloves to drive his horse and buggy. He boiled the gloves thoroughly, cleaned his hands well, and wore the gloves throughout the operation. This was the first time Groves had ever used

or heard of rubber gloves being used in surgery. Whether this became his habitual practice is not known.⁴¹ Nevertheless, Halsted is generally credited with the introduction of rubber gloves into the operating room in the early 1890s⁴² (although a case has been made that Hunter Robb, a gynecologist, introduced Halsted to the idea).⁴³ Randers-Pehrson, on the other hand, has credited Thomas, a New York gynecologist, with the first use of rubber gloves in the operating room, described in a publication of 1886.⁴⁴

In those days the general surgeon who was sufficiently daring might operate on almost any part of the body. Groves did not lack daring. His case reports often described operative procedures including several that he had devised or introduced to Canada. He wrote about the surgical treatment of the following: ruptured bladder, ruptured urethra, pleural effusion, intestinal rupture, and traumatic epilepsy, as well as his method of pyloroplasty, prostatectomy, thyroidectomy, and renal decapsulation for acute uremia.⁴⁵ His brief case reports, like those of many of his contemporaries, rarely referred to pertinent medical literature. They were nearly all published in Canadian journals soon after the results recorded, with the consequence that his work was well known to the profession in Canada but not elsewhere. He presented papers at meetings of the Ontario Medical Society and Toronto Medical Society but not at international gatherings.

In addition to the case reports, Groves wrote an autobiographical account of his career entitled, *All in the Day's Work*, that contains reminiscences and talks which he had given. In the book he described further surgical accomplishments. In 1875 he carried out his first hysterectomy, doubting that the operation had been done previously in Canada. Three years later, in the Bullfrog Tavern in Guelph, he removed six stones from the urinary bladder of a hard-drinking, 300-lb., 63-year-old man. Within a short time he performed the same operation on three more patients, to his knowledge the first suprapubic operations in Canada. In the field of orthopedics he devised closed methods for the treatment of a dislocated hip, dislocations of either end of the clavicle, and fractures of the clavicle, acromion process, and surgical neck of the scapula [*sic*].

OTHER ASPECTS OF GROVES' CAREER

After 30 years in practice, having never had hospital facilities for his extensive surgical activities, Abraham Groves opened his own hospital in 1902—The Royal Alexandra—in Fergus. At the same time he established a nursing school in his hospital. The school was an important asset for Groves in his surgical practice. He admitted his patients to hospital where they were looked after by the students and staff of

the nursing school. Groves organized and ran the nursing school according to his own views, ignoring standards set by the provincial nursing association and the government for admission, curriculum, or hours of work. In return for room and board and instruction, the student nurses provided around-the-clock attention, including pre- and postoperative care of the in-patients. Furthermore, if Groves was called upon to travel to a patient's home and carry out treatment there, he might take a student nurse and leave her to stay for as long as was needed in the patient's home.

Some ideas of Groves' aggressiveness and lack of tact can be gained from his first letter to the nursing association, in 1913, responding to what he saw, and resented, as interference.

I recognize how serious a thing it is for this hospital when the Executive of the Graduate Nurses' Association of Ontario "disapproves" of our method of doing our own business, but we must make allowance considering that the . . . Association . . . is a rather juvenile institution, with all that implies. When time has broadened their knowledge and matured their judgment they may not be so ready to express their disapproval, before their opinion is asked. . . .⁴⁶

For years Groves fought the regulatory bodies for nursing education and refused to comply with what he considered to be the dictates of the organized nursing profession in Ontario and the provincial government. Finally, in 1932, he bowed to pressures and closed the nursing school. Groves donated it to the community who marked the occasion with a well-publicized testimonial dinner.⁴⁷ After his death, leaders in the community gratefully renamed it the Groves Memorial Hospital.⁴⁸

The response of the community is not surprising, for Groves had long been prominent in business, municipal, and social affairs in Fergus. In his early days he operated a flour mill, later adding an electric light plant to supply not only the mill but also the villages of Fergus and Elora. The plant was subsequently taken over by the Hydro-Electric Commission. A life member of the Masonic order, he served on the School Board and the Village Council. As in his community involvements so in his medical activities, Groves was no loner. A succession of summer students worked in his hospital and several medical practitioners associated with him in practice.

Groves had been a devout Anglican church-goer who published several poems revealing strong religious and moral beliefs.⁴⁹ When he died in 1935, large numbers attended the funeral. Dr. Herbert Bruce, who was the Lieutenant-Governor of Ontario and an eminent surgeon, described Groves as "an outstanding example of a general practitioner who, by the steady development of natural ability and despite the lack of the advantages of specialized surgical training, acquired great skill as a surgeon."⁵⁰

ASSESSMENT AND CONCLUSION

Groves' book, which did not appear until 1934, 60 years after his surgical career had been launched, raises several tantalizing questions. Why did he wait so long to describe several of his innovations? For example, his first appendectomy and his use of rubber gloves were reported in his book, not in a contemporary journal. It is little wonder that Brooks, in his book on the story of appendicitis, had difficulty knowing how to assess Groves' place in the history of appendectomy.⁵¹ How reliable are these accounts? After all he was 87 years old when the book appeared. To complicate matters there is a discrepancy between the 1934 account of his first appendectomy, said to have been performed in 1883, and what a journalist wrote in 1928 after he had interviewed Groves. The journalist reported that Groves

had been following the work of Lawson Tait. He had read minute descriptions of his operations for appendicitis. Tait had then performed some fourteen of them. Then came a patient to Dr. Groves, a boy suffering from what he diagnosed as a diseased appendix, following his study of Tait's articles.⁵²

But Tait's first article on appendicitis (describing 21, not 14 cases treated surgically) wasn't published until 1890! Was Groves confused when he reminisced in 1928 about the sequence of events long ago or did he perform the appendectomy later than the date given in his book?

Before the introduction of anesthesia and sterile techniques, surgical procedures in North America were largely limited to trauma, amputations, abscesses, hernias, and dental extractions.⁵³ For example, Dr. Harmaunus Smith, near Hamilton, Ontario, extracted teeth, set fractures, operated on a man for cancer, and performed a paracentesis.⁵⁴ Similarly, the surgery of James Langstaff of Richmond Hill, Ontario, included dental extractions, bonesetting, injuries, burns, dressings, and operations, the majority of which were the lancing of abscesses.⁵⁵ When Groves was building up his practice and reputation much surgery was done by general practitioners who, like Groves, taught themselves largely by reading, or learned by assisting other practitioners with their operations.⁵⁶ As community hospitals appeared, general practitioners performed less surgery in homes and more in hospitals, carrying out procedures such as appendectomies and repairs of hernias on their patients. A few practitioners, who became noted for their surgical abilities, had patients referred to them by other general practitioners. A smaller number became so busy as general surgeons that they could restrict their general practice and devote major attention to the emerging specialty of surgery. Groves belongs in this latter category. In his heyday, Groves was probably the busiest, best-known

practitioner of surgery in the area northwest of Toronto and Hamilton extending toward Lake Huron.

In sum, this confident country doctor taught himself surgery, early embraced antiseptics, and became a pioneer of surgical technique and rational management. Although ultimately well known to the medical profession in Ontario, Groves failed to attract international professional attention. Not a scholarly author, he published in local medical journals that lacked a worldwide readership. When over 80 he described his career in a book that warrants being read with a sceptical eye. He made contradictory statements about his first appendectomy allegedly performed in 1883. Although he had doctor/associates in his practice and attracted students to work in his hospital in the summer, he did not establish a clinic or "school of surgery" so that his influence on the field of surgery was small. What many were doing in large hospitals, he tried out in a country practice, sometimes breaking new ground ahead of Canadian contemporaries who were also practising surgery. His life reminds us that the advantages of academic teamwork and stimulation are not necessary for the unusual doctor who can teach himself and think out approaches to problems presented by patients. Such a doctor may achieve as much for patients as other practitioners in seemingly more promising environments.

NOTES

- * Dr. C. G. Roland, Hannah Professor of the History of Medicine at McMaster University, kindly passed on notes about the Groves family (see note 2). Mrs. Patricia Grant generously provided a copy of her thesis (see note 46). John Norris, Professor of Medical History, University of British Columbia has helped with critical comments. Dr. Jacalyn Duffin, Hannah Professor at Queen's University, contributed helpful references and some of her own research on surgical practice in Ontario in the nineteenth century.
- 1 Charles W. Harris, "Abraham Groves of Fergus: The First Elective Appendectomy?" *Canadian Journal of Surgery*, 4 (1961): 405-10.
- 2 In 1939 Mrs. Catharine Bright (1858-1942), a sister of Dr. Groves, left a brief, unpublished history of the family, the basis for this account.
- 3 Harvey Cushing, *The Life of Sir William Osler*, 2 vols. (London: Oxford University Press, 1925; reprinted by The Classics of Medicine Library, Birmingham, Alabama, 1982), Vol. 1, p. 58.
- 4 No record has been found of friendship or correspondence between Osler and Groves.
- 5 J. H. Elliott, "Osler's Class at the Toronto School of Medicine," *Canadian Medical Association Journal*, 47 (1942): 161-65.
- 6 Abraham Groves, *All in the Day's Work* (Toronto: Macmillan, 1934), p. 3.
- 7 Groves, *Day's Work*, p. 8.
- 8 Charles G. Roland, "The Early Years of Antiseptic Surgery in Canada," *Journal of the History of Medicine and Allied Sciences*, 22 (1967): 380-91.
- 9 M. L. Pasteur, *Études sur le Vinaigre* (Paris: Gauthier-Villars, 1868), p. 119.
- 10 *The Hospitals of Ontario: A Short History Compiled by the Hospitals Division of the Department of Health* (Toronto: Herbert H. Ball, 1934), p. 46-47. St. Joseph's Hospital opened in 1861; the Guelph General Hospital opened in 1875.

- 11 Groves, *Day's Work*, p. 3.
- 12 J. M. Gibbon and M. S. Mathewson, *Three Centuries of Canadian Nursing* (Toronto: Macmillan, 1947), p. 144; and *Hospitals of Ontario*, p. 287. Dr. Mack of St. Catharines, Ontario established the first nursing school in Canada, from which the first class graduated in 1879.
- 13 Groves, *Day's Work*, p. 5.
- 14 His main reasons for wishing to leave Fergus were "politics and whiskey" to both of which his partner, a member of the Federal parliament, paid serious attention. Sir John A. Macdonald, the first Prime Minister of Canada, described the partner as a "very able medico . . . of great use politically," adding, with the voice of experience, "He takes a horn now and then but that won't hurt him" (E. Arthur, ed., *Thunder Bay District 1821-1892* [Toronto: Champlain Society, 1973], p. 246-47).
- 15 Groves, *Day's Work*, p. 12.
- 16 J. Blundell, "Observations on transfusion of blood by Dr. Blundell with a description of his gravitator," *Lancet*, 2 (1828): 321-24. He stated that, for humans, "only human blood should be employed" and, following his own advice, transfused 10 seriously ill patients, employing a warm-jacketed collection funnel, cannulas, syringes, and three-way stopcocks.
- 17 *Transfusions of Human Blood by the Method of J. Roussal (Of Geneva)*, translated by C. H. A. Guinness (London: J. and A. Churchill, New Burlington Street, 1877), p. 25-26.
- 18 Geoffrey Keynes, *Blood Transfusion* (London: Henry Froude and Hodder & Stoughton, 1922), p. 166. Keynes noted that in 1859 an author from Berlin collected reports of 57 obstetrical patients who had been treated with blood transfusion, 43 successfully. Four years later another author, in his review of the previous 40 years, noted that 116 obstetrical patients had been transfused with blood, 56 satisfactorily. Of course all this took place long before blood types had been identified.
- 19 Groves, *Day's Work*, p. 24.
- 20 Leslie T. Morton, *Garrison & Morton's Medical Bibliography*, 2nd ed., rev. (Andre Deutsch, 1965), items 3248, 5048, 5053.
- 21 Groves, *Day's Work*, p. 15-16.
- 22 Ephraim McDowell, "Three Cases of Diseased Ovaria," *The Eclectic Repertory and Analytical Review: Medical and Philosophical*, 7 (Philadelphia: Thomas Dobson and Son, 1817), p. 242-44.
- 23 Fielding H. Garrison, *An Introduction to the History of Medicine*, 4th ed. (Philadelphia: W. B. Saunders, 1929), p. 590.
- 24 Garrison, *History of Medicine*, p. 579.
- 25 Garrison, *History of Medicine*, p. 859.
- 26 Mark M. Ravitch, ed., *A Century of Surgery* (Philadelphia: J. B. Lippincott, 1981), p. 123.
- 27 Groves, *Day's Work*, p. 8.
- 28 Groves, *Day's Work*, p. 20.
- 29 *Ontario Medical Review*, 47 (1980): 262.
- 30 Groves, *Day's Work*, p. 20.
- 31 Groves, *Day's Work*, p. 21.
- 32 Lawson Tait, "The Surgical Treatment of Typhlitis," *Birmingham Medical Review*, 27 (1890): 26-34 and 78-89.
- 33 H. A. Kelly and E. Hurdon, *The Vermiform Appendix and Its Diseases* (Philadelphia: W. B. Saunders, 1905), p. 43-44.
- 34 R. H. Fitz, "Perforating Inflammation of the Vermiform Appendix, With Special Reference to Its Early Diagnosis and Treatment," *Transactions of the Association of American Physicians*, 1 (1886): 107-44.
- 35 N. Senn, "A Plea in Favor of Early Laparotomy for Catarrhal and Ulcerative Appendicitis, With the Report of Two Cases," *Journal of the American Medical Association*, 13 (1889): 630-36.
- 36 Groves, *Day's Work*, p. 3-4.

- 37 Louis Goodman and Alfred Gilman, *The Pharmacological Basis of Therapeutics* (New York: Macmillan, 1941), p. 70-71.
- 38 Groves, *Day's Work*, p. 4.
- 39 Groves, *Day's Work*, p. 4-5.
- 40 Groves, *Day's Work*, p. 44.
- 41 Groves, *Day's Work*, p. 22-23.
- 42 James F. Mitchell, "The Introduction of Rubber Gloves for Use in Surgical Operations," *Annals of Surgery*, 122 (1945): 902-4.
- 43 Allan C. Barnes, "A Comment on Historical 'Truth,'" *Perspectives in Biology and Medicine*, 21 (1977): 131-38.
- 44 Justine Randers-Pehrson, *The Surgeon's Glove* (Springfield: Charles C. Thomas, 1960), p. 52-53.
- 45 A. Groves, "Rupture of the Bladder," *Canadian Medical Association Journal*, 13 (1923): 319-20; "Operative Treatment of Ruptured Urethra," *American Medicine*, 5 (1903): 410; "Operative Treatment of Fluid Effusions in the Chest," *Canadian Practitioner*, 9 (1884): 233-36; "Intestine Ruptured by Kick of a Horse," *Dominion Medical Monthly*, 20 (1903): 200; "Operation for Traumatic Epilepsy," *Dominion Medical Monthly*, 20 (1903): 201; "Pyloroplasty," *The Canada Lancet*, 43 (1909-10): 341-43; "Thyroidectomy," *The Canada Lancet*, 41 (1907-8): 524-26; "Case of Acute Uraemia in Which Decapsulation of the Kidneys Was Performed," *The Canada Lancet*, 39 (1905-6): 609-10.
- 46 Patricia Grant, "Preparation of the Nurse 1927-1930," MScN Thesis, University of Western Ontario, 1975. Grant describes the development of Fergus and the role of Dr. Groves in the community, portraying the curriculum of the nursing school and the life of the student nurses in detail.
- 47 "Aged Fergus Doctor Gives Hospital as Gift to Town as 500 Meet to Honor Him. Dr. Abraham Groves, 84, Pioneer in Surgery in Canada Hears Tributes," *Mail and Empire* (Toronto), 4 June 1932. The head table and speakers included: Dr. F. N. G. Starr, Professor of Surgery, University of Toronto; the Hon. Hugh Guthrie, Minister of Justice in Canada; Dr. George McQuibban, MPP representing Southeast Wellington, a former colleague of Dr. Groves; Dr. J. K. Blair, MP for North Wellington; and D. Paul Munro, MPP for South Wellington.
- 48 Obituary, *Canadian Medical Association Journal*, 33 (1935): 110-11.
- 49 Abraham Groves, *Stray Thoughts* (Fergus: Fergus News-Record, 1930), p. 15.
- 50 Obituary, *Medical Age* (Toronto), 25 May 1935, p. 5.
- 51 Stewart M. Brooks, *McBurney's Point: The Story of Appendicitis* (South Brunswick and New York: A. S. Barnes; London: Thomas Yoseloff, 1969), p. 90.
- 52 Blodwen Davies, "The Insurgent Surgeon," *The Canadian Magazine* (1928): 21; Editorial, "Abraham Groves," *The Canada Lancet and Practitioner*, 70 (1928): 203-5.
- 53 John Duffy, *The Healers: A History of American Medicine* (Urbana, Chicago, and London: University of Illinois Press, 1979), p. 130.
- 54 Charles G. Roland and Bohodar Rubashewsky, "The Economic Status of the Practice of Dr. Harmaunus Smith in Wentworth County, Ontario, 1826-67," *Canadian Bulletin of Medical History*, 5 (1988): 29-49 (esp. p. 37). Smith often did not record the reason for a visit so that the amount and extent of his surgical practice is not known.
- 55 Jacalyn Duffin, "A Rural Practice in Nineteenth-Century Ontario: The Continuing Medical Education of James Miles Langstaff," *Canadian Bulletin of Medical History*, 5 (1988): 3-28 (esp. p. 8).
- 56 S. E. D. Shortt, "Before the Age of Miracles: The Rise, Fall and Rebirth of General Practice in Canada, 1890-1940," in Charles G. Roland, ed., *Health, Disease and Medicine: Essays in Canadian History* (Toronto: The Hannah Institute for the History of Medicine, 1984), p. 130-32. Shortt states that, "surgeon-general practitioners such as Abraham Groves of Fergus, Ontario were commonplace."