

2008 CAS Medical Student Essay Competition Winner

Canada's Other "Great Triumvirate" of Anesthesia

The team of Wesley Bourne, Harold Griffith and Digby Leigh has often been referred to as the "Great Triumvirate" of Canadian anesthesia. Working at McGill University as clinicians, researchers and teachers, these three led the way in the formative years of anesthesia in Canada: the 1930s and 1940s. In addition to their role in advancing the clinical use of surgical anesthesia during the Second World War, they were innovators in the field and, as founders of the Canadian Anaesthetists' Society in 1943, were instrumental in establishing anesthesia as a profession in Canada.

Their efforts were widely recognized both within Canada and internationally. The term "Great Triumvirate," however, could easily be applied to another group of Canadian anesthetists who also worked in Quebec, albeit much earlier: Edward Dagge Worthington, James Douglas and Horace Nelson. These men were the true pioneers of surgical anesthesia in Canada, starting their careers at a time when major surgery was routinely performed with absolutely no consideration of pain relief. Much like Bourne, Griffith and Leigh, these three physicians were at the forefront of anesthesia in their day and their research helped legitimize anesthesia as a medical discipline in Canada. However, it is the concern these physicians had for their patients' well-being and safety that ultimately places them among the greats of Canadian medicine.

In the middle of the 19th century modern anesthesia was in its infancy and Worthington, Douglas and Nelson were at the very cutting edge of this new practice. The American dentist William Morton famously demonstrated publicly for the first time the use of a gas, diethyl ether, as an inhaled anesthetic agent during a surgery in Boston in October, 1846. In March of 1847, Worthington, Nelson and Douglas all independently administered ether successfully to patients undergoing surgery in various locations in Quebec.

The next major breakthrough in general anesthesia came that same year when Sir James Young Simpson introduced the anesthetic properties of chloroform. Only two months later, in January 1848, Worthington was employing chloroform during the manual reduction of the fractured femur of an elderly woman in Sherbrooke, Quebec. Worthington's eagerness to use chloroform was motivated by an incident where he incensed a male patient after failing to anesthetize him completely with ether. He recalls the event in his autobiography: "I gave his arm an inquiring pinch, "Do you feel that?" "Yes! Do you feel that?" and in a second we were tumbling over the floor, near a red-hot cooking stove . . . I was punched in the ribs that day enough to last for a month."

By the time John Snow convinced the public of chloroform's value as an anesthetic in 1853, when he administered it to Queen Victoria during the birth of Prince Leopold, these three Canadian physicians were already well practiced in its use. Moreover, Canada's early anesthetists were seemingly adept at administering chloroform as the first death attributed to the anesthetic in this country was not reported until ten years after its introduction, whereas in Britain and the United States deaths from chloroform were reported within the first few

months of its use.

From the very beginning, Worthington, Douglas and Nelson recognized the need for research and innovation in the practice of anesthesia. They were among the first Canadian physicians to publish journal articles on the subject of inhaled anesthetics. Nelson led the way in research, starting to study ether shortly after it was first demonstrated in Boston. He immediately recognized the need to understand more about the physiological effects of the gas before it was administered extensively to patients. Nelson and William Webster, his colleague at the Montreal Medical Institute, began experimenting with ether on dogs as early as January, 1847.

Nelson, however, did not limit his experiments to dogs and his patients. He was well known to self-experiment, inhaling ether hundreds of times during his career. Douglas and Worthington's work found ways the then-new anesthetics could be used effectively in clinical practice. Worthington was primarily concerned with the proper administration of anesthetics to ensure the safety of his patients. Upon seeing a patient with severe leg pain in March, 1847 he quickly improvised an inhaling device using "a large ox-bladder, with a stop-cock attached, a mouth-piece, made of thick leather, covered with black silk and well padded round the edges, with a connecting long brass tube that had done service as an umbrella handle in many a shower..."

James Douglas applied similar ingenuity to ensure his surgical patients received the benefits of modern anesthetics. In 1848, he realized that in emergencies it would take one or two days for chloroform to be delivered to his hospital in Quebec City. Wanting to ensure a constant supply for his patients, he set about concocting the chemical himself and, with some perseverance, succeeded after several failed attempts. As good scientists they all kept detailed records of their work and thus contributed to the global body of knowledge of anesthesia. Their contribution in these early days paved the way for anesthesia to become a genuine medical discipline in Canada.

The clinical and research accomplishments of these three physicians reveal that they shared a common characteristic of all great anesthetists: exceptional care for the welfare of their patients. They recognized the need for inhaled anesthetics by observing the barbarity of surgical practice at the beginning of the 19th century. Their rapid introduction of ether and chloroform into their practices was likely a result of the obvious need in this country at the time. They also saw the necessity to establish the safety and efficacy of novel drugs for their patients through research and careful experimentation, which showed remarkable foresight for physicians in the mid 19th century.

In their day, Douglas, Nelson and Worthington would have likely described themselves as surgeons, but their concern for patient safety and, more importantly, relief from pain during surgery means that they were truly Canada's first anesthetists. As anesthesia grew from a craft to a specialty in Canada, the "Great Triumvirate" of Bourne, Griffith and Leigh demonstrated that excellent anesthetists combine boldness and ingenuity with a patient-centred approach. By this measure Douglas, Nelson and Worthington deserve a place among Canada's anesthesia greats.

(References available on request)

Trevor Arnason
University of Toronto, Toronto ON