

An appreciation of A.E. Malloch, MB, MD (1844–1919): a forgotten surgical pioneer



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Abstract

DR. ARCHIBALD EDWARD MALLOCH WAS A SURGEON whose life and work were greatly influenced by Joseph Lister and his revolutionary system of antiseptic surgery. This paper describes how a young Canadian medical man came to introduce Lister's system to North America in 1869 and studies his career in the light of Lister's surgical epoch.

Résumé

LA VIE ET LE TRAVAIL DU CHIRURGIEN ARCHIBALD EDWARD MALLOCH ont été grandement influencés par Joseph Lister et son système révolutionnaire de chirurgie aseptique. Cet article nous apprend comment un jeune médecin canadien a implanté le système de Lister en Amérique du Nord en 1869 et étudie sa carrière à la lumière de l'époque chirurgicale de Lister.

On June 14, 1844, in Brockville, Canada West, Archibald Edward Malloch was born into a Scots Presbyterian family engaged in the learned professions. His father and uncle were both local judges, and his maternal grandfather was a Scottish clergyman.¹ Archibald Malloch's education began at Brockville Grammar School² and continued at Queen's College (later Queen's University) in Kingston, Canada West, where he registered in the Faculty of Arts in 1859. The archives of Queen's University record that Malloch's student number was 340, his age of entrance 15 years and his intended profession medicine.³

Malloch graduated in April 1862 with the degree of Bachelor of Arts with honours in classics and mathematics. He then registered for⁴ and completed 2 years of studies in the Faculty of Medicine at Queen's. Malloch left Canada in 1864, travelling to Scotland to begin the medical course at the University of Glasgow.⁵

Glasgow and Joseph Lister

By Malloch's time the medical school of the University of Glasgow had become very prosperous and attracted students from all over the British dominions because of the "excellence of its teaching, the lowness of the fees, and the comparative cheapness of living."⁶ The medical school also had, as Regius Professor of Surgery, Joseph Lister, appointed to the chair in 1860.⁶ Lister's work while at Glasgow — from 1860 to 1869 — was to have a profound effect on the entire field of surgery. The man and his work also had a profound effect upon Archibald Edward Malloch.

Lister, who was born Apr. 5, 1827, came from a Quaker family living close to London. He graduated with an MB degree from the University of London and acquired the fellowship of the Royal College of Surgeons in 1852. His interests in research, embracing experimental microscopy, were by then well established. In September 1853 he went to Edinburgh, where he became assistant to Professor James Syme, a surgeon of high repute in both Britain and Europe. Lister gained much clinical experience with Syme and at the same time pursued his research investigations, which included studies of the early stages of inflammation. By 1859

Education

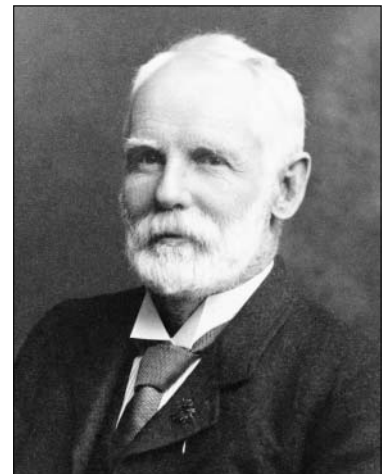
Éducation

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This article has been peer reviewed.

Presented in part to the John Austin Society, Queen's University, Kingston, Ont., Oct. 16, 1997.

CMAJ 1999;160:849–53



Dr. Archibald Edward Malloch (1844–1919). Courtesy of Special Collections, Hamilton Public Library, Hamilton, Ont.



Lister was “looked upon as a young surgeon of great promise” and a “first-rate experimental investigator.” He was thought of highly enough to be appointed to the Regius Professorship in Glasgow on Jan. 28, 1860.⁶

For some years Lister had been much concerned with the disastrous results of infections that arose, without known cause, with appalling frequency in all manner of wounds ranging from simple surgical incisions to open wounds of traumatic origin. The investigations of Pasteur had made Lister a convert to the “germ theory,” which stated that putrefaction and fermentation were the results of living organisms. It was on the basis of that theory that Lister founded the antiseptic system of the treatment of wounds in surgery.⁷ In applying the principles of the germ theory, Lister observed that “Bearing in mind that it is from the vitality of the atmospheric particles that all the mischief arises, it appears that all that is requisite is to dress the wound with some material capable of killing these septic germs, providing that any substance can be found reliable for this purpose yet not too potent as a caustic.” Lister chose carbolic acid as the agent for his system, having heard of the excellent results that had been obtained with it in purifying the sewage of the city of Carlisle.⁸ Initially, starting in 1865, Lister introduced undiluted carbolic acid directly into open fracture wounds, but he later expanded the treatment to the management of all surgical wounds, using solutions of various strengths and a variety of dressings containing the substance, as well as using carbolic acid to disinfect his hands and surgical instruments.⁹

The results Lister obtained with his antiseptic system were striking, and at the Dublin meeting of the British Medical Association in August 1867 he stated,⁷ “Previous to its introduction, the two large wards in which most of my cases of accident and of operation are treated were amongst the unhealthiest in the whole surgical division of the Glasgow Royal Infirmary.... But since the antiseptic treatment has been brought into full operation, ... my wards ... have completely changed their character; so that during the last nine months not a single instance of pyaemia, hospital gangrene, or erysipelas has occurred in them” [page 45].

Archibald Malloch was fortunate enough to arrive in Glasgow at precisely the right time to see Lister’s marvelous achievements and came under Lister’s influence when he attended the latter’s lectures on aspects of surgery in the sessions of 1864/65 and 1865/66, lectures that fascinated Malloch. To quote Malloch,¹⁰ “The subject matter of his lectures was so interesting and attractive, consisting as it did in general of his own observations and experiments, that no one ever thought of absenting himself from the classroom. His words, his tone of voice and quiet dignity of bearing, accompanied in general with a serious expression, convinced all that his heart was in his

work and, more than that, that our interests were his interests. His students worshipped him” [page 331].

Nor did Lister’s influence end in the classroom. In the hospital wards, again to quote Malloch,¹⁰ “Nothing escaped him and everything received his attention. He taught his students that there was a right way and a wrong way of doing everything, from the dressing of a case and bandaging it to the proper insertion, finally, of the pin to fix the bandage; and that the least complaint of pain or uneasiness demanded immediate attention” [page 335].

Malloch, early in his career, was fully aware of the germ theory through lectures Lister gave in the session of 1865/66. Malloch was also aware of the “frightful” mortality rate from wound infections in Lister’s wards before the antiseptic treatment was introduced because he had been Lister’s dresser in 1865.¹⁰

After Malloch graduated with the MB degree in 1867, Lister appointed him as house surgeon from the spring to the fall of 1868.¹⁰ The manner in which Malloch handled a specific case confirms that he had become a fully trained, successful practitioner of the antiseptic system under Lister’s direct tutelage. On Oct. 3, 1868, a man of 25 years sustained a compound or open fracture of his left tibia from severe trauma inflicted in dangerous circumstances. As reported by Lister,¹¹ “When rescued from this situation, he was taken to the infirmary, where my house surgeon, Mr. Malloch, found the leg much distended with extravasated blood, with a wound, three-eighths of an inch in length, on the inner side, about midway between the knee and ankle, bleeding freely and communicating with a transverse fracture of the tibia. A probe (smeared with an oily solution of carbolic acid to prevent the introduction of septic particles) could be introduced beneath the undermined fascia for about three inches in every direction except downwards, and also passed, for the same extent, directly outwards behind the tibia which was felt to be denuded of its periosteum. Having injected into the wound, with a syringe, several ounces of a saturated watery solution of the acid, and diffused it freely through the limb by pressure, to mix it with the extravasated blood, Mr. Malloch placed a piece of thin block-tin about an inch square over the orifice, and, after pressing out as much as possible of the blood and watery solution, applied a piece of lac-plaster deprived of its gutta-percha lining, overlapping the tin a couple of inches in every direction, and over this a folded cloth moistened with a solution of carbolic acid in four parts of olive oil. The limb was then put up in lateral pasteboard splints” [page 80]. Recovery proceeded smoothly thereafter.

While Lister was away on holiday, Malloch’s successful treatment of another open fracture of a leg led to an incident that reveals a good deal about Malloch’s character. As Malloch recalled,¹⁰ “While demonstrating this case to a



celebrated American surgeon, who was accompanied by Dr. G.B. McLeod [sic], of Glasgow, and who apparently refused to be convinced of the benefits arising from the antiseptic treatment in other cases that had been shown to him; and as he doubted a statement of mine regarding this case, I lost my patience, and refused to show him any more cases. Upon reporting this incident to Mr. Lister I was greatly relieved by his assurance that I had acted rightly" [page 334].

The "celebrated American surgeon" was almost certainly Dr. Samuel D. Gross, who was professor of surgery in the Jefferson Medical College of Philadelphia and the most prominent surgeon in Philadelphia at the time.¹² Malloch, obviously not a man to suffer fools gladly, must have been deeply stung when his revered Chief's antiseptic system, not to mention his own word, was doubted, but to be so abrupt with such a distinguished visitor in the presence of his prominent host was a headstrong act fraught with professional risk. Lister's response to the episode indicates that he and Malloch were of the same mind about ill-judged criticism of the antiseptic system, although Lister was renowned for his measured, even unruffled, responses to such criticism, which contrasted with the vehement reaction of his fiery young Canadian assistant.

Lister himself was obviously highly satisfied with Malloch's work for, after Malloch's 6 months as his house surgeon had ended, Lister wrote (on Nov. 27, 1868)¹³ "I feel particular pleasure in expressing the very high opinion I entertain of Mr. Archibald E. Malloch. He is endowed with very superior intellectual powers which he has devoted with the utmost zeal to the acquisition of professional knowledge; in that he was one of the most distinguished of all the students of his period in the University of Glasgow. After taking his degree, he acted for a year as resident assistant in the Glasgow Royal Infirmary, one of the best fields for practical study in the world, serving for six months under a Physician and then for a similar period under myself. Of the manner in which he discharged the duties of House Surgeon I cannot speak too strongly; the efficiency of his work, from his manual dexterity and no less from his intellectual acquaintance with the subject, being greatly enhanced by his genuine modesty and by his kindness of heart — which made him take an affectionate interest in every case under his care. With such qualifications Mr. Malloch cannot fail to succeed, whether in private practice or in the position of a medical officer to a public hospital."

In Hamilton, Ont.

By 1869 Malloch was engaged in private practice in Hamilton, Ont. On Feb. 23, 1869, Malloch, in company with his brother-in-law, Dr. John Duff Macdonald, at-

tended upon a 7-month-old male child "who had for some time shown symptoms of deep-seated inflammation in the region of the hip joint." From Malloch's description of the case, the child almost certainly suffered from septic arthritis of the right hip, a condition that gives rise to excruciating pain. On Feb. 26, employing Lister's antiseptic system in strict detail,¹⁴ Malloch incised and drained an abscess that had formed in the child's right hip area, the dressing of the surgical wound being of "shell-lac plaster," a new carbolic dressing that Malloch had assisted Lister to develop⁶ some 5 months earlier. Malloch's documentation indicates that the child responded extremely well to the treatment and was restored to "perfect health." This procedure was the first carried out in North America using the antiseptic system exactly as Lister himself used it.¹⁵

The medical literature of the time records some examples of carbolic acid being used in various ways in certain cases by a few North American practitioners, but even the most enlightened of these did not employ the agent as part of a precise system as Malloch did, such a system being essential to achieve Lister's astonishing clinical results.¹⁶ That a few Americans knew in detail of Lister's method is shown in 2 reports by visitors to Glasgow in 1868–1869 but neither report gives an account of any subsequent practical application of the system.^{17,18}

No doubt a barrier to the appropriate use of Lister's system was the widespread North American reluctance to accept the germ theory.^{19,20} Lister himself insisted that belief in the germ theory was indispensable to the success of antiseptic treatment.²¹ Outright, indeed hostile, rejection of the antiseptic system by some surgeons as late as 1883 is recorded in the vituperative discussion of a paper that strongly favoured Lister's method, presented by Dr. B.A. Watson of New Jersey to the American Surgical Association in that year.²²

Excellent outcomes such as that recorded by Malloch after his treatment of the child's abscess had come to be regarded as routine by Lister and his pupils in similar cases, whereas before the use of antiseptic treatment, surgical opening of such an abscess could lead to the patient's death.⁶ In his report of the case¹⁴ Malloch recorded the following observations, which summarize succinctly his views of Lister's system: "In the treatment of abscesses and compound fractures, carbolic acid must not be used as a stimulant or a deodoriser, nor as a placebo to one's conscience, as it seems to have been done in a case of compound dislocation reported in one of our journals, in which, after the *contused wound had been stitched*, it was merely covered with carbolic acid dressing; it must be used as the potent destroyer of those germs floating in the air and adhering to all articles, which by decomposing the discharge, render it so irritating" [pages 156–7; italics in original].



No more persuasive illustration could be found of Malloch's complete confidence in the antiseptic system than in his records of cases treated in 1869 which contain an entry headed "George Malloch Esq. Aet — 72" and beginning "May 16/69 — Papa came up today. ..." The entry goes on to record that his father had undergone surgery, performed by Lister, in November 1867 in Glasgow for what was very likely basal-cell carcinoma of the face. The lesion had obviously recurred, as Malloch resected what was described as an ulcer $1 \times \frac{1}{2}$ in. from the malar bone area of his father's right cheek, the surgery being performed under the antiseptic system and the outer dressing being of the same "lac" plaster that Malloch had helped to perfect.²³

To Toronto

In 1870 Malloch joined the Faculty of Medicine, Toronto Branch, University of Victoria College in the capacity of demonstrator of anatomy and lecturer on surgical anatomy.²⁴ Why Malloch should choose to leave an established practice in Hamilton to accept an appointment to the staff of one of the two existing medical schools in Toronto is not known. What *is* known is that Hamilton at that time had neither a medical school nor a university.

Malloch was evidently unhappy with his appointment,²⁵ because by 1871 he had resigned from Victoria University to accept an appointment as assistant lecturer on surgery and surgical operations at the newly revived Faculty of Medicine of the University of Trinity College, Toronto.²⁶ However, Malloch never filled that post and was replaced before the first session of 1871.²⁷

While in Toronto, Malloch would no doubt have observed the way surgical work was done locally. He must have been dismayed by the prevalent conditions of surgery, as recorded by Dr. R.B. Nevitt. Nevitt had been an intern at the Toronto General Hospital from 1870 to 1872, and he recorded later that "[s]uppuration was expected, and the after dressing of operation cases consisted generally of poultices varied at times with water dressing or spirit lotions, or other vulneraries. The operations consisted principally of amputations, or the removal of tumors from accessible parts, or emergency cases. The preparation of the patient was most perfunctory. Sometimes soap and water was timidly used; most often a suppurating wound, inflamed, poisonous or gangrenous, was brought down, and on the table the vast stinking poultice was removed with its stench and ordure, and the limb amputated." Nevitt went on to write that he "always carried, in the upper pocket of my vest, a probe, a pair of scissors, a pair of dissecting forceps, and a scalpel, and after using them to dress a dirty wound, would wash them in water, if handy, or otherwise wipe them on a bandage or towel, re-

place them in my pocket, and use them if required on the next case."²⁸ This appalling picture is in such stark contrast to what Malloch had experienced with Lister and, for that matter, in his own practice that it is little wonder he left Toronto.

The settled years in Hamilton

Malloch resumed practice in Hamilton in 1871. In addition to his private practice he was a member of the medical staff at the Hamilton City Hospital. The conditions in which Malloch had to work at that hospital were clearly outlined in an unvarnished assessment of it by William Osler, then a young doctor who had come to Hamilton in July 1874 to serve for 1 month as locum tenens for the resident physician.²⁹ Osler observed, "In those days the inmates at the hospital were primarily rats, streptococcus and patients."³⁰ Malloch met Osler at that time and formed an enduring friendship with him.

Malloch carried on with active clinical practice in Hamilton until he gave up surgery at the age of 54, continuing thereafter with a consulting medical practice for about 10 years.³¹ During his years of practice he established himself as the leading surgeon of the region.²⁹

As he grew older, Malloch kept up his friendship with Lister, for many years sending him an annual gift of a barrel of Canadian apples at Christmas.³² On Lister's elevation to the peerage in 1897, Malloch went to London to attend a celebration dinner given for Lister by many of his former students and housemen.³¹

After Lister's death on Feb. 10, 1912, Malloch wrote the paper entitled "Some memories of Mr. Lister,"³¹ a eulogy that was read before the Academy of Medicine in Toronto on Apr. 2, 1912, at a "Symposium of Papers on the Late Lord Lister." Malloch's own health had begun to deteriorate by that time, but he did manage a voyage to Great Britain in August and September of 1912 to visit Sir William Osler. About Malloch, Osler observed³³ "Poor M. has angina & when he heard I was not coming over, bucked & said he must see me. Fortunately he stood the voyage well, but is badly knocked out in heart & arteries. ..." [page 332]. Malloch lived for several more years, dying in Hamilton on Aug. 6, 1919. He was buried in Brockville in the Malloch family plot.³¹

Assessment of Malloch's work

Malloch's medical career is inextricably linked with that of his teacher and mentor, Joseph Lister. Lister gave a scientific basis to surgery and made it rest upon established truth by his monumental work in introducing the antiseptic principle in wound treatment.³⁴ Lister transformed surgery from a hazardous, often lethal undertaking, terrifying to



both surgeon and patient, into a vastly safer and more predictable process of enormous benefit to humanity.

An aphorism attributed to Sir Arthur Conan Doyle runs “Talent instantly recognizes genius.”³⁵ Such was the case with Malloch, a talented man who immediately recognized Lister’s genius. That recognition, and appreciation, is evident in his loyalty and devotion to Lister and his system: a loyalty and devotion that lasted to the end of Malloch’s life. Malloch had the rare, intensely exhilarating experience of being actively involved in perfecting a fundamental and truly revolutionary advance in the practice of surgery.

Lister expressed the hope that the use of the antiseptic system would gradually spread by leavening action through the world.³⁶ Malloch was the means whereby the system, scrupulously applied, reached North America. It is remarkable that he was able to introduce and promote the system in as small a city as Hamilton, which had a population of no more than 25 000 when Malloch started his work in 1869³⁷ and no university or medical school.

Malloch left no great bibliography of medical literature but, rather, promoted the application of Lister’s methods by example in his own practice, over time incorporating in it refinements as Lister introduced them.³⁸ In his years of practice Malloch led a full and prosperous life,³¹ but did he feel that he had done enough to further the wider application of the antiseptic system? Malloch gave the answer himself in his paper paying tribute to Lister:¹⁰ “Many of the students of my day, reading of the honours conferred on their old teacher (late though they were in coming) have seen the page blurred before them and, while returning thanks for the great privilege that had been theirs, must have regretted that they had not made better use of it” [page 336].

That is a rather harsh self-judgement. A more appropriate assessment is to be found in a general observation about medical men made by Malloch’s old friend, Sir William Osler: “To have striven, to have made an effort, to have been true to certain ideals — this alone is worth the struggle,”³⁹ an observation that could serve as a fitting epitaph for Archibald Edward Malloch.

Competing interests: None declared.

References

- July 1984. [Publ no 84-6 (ISBN 0-920300-42-1); pamphlet]. Ontario Genealogical Society, Leeds and Grenville Branch, Brockville (ON).
- Malloch, Dr. A.E. [obituary]. *Brockville (ON) Recorder & Times* 1919 Aug 7.
- Student register 1-769. Accession no 1161. Kingston (ON): University Archives, Queen’s University.
- Faculty of Medicine matriculation book. Accession no 1184a. Kingston (ON): University Archives, Queen’s University.
- Malloch, Archibald Edward, MB(1867), MD(1869), class catalogue and prize list entries. Glasgow, Scotland: University Archives, University of Glasgow.
- Godlee RJ. *Lord Lister*. London: Macmillan; 1917.
- Lister J. On the antiseptic principle in the practice of surgery. In: *The collected papers of Joseph, Baron Lister*. vol 2. Oxford: Clarendon Press; 1909. p. 37-45.
- Lister J. *Six papers by Lord Lister*. London: John Bale, Sons & Danielsson; 1921. p. 94-5.
- Lister J. On some points in the history of antiseptic surgery. In: *The collected papers of Joseph, Baron Lister*. vol 2. Oxford: Clarendon Press; 1909. p. 365-71.
- Malloch AE. Some memories of Mr. Lister. *Can J Med Surg* 1912;May:331-6.
- Lister J. An address on the antiseptic system of treatment in surgery. In: *The collected papers of Joseph, Baron Lister*. vol 2. Oxford: Clarendon Press; 1909. p. 51-85.
- Gross SD. Testimonial for Dr. G.H.B. Macleod as candidate for the Chair of Surgery in the University of Glasgow [dated 1869 July 23]. Philadelphia: Archives, College of Physicians of Philadelphia.
- Lister J. Autograph certificate for Archibald E. Malloch [dated 1868 Nov 27]. Accession no MS252. Montreal: Osler Library of History of Medicine, McGill University.
- Malloch AE. Reports of cases read before the Hamilton Medical and Surgical Society on the 6th Oct. *Can Med J* 1870;6:154-60.
- Lister J. On a new method of treating compound fracture, abscess, etc. In: *The collected papers of Joseph, Baron Lister*. vol 2. Oxford: Clarendon Press; 1909. p. 1-36.
- Yandell DW. Thirty surgical cases treated with carbolic acid as a dressing. *Richmond Louisville Med J* 1869;7:651-5.
- Warren JC. Antiseptic treatment of wounds [letter]. *Boston Med Surg J* 1869;81:175-7.
- Weisse FD. Lister’s antiseptic treatment in surgery. *Med Rec* 1869;4:52-6.
- Richmond PA. American attitudes toward the germ theory of disease (1860-1880). *J Hist Med Allied Sci* 1954;9:428-54.
- Brieger GH. American surgery and the germ theory of disease. *Bull Hist Med* 1966;40:135-45.
- Lister J. Further evidence regarding the effects of the antiseptic system of treatment upon the salubrity of a surgical hospital. In: *The collected papers of Joseph, Baron Lister*. vol 2. Oxford: Clarendon Press; 1909. p. 158-60.
- Watson BA. Lister’s system of aseptic wound treatment versus its modifications. *Trans Am Surg Assoc* 1883;1:205-23.
- Malloch AE. Entry in autograph notes of clinical cases. Accession no MS430. Montreal: Osler Library of History of Medicine, McGill University.
- Medical Department, Victoria University, session 1870-71 [announcement]. Accession no 97.003-4. Toronto: Victoria University Archives.
- Sullivan M. *Retrospect of fifty years of the Medical School of Kingston* [pamphlet]. Kingston (ON): University Archives, Queen’s University; 1905. p. 20.
- Medical Department, Trinity College, session 1871-72 [circular]. Toronto: Trinity College Archives.
- Spragge GW. The Trinity Medical College. Ontario history. *Q J Ont Hist Soc* 1966;63(2):63-98.
- Nevitt RB. Pre-Listerian surgery. In: *Symposium of papers on the late Lord Lister*, 1912 Apr 12. Toronto: Academy of Medicine Archives, Toronto Hospital. p. 68-70.
- Cushing H. *The life of Sir William Osler*. vol 1. Oxford: Clarendon Press; 1926.
- Campbell MF. *A mountain and a city: the story of Hamilton*. Toronto: McClelland & Stewart; 1966. p. 181.
- Dr. A.E. Malloch [obituary]. *Hamilton Spectator* 1919 Aug 7;70(182):1,6,13.
- Malloch AE. Correspondence with Lister. Accession no MS252. Montreal: Osler Library of History of Medicine, McGill University.
- Cushing H. *The life of Sir William Osler*. vol 2. Oxford: Clarendon Press; 1926.
- Lucas-Championnière J. An essay on scientific surgery: the antiseptic method of Lister in the present and in the future. *BMJ* 1902;Dec 13:1819-21.
- Doyle AC. *The complete Sherlock Holmes*. vol 2. New York: Doubleday; 1953. p. 908.
- Lister J. An address on the antiseptic management of wounds. *BMJ* 1893;1:161,277,337.
- Weaver J. *Hamilton: an illustrated history*. Toronto: James Lorimer; 1982. p. 196.
- Malloch A. Paper read before the Hamilton Medical and Surgical Society on the 5th Nov. *Can Lancet* 1873;6:123-8.
- Osler W. *An Alabama student and other biographical essays*. Oxford: Clarendon Press; 1908. p. 18.

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