

ARTS & HUMANITIES

Ambroise Paré and the Birth of the Gentle Art of Surgery

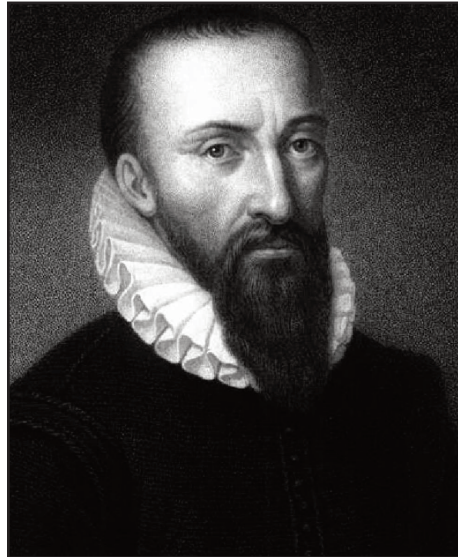
Charles B. Drucker

Physiology Department, Yale University School of Medicine, New Haven, Connecticut

*"There are five duties of surgery: to remove what is superfluous, to restore what has been dislocated, to separate what has grown together, to reunite what has been divided, and to redress the defects of nature."
— Ambroise Paré [1]*

During the 1537 siege of Turin, a young French barber-surgeon abandoned the conventional wisdom about the treatment of bullet wounds, giving rise to a revolution in surgical techniques and pedagogy. Ambroise Paré was not a physician — it was not until more recent centuries that it became usual for a surgeon to be a holder of a MD degree — but his dedication to empirical observation and reasoning elevated the position of the barber-surgeon. He set the stage for the modern melding of scientific medicine and the invasive procedures that define surgery at the turn of the 21st century.

Paré brought to the field of surgery a revelation: that a surgeon might treat patients while simultaneously limiting the pain resulting from treatment. Although his initial discoveries came when he was young surgeon and well ingrained in the old Galenic tradition of medical practices



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Ambroise Paré

and beliefs, Paré's revelation on the battlefields of Italy prepared him to take on the surgical establishment. He replaced an ancient system with one based primarily upon the ability of a surgeon to promote healing in the very tissues that his art tore apart.

The Galenic system — a method of medicine that, before the 16th century, meant a dedication to theory over empirical

To whom all correspondence should be addressed: Charles B. Drucker, 111 Park Street, Apartment 4J, New Haven, CT 06511; Tele: 323-350-3696; E-mail: charles.drucker@yale.edu.

knowledge — had dominated medicine since the second century. Galen, a Greek physician in the Roman Empire, produced voluminous works on the treatment of diseases and the anatomy of the human body [2]. While Galen averred that personal observation was a necessary part of medical education, his advice was not often followed by later physicians. His fierce character and the strength of his writings meant that his teachings were taken as dogma by physicians in the Roman, Muslim, and, later, European empires. Instead of observing the actual forms of the body, Galen's theories and frequently fantastical anatomies were accepted as truth, unchallenged by what one might personally observe [3].

The dogmatic quality of Galenism meant that physicians until the Renaissance — and in many ways until the 19th century — did not practice a medicine based on practical observation, experience, and empirical analysis. The treatments proscribed by Galen and the earlier Hippocratic writings were first comprehensively challenged by Paré and the anatomical writings of Paré's contemporary, Andreas Vesalius.

By the 16th century, the Hôtel Dieu — the Parisian hospital where Paré trained — had become a renowned place of medical learning. Its association with the Faculté de Médecine of the University of Paris made the Hôtel Dieu an extension of the traditional (Galenic) school of medicine. This extended to the types of surgical procedures performed by those associated with the venerable institution. While the physicians, who constituted the faculté, were those most educated in diagnostic and academic medical practice, the practical tasks were left to barber-surgeons. Barber-surgeons were trained in extended apprenticeships and, sometimes, continued studies at public hospitals. Unlike modern hospitals, these were often repositories for the destitute and indigent that offered primarily palliative treatments [4].

It was Ambroise Paré's experience at the Hôtel Dieu that permitted him to serve as a surgeon to the French army and, thus, to make many innovations during his long career. By the time Paré entered the Hôtel Dieu, barber-

surgeons were incorporated into the education system of the University of Paris. They could attend lectures on anatomy and surgery delivered by the faculté and could take the master-barber's examination to receive professional recognition from the faculté [5].

Paré was too poor at the time of his departure for the Italian front to pay for this examination, but would pass it following his return [6]. In general, however, the physicians would diagnose and order the administration of certain procedures, which were carried out by the barber-surgeons who also cut hair and pulled teeth to maintain their livelihood [7]. The crude physicality of their professions aside, the barber-surgeons were thus much more intimately aware of the means of performing surgical procedures in Renaissance France than their more highly esteemed physician counterparts.

The barber-surgeons before Paré expected that any sort of surgical technique would require that the patient experience pain, sometimes pain so extreme that the subject would lose consciousness during the procedure. His realization that one might act gently in the capacity of a surgeon and that such gentleness actually might improve the lot of his patients was transformative. Pain relief was extremely limited in the 16th century — opium, henbane, mandrake, and strong spirits being the only offerings — and a quick, painful procedure often meant survival in a pre-antibiotic era. Tremendous pain was an accepted part of surgery. For Paré, the benefits of a gentle hand during surgery would soon become a clear means of reducing the suffering of his patients.

Paré made his break from the traditional practices in 1537 when he ran out of the boiling oil solution conventionally used to "detoxify" and cauterize wounds caused by gunpowder-driven projectiles. He replaced this harsh treatment with a soothing balm made from egg yolks, rose oil, and turpentine. The next morning, he was astonished to find the recipients of his new treatment were resting easily while those who suffered the cauterizing oil were "feverish" and afflicted with "great pain and swelling about the edges of their wounds" [8].

Seeing the dramatic difference between the “proper” and improvised treatments, Paré resolved to only treat cases with procedures he had personally observed to be useful. This resulted in such innovations as the use of ligatures in amputations, treatments for sucking chest wounds, and a cure for chronic ulcers of the skin [7,9]. Although this experimentally driven medicine did not come to define the physician’s practice until the rise of the Paris Clinic in the 19th century, these first writings established an important foundation of empiricism in European medicine.

Ambroise Paré’s career was distinguished by his reliance on personal experience, but he was able to exert a powerful influence by abandoning the academic tradition of writing in Latin in favor of the vernacular French. By writing in his native language, Paré was able to produce a series of volumes renowned for their clarity of form and easily accessible to his fellow barber-surgeons [10]. His reliance upon the experiences of a long and notable career (he was often away at wars, attending high officials and, later, kings) gave his arguments heft and allowed him to share his new techniques with a wide audience. Previous barber-surgeons did not record their experiences and did not have ready access to the Latin texts available to the faculté.

Ambroise Paré’s publications went beyond the descriptions of procedures and his books included illustrations of the instruments he employed, another groundbreaking innovation for surgical texts. These features strengthened Paré’s arguments and gave his teachings great strength among barber-surgeons, physicians, and their clients. Paré’s clear writing and use of the vernacular, backed by decades of practical experience, ensured that his texts and techniques would become the foundation of a new surgery.

Ambroise Paré’s numerous technical innovations and literary contributions to the art of surgery were deeply felt in the continued development of surgery following the 16th century. His use of the vernacular encouraged later surgeons to do the same and his focus on novel surgical principles established a strong foundation upon which the modern institution of surgery is built. His

emphasis on techniques that minimized the damage done to the tissues of the patient has guided the development of the gentle art of surgery in the many centuries since his writings first appeared. Although his writings and techniques appeared during a time in which surgery was a separate realm from medicine proper, physicians and surgeons can now look to Paré as the founder of modern surgery, a restorative process that heals the body with minimal suffering.

FURTHER READING

For more resources on the history of medicine, I recommend the works primarily referenced in the preparation of this article: Dr. Sherwin Nuland’s *Doctors: The Biography of Medicine*, Roy Porter’s *The Greatest Benefit to Mankind: A Medical History of Humanity*, and *Great Ideas in the History of Surgery* by Leo Zimmerman and Ilza Veith.

For those seeking more information specifically on Ambroise Paré, a number of good older texts are available: Stephen Paget’s *Ambroise Paré and His Times, 1510-1590* (1897) (Available for free and in total from Google books), Francis Packard’s *Life and Times of Ambroise Paré, 1510-1590* (1921) (also available from Google books), Wallace Hamby’s *Ambroise Paré: Surgeon of the Renaissance* (1967), *Surgery and Ambroise Paré* by J. F. Malgaigne, edited by Wallace B. Hamby (1965), and a bibliography by Janet Doe, *A Bibliography of the Works of Ambroise Paré* (1937).

The works of Paré can be found in *The Apologie and Treatise of Ambroise Paré*, edited by Geoffrey Keynes (1952), *Ambroise Paré’s Ten Books of Surgery with the Magazine of the Instruments Necessary for It*, R.W. Linker, N. Womack, translators (1969), and *The Collected Works of Ambroise Paré*, Thomas Johnson, translator (1968).

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