

# William Harvey, Fabricius ab Acquapendente and the divide between medicine and surgery

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At this time of year, senior medical students in Canada submit their applications for specialty training. They have already announced their wishes to be either physicians or surgeons by their choice of elective rotations in the previous year, upon which, they correctly believe they will be judged during the interview process. The students will demonstrate, and the selectors will divine, the particular character required for success within their “house of medicine.” It may be surprising, therefore, for students and selectors to know that William Harvey (1578 – 1657), now considered the progenitor of the modern physician, chose the leading surgeon of his day as his teacher. Hieronymus Fabricius ab Acquapendente (1533 – 1619) was a professor of anatomy and surgery at the University of Padua in Italy (Fig. 1).

In 1565, Fabricius succeeded Fallopius, successor himself of Vesalius, to the combined chair of anatomy and surgery at Padua. Fabricius had been the professor for 35 years by the time Harvey arrived, in 1600. Harvey owes his prominence in our medical hagiography to a series of lectures given by Sir William Osler to the students of Yale University almost 100 years ago. These lectures



**FIG 1.** A contemporary portrait of Hieronymus Fabricius ab Acquapendente (1533–1619) that hangs in Palazzo del Bo, Faculty of Medicine and Surgery, University of Padova. (Photograph courtesy of the University of Padova).

were collected and published not just as a history, but as an explanation for the evolution of modern medicine.<sup>1</sup> Osler places Harvey’s life at the centre of this relatively short book, and on each side, he eruditely gallops from ancient to modern times. Osler’s gift for composition brings Harvey’s time in Padua to life. It has been estimated that 10 000 foreign

students came to study with Fabricius over his career.<sup>2</sup> It was difficult to get close to the teaching—only favoured senior students managed to assist the master by holding a candelabra over the dissection table. The students were housed according to their country of origin. Harvey became consiliarius of Natio Anglica and likely secured one of the favoured positions with Fabricius. The professor’s influence on a future father of medicine was profound. Fabricius had just completed a masterpiece on the functional anatomy of the sensory organs, *De Visione, Voce et Auditu*. Modern reviewers believe this was the first time that a renaissance anatomist moved from descriptive anatomy into an analysis of function.<sup>2</sup> Harvey probably assisted Fabricius with his book on venous anatomy, *De Venarum Osteolis*. Late in life, Harvey told Robert Boyle that it was Fabricius’s description of venous valves that had put him on the path to describing circulation.<sup>1</sup> It was also during Harvey’s time in Padua that Fabricius published his study of embryology, *De Formato Foetu*. In his own career, Harvey paid Fabricius the ultimate compliment by limiting his own research to the development of themes

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begun by his teacher, using methods learned from him.

Some might think that, in Harvey's time, the evolution of medicine had not yet reached the stage of professional differentiation, so that a physician might be taught by a surgeon. However, a comment by Galileo, Fabricius's colleague on staff at Padua, tells us otherwise. In 1610, Galileo cited Fabricius in his discussion with the ducal court at Florence, where he had been offered a position as mathematician. Galileo wished to be known also as a philosopher, claiming to be as much a philosopher as Fabricius was a physician. Galileo believed that both he and Fabricius were discriminated against because their research had practical goals that were unlike the theoretical philosophy or medicine of their rivals.<sup>3</sup>

In fact, the division between medicine and surgery goes back to the time of Hippocrates, if not before. The Hippocratic Oath contains the prohibition of "cutting for stone" in favour of those skilled in craft. Surgery among the Greeks in southern Italy evolved into a secret trade passed down through families. By Harvey's time, apprenticeship-based access to either medicine or surgery coexisted with university-based teaching. Academic medicine after Harvey continued his interest in circulation. Teams at

Oxford and Paris were formed to chase the great goal of blood transfusion. Each team was led by a physician with a surgical partner. Physician Richard Lower and surgeon Edmund King performed a series of animal experiments in England but were beaten to the prize of human transfusion by Jean Baptiste Denis and his surgeon, Paul Emmerez, in France. The episode confirms the continuing separation between physicians and surgeons, albeit, while recognizing the need for partnership. A priority dispute arose out of the race for transfusion, but it failed to acknowledge the fact that the students of Fabricius, who by then practised in every corner of Europe, had the theoretical and practical training required to develop transfusion.

When Osler was a student in Toronto and Montreal in the late 19th century, the apprenticeship route to medical practice ceased to be, and with it died the difference between the barber and the apothecary. The great houses of medicine failed to unite, however, because the invention of anesthesia and the increasing clinical use of the microscope defined separate pathways of development for the specialties. In Canada, a slightly different turn occurred in 1925, when the Royal College of Physicians and Surgeons of

Canada was formed (unaffiliated with separate Royal Colleges in Britain). Within the college, the only separation was to be the background colour of the college tie: blue for physicians and wine-red for surgeons, a distinction that few value over the demands of dress coordination. The modern development of subspecialties and the creation of national subspecialty societies have united physicians and surgeons in a partnership reminiscent of the 17th century transfusionists. Integration of practice remains elusive. Just as Cushing learned from Osler and Harvey from Fabricius, so should we learn that, to succeed in medicine today, students are required to see beyond its divide.

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