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Military Medicine

The period covered by this project saw massive change in the conduct and character of war, with the advent of firearms-dominated conflict and the emergence of “modern” warfare. The latter is characterized by features that we still see in much armed conflict today: wars are fought by professional, centralized, standing armed forces fielded by nation-states; members of those armed forces are subject to systems of rank and formal discipline; and those armed forces are dependant upon complex state-run administrative and bureaucratic structures. The Hundred Years’ War (1337 to 1453) served as a key early turning point in the shift away from the feudal warfare of the middle ages. The Thirty Years’ War (1618 to 1648) marked the clear arrival of “modern” national armies.

Warfare was a constant through these centuries, from small-scale disputes to massive international conflicts like the European wars of religion (1522-1648, with ongoing violence extending into the next century) and the early stages of the Second Hundred Years’ War (1689-1815). Violence was ubiquitous in Eurasia, and fighting involving those connected to European interests occurred across the globe.

Warfare in the early modern period (c. 1500 to 1800) differed from what had proceeded it. Forces grew dramatically in size, conflicts lengthened and were frequently indecisive, and casualty rates spiked. Until the modern era, disease was a much greater danger than direct violence in war, with epidemic infectious disease the most terrifying threat. The conditions of military life, especially during wartime, were highly conducive to illness, and armies and navies were long synonymous with disease.



Battlefield surgery, from Hans von Gersdorff, *Feldtbuch der Wundartzney* (1517). Wellcome Collection.

The nature of battlefield injuries changed in this era as well, as gunpowder weaponry became increasingly common and deadly. The Hundred Years' War featured gunpowder artillery in a number of conflicts. In 1453 Ottoman forces captured Constantinople using cannons, ending the millenium-long reign of the Byzantine Empire. Gunpowder weapons produced different injuries from muscle-powered armaments: bullet wounds, compound fractures, skull and brain injuries,

burns, and more. Some of these injuries were new, or otherwise rare. Gunshot wounds raised serious new challenges for healers, for instance, including how and whether to remove bullets and other debris. Projectiles often forced clothing fragments into wounds, and became infected so frequently that many concluded that gunpowder was poisonous. Papal surgeon Giovanni da Vigo (1450-1525), an influential early writer on military medicine, held this position.

During the middle ages the provision of medical care during armed conflict had been largely *ad hoc*--elites who went to war could bring medical practitioners in their employ, and ordinary soldiers could pursue self-help and, if they had the resources and access, seek private care. As states developed national forces, however, there was increasing recognition of the potential value of medical services for common soldiers and sailors. Over time, such thinking evolved into an understanding that states were obliged to provide care. (And perhaps also support for disabled veterans, though assistance was never more than rudimentary in this period.)

A notable early plan for a military medical service is found in the German Landsknechte force, established by Maximilian I (1459-1519). An observer writing in 1555 described a service in which each 400-man infantry unit and 200-man cavalry troop was provided one fully-equipped, state-funded barber-surgeon. This was in fact a reasonably good practitioner per capita level for the era. At a higher level of organization, each *hauffen* of 5,000 or more men had a field physician in chief and a field barber, and both the artillery commander and chief marshal of cavalry commanded a practitioner as well. There was also provision for medical transport and privately quartering the ill and wounded. Stationary, dedicated military hospitals--a Roman innovation--were slow to reappear in Europe, and forces frequently relied on systems of private quartering for the sick and wounded.

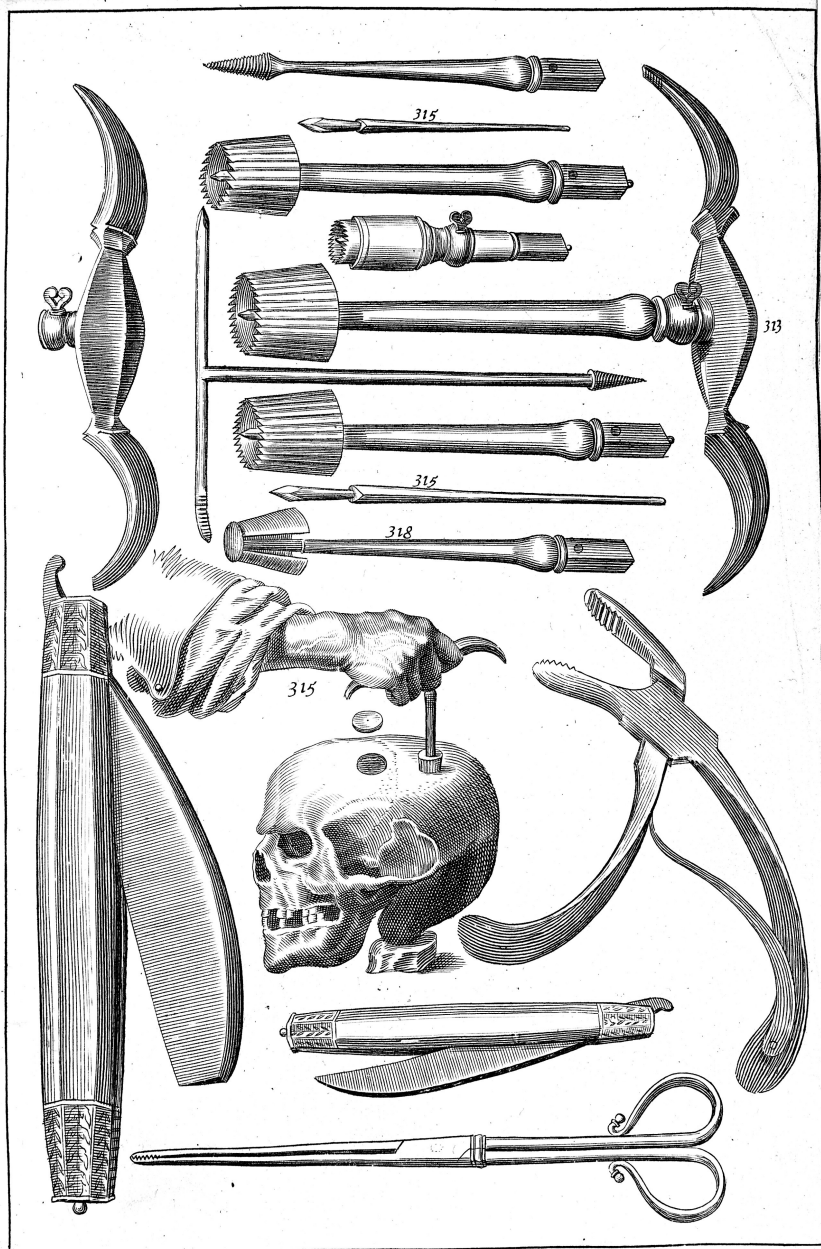
Different states and forces developed very differently in this period, but throughout Europe there was increasing demand for military medical practitioners. This was filled almost entirely by low-status surgical practitioners. Throughout the early modern period it was common for surgeons to spend at least some time in an army or at sea, and institutions like barber-surgeons' guilds frequently had formal relationships with states and other entities that engaged in armed conflict (e.g. joint-stock companies like the British East India Company). They might furnish surgeons, train them, certify competency, and supply tools and pharmaceuticals.

This early modern renaissance of military medicine coincided with, and was driven by, medical publishing. Demand for military medical services and knowledge created markets for accessible practical texts. A subgenre of military medical works in vernacular languages soon flourished. Surgery had traditionally been a low-status manual pursuit, subordinate to the learned internal medicine of university-trained physicians. Military medicine opened new space for surgeons to publish their writings and assert the importance of their medical and intellectual labor. In print and in other venues surgeons could challenge the structure of the medical hierarchy, argue that they should be allowed to practice internal medicine and pharmacy, and fight to raise the status

of their occupation. And of course authors could also sell their own services, pet theories, medical wares, and secret cures.

The towering figure in early military medical publishing is the French surgeon Ambroise Paré (c. 1510-1590). Hailing from a humble background in provincial northwestern France, Paré trained as a barber-surgeon and worked his way to the very top of his profession. He had extensive experience as a military surgeon, which he drew on often in his many published writings. He famously argued against treating gunshot wounds with boiling oil and for the use of arterial ligation in amputation. Often strikingly illustrated, Paré's work was popular and hugely influential throughout Europe.

Authors writing in English participated actively in this new subfield. The surgeon Thomas Gale (c. 1507-1567) served under both Henry VIII and Philip II of Spain and was active in the leadership of the newly-formed London Company of Barber-Surgeons (founded in 1540). His writings include important practical discussions of military medical topics, as in his *Excellent Treatise of Wounds Made with Gonneshot* (which argued against gunpowder as poisonous), contained in his 1563 *Certain Workes of Chirurgerie*. Gale's contemporary--and sometimes opponent--William Clowes (1543/4-1604) had an unconventional, if highly successful, professional life. He too had experience as a military and naval surgeon, and served as surgeon to the fleet and surgeon to Queen Elizabeth I. His writings stress the influence of diet and environment on soldiers' and sailors' health, arguing on that basis that surgeons should be allowed to do the work of physicians and apothecaries. His discussions of gunshot wounds, amputation, wound healing, venereal disease (a scourge of military men), and other topics were influential. Clowes presented medical work of this sort as a patriotic duty.



Instruments for Trephination, from John Woodall, *The Surgeon's Mate* (1639). Wellcome Collection.

Later generations of authors continued this work, producing increasingly complex texts on military and naval surgery. John Woodall (1570-1643), the first surgeon-general of the British East India Company, published the first edition of his *Surgions Mate* in 1617. This handbook for novice sea surgeons dealt with essential topics in military and nautical medicine. His publications are notable for their illustrations, especially of surgical tools. One of Woodall's leading successors was Richard Wiseman (d. 1676), sergeant-surgeon to Charles II. Wiseman's personal experience as a battlefield practitioner is reflected extensively in his published writings.

They make fascinating reading. Packed with rich case histories, his books grant a vivid window into surgery on the eve of the European Enlightenment--a period that would witness further radical transformation in warfare and military medicine.

Additional Reading

Gabriel, Richard A. *Between Flesh and Steel: A History of Military Medicine from the Middle Ages to the War in Afghanistan*. Washington: Potomac Books, 2013.

Gabriel, Richard A. and Karen S. Metz. *A History of Military Medicine. Vol 2: From the Renaissance Through Modern Times*. New York: Greenwood Press, 1992.

Garrison, Fielding H. *Notes on the History of Military Medicine*. Washington: Association of Military Surgeon, 1922.

Keevil, J.J., Christopher Lloyd, and Jack L.S. Coulter. *Medicine and the Navy, 1200-1900*. 4 vols. London: Livingstone, 1957-1963.

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