

Explaining the Socio-Economic Demographics of Victorian Naval Medicine

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In its January 26, 1850 issue, *The Lancet* protested against what they saw as a “clannish,” discriminatory appointment and promotion systems within the Army and Navy medical branches. They particularly called into question the motives of the Navy’s Medical Director-General based on the domination of both the higher and lower ranks of the service by Scottish surgeons.ⁱ Throughout the early 19th century, most of the *Lancet*’s articles on the Naval Medical Department were more mundane, emphasizing the poor conditions of naval service relative to the rest of the medical profession, and the Navy’s intermittent difficulties recruiting the necessary number of medical officers for.ⁱⁱ These varied discussions of the state the Naval Medical Department indicate a complex dynamic of factors affecting appointment, recruitment, and the composition of the medical service’s ranks, ranging from the conditions of naval service to the opportunities, or lack thereof, available for practitioners in the in the domestic labor market.

When I proposed this project, I intended to systematically quantify the size of the medical labor market based on the number of medical students educated in Britain to demonstrate the effects of oversaturation on the labor dynamics of Scottish medical students and the Naval Medical Department. I was not able to find the exact data on the number of medical students educated at particular schools, which I expected to discover in Naval Medical Department documents and/or parliamentary committee reports on medical education. It has been more difficult quantifying the overall size of the medical labor market with enough certainty to draw conclusions than I envisioned.

I was able to determine that the principal reasons for the absence of this data in National Archive records was that, prior to the systematic registration of medical practitioners required by the Medical Act of 1858, the British government relied on the royally chartered professional bodies, known as Colleges, to license and regulate physicians, surgeons, and apothecaries. The Navy likely did not feel the need to re-analyze surgeons' medical educations, since regulating that was within the royal colleges' purview. It only required candidates to submit proof that they had passed their examination from one of the royal colleges, and taken the courses specified in the appointment regulations.ⁱⁱⁱ

Estimating from Medical Students to the Profession:

Despite the difficulties laid out above, I can roughly quantify the increase in the number of university medical students to show the rapid expansion of both the number of students attending existing institutions, and the number of medical schools. From the general trend, I should be able to describe the labor dynamics of British medicine and Scottish medical students.

Scottish universities were at the forefront of the expansion of British medical education, which began at the University of Edinburgh in the mid-18th century. Its student body dramatically increased from an average of approximately 300 students and 50 graduates annually to roughly 850 students and 100 graduates per year by the 1820s. However, by the 1840s, the number of students studying at Edinburgh had declined by half; there were also only 60 to 70 graduates annually.^{iv} The University of Glasgow rapidly expanded during the late-18th and early-19th centuries, reaching its plateau in the

late 1820s, when it averaged 30 graduates a year and had an enrollment of approximately 1,000 students before leveling off.^v In addition, the Universities of Aberdeen and St. Andrews both introduced medical courses during the early nineteenth century. They awarded a combined average of 40 medical degrees a year between 1845 and 1855.^{vi}

The enrollment at the two leading Scottish medical schools, Edinburgh and Glasgow, had expanded significantly from the 1780s onward due to the need for hundreds of medical officers in the Royal Navy and British Army during the Napoleonic and French Wars. Based on the enrollments of each university, at their peak in the mid-1820s, the four Scottish universities enrolled approximately 1,850 medical students per year, and awarded roughly 140 to 150 medical degrees annually. By the early 1840s, the medical enrollment at the Scottish universities had declined to approximately 1,300 students, along with 130 to 140 medical graduates annually.

Although Trinity College dominated Irish medical education, enrolling between 200 and 300 students, and awarded 20 to 30 medical degrees annually, the only other center of medical education in Britain that could compete with Edinburgh in quantity of students educated was London. It underwent a dramatic transformation following the Napoleonic Wars with the opening of new teaching hospitals during the early-19 century. These were in addition to the famous teaching hospitals already in existence. By 1850, there were nine hospital schools that could be classed alongside the Scottish universities. The number of students enrolled annually at these London hospital schools rapidly increased from approximately 800 in 1815 to 1,950 in 1841.^{vii}

Outside London, a large number of provincial medical schools were founded beginning in the 1820s. They spanned from Bristol to Birmingham, Exeter, Hull, Leeds,

Liverpool, Manchester, Nottingham, Newcastle, Sheffield, and York.^{viii} By the time the first of these schools were up and running in Manchester, Liverpool, and Newcastle in the mid-1830s, they each taught between 25 and 50 students each year.^{ix} All together, these provincial medical schools taught approximately 150 students annually in the early-to-mid 1820s, and 250 students in the early 1840s.

From the student enrollments of the major British medical schools described above, I can approximate the total number of students attending the leading university and hospital medical schools in the mid-1820s and early 1840s. In the mid-1820s, the leading British medical schools enrolled approximately 3,100 to 3,200 students annually. They also awarded between 160 and 180 medical degrees each year. At that time, the Scottish universities dominated the educational market in terms of medical student enrollment and graduation. By the early 1840s, there were approximately 3,750 to 3,850 students enrolled each year at the leading British medical schools. The number of medical degrees awarded annually remained between 150 and 170. While Scottish universities continued to award the vast majority of British medical degrees, the London teaching hospitals had overtaken the Scottish universities in total enrollment. Nonetheless, there was greater parity and diversity in medical schools attendance and graduation in the early 1840s than the mid-1820s.

Although I had hoped to use these data to estimate the size and educational background of the British medical profession, I have run into several problems that make extrapolating from student enrollment to the profession unfeasible. There were an unknown number of prospective doctors and practitioners in late-18th and early 19th centuries trained at the dozens of schools run by the Royal Colleges, private anatomy

schools and proprietary schools run by individual surgeons, physicians, and dispensaries in London, provincial English cities, Edinburgh, Glasgow, and Dublin.^x These smaller private schools are the most difficult to quantify due to the lack of surviving records, and the overlap of their student bodies with other medical schools in their respective cities.

This overlap in the medical student bodies between different schools indicates the fluidity in nineteenth-century medical students' education. Students intent on pursuing all levels of medical profession from working-class uncredentialed to elite private practitioners took varying combinations of university, royal corporation, teaching hospital, and private school courses. This lack of mutual exclusivity between schools undermines the reliability of enrollment totals determined by totaling individual school's student numbers. In addition, I have observed that students pursued anywhere from one to seven years of medical education depending largely upon their career goals. In order to extrapolate from annual student enrollments to the size of the medical profession, I would need to determine how long the average student attended each educational institution, as well as attrition rates among existing practitioners.

The one reliable total that I have found to base further estimates on is that there were 17,491 self-identified medical professionals (1029 people per medical practitioner) practicing in England and Wales according to the 1851 census records.^{xi} Based on the earlier and continued education boom in Scotland, it is safe to assume that the percentage of medical professionals given the population was slightly higher in Scotland. I would estimate that there were 3,500 to 4,000 medical professionals practicing in Scotland (between 826 and 723 people per practitioner respectively). The number of medical practitioners in Ireland in 1851 is difficult to estimate due to the massive upheaval caused

by the Great Famine, and sparser data. I would estimate that there were between 4,000 and 5,000 medical practitioners in Ireland (1,400 and 1,120 people per practitioner respectively). These estimates would lead to a total of 25,000 to 26,500 medical professionals practicing within the United Kingdom, in addition to the 1,000 to 1,500 practicing in the Navy and Army.

Scottish Medical Students, Career Options, and Labor Markets:

Given the size and distribution of the British medical profession laid out above, I want to consider how Scottish medical students navigated this terrain, and made choices regarding how they would pursue their careers. The preferred career options for medical students throughout Britain were to pursue a hospital appointment or set up a general practice once they finished their education. These preferences were principally due to the earning potential, and potential increase in status if one reached the elite end of general practitioners. These positions were the most competitive to land, and hardest to succeed in establishing oneself, particularly for the ambitious lower-middle class Scots and Englishmen flooding medical schools during the early-to-mid nineteenth century.^{xii}

Beyond the significant amount of money necessary to successfully begin one's career in hospital or general practice, it took significant social connections to land a hospital appointment or build a client base in general practice.^{xiii} Since a Royal College license was the legal barrier for practice in Britain, many students from middling backgrounds hoping for general practices pursued only the most basic medical education— one or two years of schooling. They then entered general practice, eking out

a living serving the portion of the working and middle classes who could not afford the expense of visit better-educated, more expensive practitioners.

Those hoping to set up general practices faced a competitive labor market within Scotland. Given my estimates, Scottish universities educated enough students within any ten-year period during the early-to-mid nineteenth century to potentially meet all demand for hospital and private practitioners within Scotland. Based on the long length of many professionals' medical careers, Scottish medical schools overproduced for their own medical market. This led to fierce competition between medical practitioners within Scotland. For the many who did not succeed in the main cities, the most fortunate moved to rural areas of Scotland to find opportunities for practice. Others were forced to look to England and Ireland.

Based on my estimates, the London and provincial schools did not produce enough new medical professionals to fully meet their own needs, especially given practitioners' attrition and risk of death. From the late-18th century forward, this imbalance between the number of English-educated medical students, and the demand for medical professionals in England presented an opportunity for Scottish medical students who migrated to gain employment. During the early 19th century, Scottish-educated practitioners took advantage of the shortage of medical professionals in the more rural areas of provincial England, which led to increased evenness of medical coverage.^{xiv} The rapid expansion of medical education in London during the 1820s and 1830s made the English labor market, particularly in London, more competitive. The desirability of medical practice within the metropolis led to particular oversaturation of the market.^{xv} This changing labor market left fewer opportunities for Scottish-educated practitioners.

Some other Scottish medical students and new practitioners who either could not, or did not believe they could succeed in the competitive Scottish and English medical labor markets chose to look outside the Isle of Britain for employment opportunities. From the latter-eighteenth to the mid-nineteenth century, Ireland was a popular destination for Scottish-educated medical students. Due to the smaller number of medical students educated within Ireland, there was a more open labor market for medical practitioners. A large number of Irishmen tried to take advantage by travelling to Edinburgh, Glasgow, and London to receive their medical educations before returning to Ireland to pursue hospital and general practice. Despite returning Irish students, there were still many opportunities available for Scottish medical practitioners within Ireland. Other places of opportunities abroad favored by Scottish medical students were the British settler colonies and the United States.

The third option for employment was an appointment in the Army or Navy. The Navy, on which my analysis will focus, had both unique opportunities and glaring drawbacks. The burdens of naval service turned off many potential candidates from the Navy. Naval medical officers faced some of the harshest conditions of any British medical practitioners. For example, service-related mortality was greater for naval medical officers than any other class of naval officer. From 1817 to 1831, 345 Surgeons and 266 Assistant Surgeons died while on naval service.^{xvi} Beyond the conditions of service, another set of issues that turned off potential candidates was related to pay. Rates of pay for naval medical officers were relatively low considering the hardship of going to sea for long periods of time, and the increased risk of naval duty around the

world.^{xvii} Furthermore, the rates of half and full pay in the Navy lagged well behind the Army and most of the domestic medical profession.^{xviii}

The last set of significant issues that turned off potential candidates concerned the status of naval medical officers. The Order of Council of 1805 should have guaranteed naval medical officers received the same rank as their counterparts in the Army, and “placed them on same footing as their Army brethren.” Nonetheless, the Order was practically ignored after the Napoleonic Wars. The lack of regard for the Order in Council was made clear by the designation of medical officers as inferior warrant officers, and the refusal of most officers to treat Assistant Surgeons in the same manner as the subaltern officers of the Army, and lieutenants of Marines.^{xix}

Despite these heavy burdens, there were several benefits that appealed to a certain type of medical practitioners joining the Navy. Early in their naval careers, Assistant Surgeons found steady, full-time employment. Upon completing their first two years of service, naval medical officers were virtually guaranteed steady income. As employment opportunities drew down later in their career, or when they were in between assignments, naval medical officers received half-pay. Perhaps the greatest opportunity was that during long periods spent at home, or when it was unlikely that they would ever serve actively again, naval surgeons could attempt to build their own general practice to supplement their half pay.^{xx} These benefits were most appealing to middling Scots and Englishmen finishing their studies in Edinburgh and London. While their prospects of immediately going into general practice and supporting themselves in the domestic labor market were slim, naval service provided the experience and money necessary to make a modest living and transition to general practice later in their careers if they wished.

Beyond the incentives of steady employment, income, and half pay, there were additional opportunities to increase one's pay and advance one's career through volunteering for the Royal Navy's riskier assignments. The West African Anti-Slavery Squadron best demonstrates these possibilities within naval service. In Surgeon Morris Pritchett's comprehensive account of the burdensome conditions and incentives offered to entice medical officers, he described the work, especially treating the recaptive slaves interdicted by the Squadron, as some of the onerous and demoralizing in the service. Nonetheless, the practical experience offered on the African Station, and prize money offered for each freed slave were powerful incentives.^{xxi}

The trade-off between the conditions and benefits appealed most to young Scottish Assistant Surgeons who saw employment on the African Station as a worthwhile opportunity to advance their careers and earn the money needed to support a family or save for setting up their general practice. This logic applied to other stations and expeditions with an increased risk of death, injury, or incapacitation. During my research in the National Archives, I came across numerous requests from medical officers for specific assignments. These included requests to serve on the African and West Indian Stations, Arctic and African Expeditions, and even convict ship service to Australia.^{xxii} Beyond prize money, some of these assignments came with financial incentives akin to hazard pay.

There were several additional factors beyond the opportunity for more practical experience and better pay that led some medical officers to enter the Royal Navy, as well as volunteer for more dangerous assignments. Some medical students saw the Navy as an opportunity to have adventure and satisfy their "restless spirit."^{xxiii} For example, naval

surgeons who grew up in the more rugged areas of Scotland, or rural islands of Scottish and English appear to have been quite prone to pursue and even volunteer for the Navy's more far-reaching and dangerous assignments.

Other naval surgeons felt the need to accomplish something meaningful in the world. Some medical officers volunteered for assignments where they could help people the most, particularly slave trade patrol on West African Squadron, and emigrant ship service. For example, there appears to have been a small group of medical officers who were ardently evangelical and/or abolitionist in ideology who pursued their mission within the Navy by helping receptive slaves.^{xxiv} Despite the burdens of these services, an experienced medical practitioner could save many lives while treating slaves, convicts, and emigrants.

Another group of medical officers joined the Navy to see the world and conduct scientific and natural historical research. To those interested in the research aspect of medicine and science, the Navy presented opportunities in exotic environments and places not available to domestic practitioners. In order to pursue these scientific opportunities, medical officers often volunteered for assignments, and proposed expeditions to areas such as West Africa, the Pacific, and the Arctic. Based on the documentation that I collected, Scottish-educated medical officers appear to have been most likely to pursue and conducting scientific work within the Navy.^{xxv}

Despite some difficulties carrying out my initial research plan, I have been able to describe the medical labor environment for Scottish and British medical students, as well as many of the motivations that convinced candidates to enter naval service as medical

officers. Scottish universities educated more medical professionals than could possibly practice within Scotland. Although some Scottish medical students migrated to pursue opportunities in England and Ireland, the expansion of medical education in London led to a hyper-competitive labor market throughout Britain. Some medical professionals, particularly those Scots and Englishmen would have the hardest time succeeding in general practice, joined the Army and Navy.

The Navy was highly successful at recruiting middling medical students educated in Scotland and London. The steady employment and pay opportunities— including half pay, and incentives such as prize money— offered by the Navy appealed to many of these medical students. The Navy also provided opportunities to gain the medical experience necessary to pursue general practice, to have adventures across the seas, to pursue natural historical and scientific research in unique settings, and to contribute meaningfully to humanity. All of these motivations appealed, albeit in different degrees, to this group of medical students, and persuaded those who chose to enter the Navy.

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ⁱ *The Lancet* 55, no. 1378 (January 26, 1850): 136; *London Journal of Medicine* 2, no.14 (Feb. 1850): 215.

ⁱⁱ Christopher Howard Penn, “Sir William Burnett and the Medical Staffing of the Royal Navy, 1815-1856” (M.A. Thesis, University of Exeter, 2001), Add. Mss. 52638, West Sussex Record Office, Chichester, UK, pgs. 27, and 53, as well as Chapter 3. Also see David McLean, *Surgeons of the Fleet: The Royal Navy and its Medics from Trafalgar to Jutland* (New York: I.B. Tauras, 2010), passim.

ⁱⁱⁱ For Navy, see clauses in appointment regulations specifying required examination by Royal College of Surgeons, Royal College of Physicians, or Society of Apothecaries in London, Edinburgh, or Dublin. Admiralty, and Medical Director General. “Regulations for Naval Medical Officers,” 1835, ADM 105/38/f.79; 1839, ADM 97/150/343; 1842, ADM 97/156/2523; 1845, ADM 97/163/850; 1850, ADM 97/189/3415; 1853, ADM 97/211/905, National Archives, London.

^{iv} John D. Comrie, “Matriculates in the Faculty of Medicine Prior to 1858”, *University of Edinburgh Journal* 8, no 2 (1936-37): 125,

^v Anne Digby, *Making a Medical Living: Doctors and Patients in the English Market for Medicine, 1720-1911* (New York: Cambridge University Press, 2002), 12; Derek Dow and Michael Moss, “Medical Curriculum at Glasgow in the Early Nineteenth Century” in *History of Universities*, vol. 8 (New York: Oxford University Press, 1988), 239.

^{vi} Carolyn Pennington, *The Modernization of Medical Education at Aberdeen in the Nineteenth Century* (Aberdeen: Aberdeen University Press, 1994), 7.

^{vii} Digby, 12-13; A.H.T. Robb-Smith, “Medical Education at Oxford and Cambridge Prior to 1850,” in *The Evolution of Medical Education in Britain*, ed. J.N.L. Poynter (London: Pitman, 1966), 49.

^{viii} Digby, 13; S.T. Anning, “Provincial Medical Schools in the Nineteenth Century,” in *The Evolution of Medical Education in Britain*, ed. J.N.L. Poynter (London: Pitman, 1966), 121-122.

^{ix} Anning, 126.

^x Digby, 12-13; Lisa Rosner, *Medical Education in the Age of Improvement: Edinburgh Students and Apprentices, 1760-1826* (Edinburgh: Edinburgh University Press, 1991); Matthew K. Kaufmann, *Medical Teaching in Edinburgh During the 18th and 19th Centuries* (Edinburgh: Royal College of Surgeons of Edinburgh, 2003), *passim*.

^{xi} Digby, 15.

^{xii} Rosner, 28-30.

^{xiii} *Ibid.*, 20-21.

^{xiv} Digby, 20.

^{xv} *Ibid.*; Irvine Loudon, *Medical Care and the General Practitioner* (New York: Oxford University Press, 1996), 306.

^{xvi} Sir William Burnett to the Earl of Minto, Copy of a Report to Sir James Graham Dated June 14, 1831 [Incomplete Original held at National Archives, London], November 24, 1837, Elliot Family Papers, ELL/245/f.9. National Maritime Museum, London.

^{xvii} Sir William Burnett to the Secretary of the Admiralty, December 19, 1837, ADM 105/71/f.337-340, National Archives, London; Sir William Burnett to the Secretary of the Admiralty, March 16, 1855, ADM 97/218/7786, National Archives, London.

^{xviii} Sir William Burnett to the Earl of Minto, Report to Sir James Graham, November 24, 1837, ELL/245/f.14, Elliot Family Papers.

^{xix} *Ibid.*, ELL/245/f.15 & f.21.

^{xx} *Ibid.*, ELL/245/f.4.

^{xxi} Morris Pritchett to Sir William Burnett, May 23, 1837, ADM 97/142/1281, National Archives, London.

^{xxii} Alexander Bryson to Sir William Burnett, October 5, 1832, ADM 97/133/1741, National Archives, London; Robert McCormick to Sir William, January 5, 1836, ADM 97/139/2990, National Archives, London; James Barrow, Secretary of the Admiralty to Sir William Burnett, July 3, 1840. ADM 97/26/1115. National Archives, London; Sir William Burnett to

the Board of the Admiralty, June 9, 1853, MSS.242/7/f. 4-5, Royal Naval Museum/Admiralty Library, Portsmouth, UK.

^{xxiii} Charles Prentice to Sir William Burnett, October 28, 1849, ADM 97/184/3815, National Archives, London.

^{xxiv} Pritchett to Burnett, May 23, 1837, ADM 97/142/1281, National Archives; Sir William Burnett to the Secretary of the Admiralty, March 14, 1848, MSS.242/5/f. 312, Royal Naval Museum/Admiralty Library, Portsmouth; Thomas Richard H. Thomson, *The Brazilian Slave Trade, and Its Remedy* (Douglas, Isle of Man: John Mylrea, 1850).

^{xxv} W.B. Jones to Sir William Burnett, January 1, 1840, ADM 97/150/563, National Archives, London; Morris Pritchett to Sir William Burnett, November 5, 1842, ADM 97/156/2985, National Archives, London; Sir William Burnett to the Duke of Richmond, 9 August 1843, Goodwood Papers, 1651, West Sussex Record Office, Chichester, UK; Archibald Sibbald to Sir William Burnett, March 20, 1852, ADM 97/196/5559, National Archives, London; W.J. Alexander, Arthur Adams & W.B. Baikie to Sir William Burnett, September 20, 1852, ADM 97/200/3603, National Archives, London.