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PRACTICAL MEDICINE AND THE BRITISH ARMED FORCES AFTER THE "GLORIOUS REVOLUTION"

by

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Just over three hundred years ago, William of Orange seized the British crown for himself and his wife Mary Stuart from his uncle and father-in-law, James II. In a virtually bloodless take-over, William's coup placed firm Protestants on a throne that had been occupied by a Catholic monarch ruling in an increasingly autocratic manner without Parliament and in contempt of the Established Church—and this at a time when the absolutism of the His Most Catholic Majesty, Louis XIV, was at its height. William's was a brilliant military venture, which prevented a repetition of the French-English union of the early 1670s that had brought about their war against the United Provinces in the "disaster year" for the Dutch, 1672. When, at the invitation of a small group of English noblemen, William landed on the south-west coast of England in early November 1688, at about the time of his birthday, his wedding anniversary, and the annual celebration of James I's escape from the Gunpowder Plot, in the centenary year of the Armada, and with yet another Protestant wind at his back blowing the English fleet into port and him across the Channel, Providence seemed to be with him indeed. Gradually, English gentlemen and aristocrats rode into his camp, and as more and more of the King's own officers and ministers defected, James panicked and fled to France. By late February 1689 the revolutionary settlement had decreed William and Mary joint Majesties of England, Scotland, France, and Ireland; they were crowned in April. The change in government of 1688–89 came afterwards to be called the "Glorious Revolution". Still, it took years of warfare in Ireland and Flanders before William and his supporters secured the new government.

The influence of the new monarchy could soon be felt throughout British society, even in unexpected places. Upon becoming King, William took the standing army and navy that James II had begun to build up and expanded and disciplined them until they became significant forces in the European balance of power. In order to assure the throne and to bring Britain into the war against France, William reluctantly accepted the Declaration of Rights and regular sittings of Parliament. The settlement also guaranteed Anglicanism as the state church. William also had to reform the administration of the government and to find new sources of money for his wars. Changes in government accounting and finance began to affect British society

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profoundly, and the creation of the Bank of England and the national debt were among the Dutch innovations adopted by the British to underwrite the wars. As it drew Britain directly into the military conflicts on the Continent, William's revolution caused important structural changes in British society.[1]

Many of the changes affected the medical community of England, among them the growing significance of the military forces in the life of the English nation. William adopted some Dutch methods of administering the armed forces, including reshaping the medical infrastructure of the army and navy. Changes included not only an increase in the size of the medical staff needed for William's military ventures, but also in the organization of the medical services. These reforms affected the practice of military medicine. They created new routes to medical training that affected many practitioners. They also helped to channel the course of institutional conflict in the London metropolis. Additionally, the new military establishment reinforced the growing cachet of empirical, practical, "clinical" medicine, undermining the ideas of medical judgement held dear by the learned physicians.

Military medical practitioners were often only cursorily trained in medical practice. They also dealt with large numbers of men at once, not individual patients. Such practitioners had little time or inclination to become deeply learned in physic, which sought the causes of ever-changing disease states in the unique physiological conditions of each person's constitution. Rather, they preferred to sort out cases according to symptoms based upon the "ontological" theories that diseases were specific entities that could be readily identified and classified. When it came to treatment, military medical practitioners also sought specific cures that would attack and conquer specific disease entities rather than the varying treatments, oriented to the varying states of a protean distemper, preferred by the learned physicians. Certainty and uniformity in the diagnosis of specific complaints could provide the basis for uniform and specific treatments in medicine and surgery.

Military medicine therefore inculcated the highest respect for a knowledge of specific details that could be quickly taught to others, rather than well-informed judgement rooted in good character. It was a medicine that often held up the methods of Thomas Sydenham as an ideal, the methods of someone who himself had seen military service. Whether the practices we shall look at below were truly Sydenhamian or not, many of the proponents of new treatments pointed to him as their model in order to justify the importance of an empirically or "experimentally" derived system of treatment that would be good for all patients whomsoever.

The advantages of empirical medicine for the military surgeons and physicians were many: the more regularized and standardized each step of diagnosis and treatment became, the easier it would be to treat soldiers and sailors, to train new practitioners quickly and well, and to find new medical specifics for particular diseases or new operations for patching up wounds.[2] For their part, the admirals and generals wanted

[1] For more on the significance of the militarization of British society, see John Brewer, *The sinews of power: war and the English State 1588–1783*, London, Unwin Hyman, 1989. This important book appeared too late to be taken into account during the writing of this essay.

[2] These goals are made clear by William Cockburn in his *Sea diseases: or, a treatise of their nature, causes, and cure*, 2nd ed., London, Gor. Strahan, 1706, and many of his other works: see note 107 below.

their men back in shape to perform their duties as quickly, efficiently, and cheaply as possible. As for the sick and wounded soldiers and sailors themselves, they had even less choice over which practitioner to call on or which treatments they would receive than the poor people who resorted to hospital care. In short, military medicine combined surgery and medicine and was oriented towards a mass clientele, based upon the power of practitioner over patient, directed toward quick and simple cures, and rooted in a belief in specific disease entities rather than unique physiological imbalances. Military medicine combined just those aspects of medicine to which historians have often pointed when tracing the origins of modern medicine.

THE REVOLUTION AND MILITARY MEDICINE

Gaining the loyalty and restoring the strength of the English armed forces was one of the first needs of the new soldier-king William III. He strove to raise new and powerful forces to defeat the army of the deposed James Stuart in Ireland in 1689 and 1690, to continue his struggle against the French in Flanders until 1697, and to deploy fleets on expeditions in the Irish Sea, the Channel, the Mediterranean, and the West Indies. After his conquest, William quickly had to restore, increase and reshape the British army and navy, both to ensure their loyalty to the new order and to increase their size and power.

William soon found that, in order to make his new forces more battle-worthy, he had to revamp the military medical services along lines more like those in the Dutch army and navy. An Englishman experienced in the Irish wars, Roger Boyle, Earl of Orrery, had earlier written of the importance of having a "competent" medical staff and hospital in all garrisons, "for besides the just Charity of such Care, who can expect the Soldiery shall frankly hazard themselves, if due provision be not made for the wounded and sick . . .?"[3] By the end of William's wars, the English Secretary to the Navy Board had learned harder lessons than the usefulness of medical preparations for morale. When Josiah Burchett wrote of the government's duty to provide for the medical care of the men obtained for service, he, too, wrote that such care "will much contribute . . . to the confirming in them a hearty Love and Affection to the Publick Service." But equally importantly, the larger forces of the day had been hard to maintain in strength, given the rate of sickness among the soldiers and especially among the sailors: hence, "there cannot be too much Care taken to preserve a Race of Men so absolutely necessary for the Good of our Country."[4] Without sufficient manpower, Britain's armed forces would be of no use; and one could not raise and train men quickly enough to replenish the swelling forces if many of those in service perished of disease.

The soldiers and sailors ran much greater risks of dying of disease than of wounding, maiming, or death in battle. They lived in cramped and dirty quarters or in the open air, subject to the weather, elbow to elbow with their fellows, on inadequate and commonly bad, even inedible, rations. Scurvy, diseases of the lungs and bowels, and fevers of all kinds raged among the men, incapacitating many of those who did not perish. In

[3] Roger [Boyle], Earl of Orrery, *A treatise of the art of war*, In the Savoy, T.N. for Henry Herringman, 1677, p. 53.

[4] Josiah Burchett, *Memoires of transactions at sea during the war with France*, In the Savoy, Edw. Jones, 1703.

September 1690, for instance, William's commander in Ireland, Count Solms, reported that there were far more sick in his forces than could be taken care of, with one regiment having not even ten men able to stand at arms.[5] During the 1693 expedition to the West Indies, the attack on Martinique had to be abandoned because of sickness among the troops; the 1695 expedition to the same region lost so many men to disease that several severely undermanned ships went down at sea before they could get home.[6]

By the beginning of the new reign, the British were accustomed to expect that each regiment and ship would have a surgeon and one or two surgeon's mates to take care of the sick as well as the wounded.[7] But, during wartime, these practitioners often could not provide enough care for the sick and wounded. Shortly after the Battle of Bantry Bay on 1 May 1690, Admiral Herbert gave a speech about the inadequacy of medical provision in the navy.[8] Parliament had decided to revive during the new conflict the system of supplemental relief that had become common since the Civil War, appointing a six-member Commission for the Sick, Wounded, and Prisoners of War. If a ship was in port or a regiment anywhere near friendly territory, the military officers put the sick out to ordinary civilians to be cared for, paying them from the coffers of the Commission. But like most aspects of English government before William's reforms, the small civilian Commissions were understaffed and underpaid, had few resources at their disposal, and had to try to mitigate crises on an *ad hoc* basis.[9] Money was often long in arrears and the sick and injured soldiers and sailors themselves ordinarily had very little, if any, money of their own to pay for care. The Commissioners, who were supposed to inspect the circumstances of each request for payment, were often preoccupied with petitions for relief from maimed and disabled servicemen and families destitute because of the death of a husband or father in His Majesty's service.[10] The result was that not only on the field of battle but even in home ports and near friendly garrisons the sick, wounded, and disabled often had to beg for food, lodging, and nursing. For instance, later in 1690 the town of Rochester, near the Chatham dockyards, was overrun with desperately sick servicemen who had no money to pay for their care: some were dying in the streets, and the situation was helped only when the Lord Mayor opened the Town Hall and brought in straw for them to lie on.[11] The

[5] *Calendar of State Paper, Domestic Series, 1690–91*, ed. William John Hardy, London, HMSO, 1898, pp. 120, 124–5.

[6] William Laird Clowes, *The Royal Navy: a history from the earliest times to the present*, 5 vols., London, Sampson Low, Marston and Co., 1898, vol. 3, pp. 470–1, 485–6.

[7] There are 350 commissioned medical officers in the Army listed to 1703, 323 (or 92%) of them surgeons (and 20 physicians and 7 apothecaries). If surgeon's mates (who were not commissioned) could be added to the list, it would be clear that virtually all medical care in the army was in the hands of surgeons or their mates; the same would apply to the navy. See *Commissioned Officers in the medical services of the British Army 1660–1960*, vol. 1, *1660–1727*, comp. A. Peterkin, London, The Wellcome Historical Medical Library, 1968.

[8] John J. Keevil, *Medicine and the Navy 1200–1900*, vol. 2, *1649–1714*, Edinburgh, E. & S. Livingstone, 1958, pp. 171–2. Keevil's book has been an indispensable aid; however, it should be pointed out that he wishes to show continuity between the reigns of Charles II, James II, and William III, and that he has little regard for the medical ideas or practices of the period. On both these issues this essay has chosen to present another view.

[9] The second Anglo-Dutch war was especially chaotic in this respect: J. J. S. Shaw, 'The Commission of Sick and Wounded and Prisoners, 1664–1667', *The Mariner's Mirror*, 1939, **25**: 306–27.

[10] Keevil, op. cit., note 8 above, pp. 190–9.

[11] *Cal. St. Papers, Dom., 1690–91*, op. cit., note 5 above, pp. 169–70.

response of the new monarchs to these problems was to institute reforms in the British forces, so that by the end of the reign a new system of military medical care had come into being, watched over but no longer administered by the Commissioners for Sick and Wounded.

When their Majesties first looked around, they found that James had left the established medical system in relatively good order for a peacetime force. Various garrisons had had surgeons appointed,[12] and general medical supervision had been placed in the hands of a Physician General, a Surgeon General, and an Apothecary General.[13] William quickly replaced the Surgeon General with one of his own men, the Dutchman William van Loon (or Loen).[14] Van Loon replaced James Pearse, who had not only worked closely with the former regime, but was also tainted with its Catholicism.[15] Van Loon immediately tried to gather together a large number of skilled surgeons for the army and navy by impressing into military service masters of the London Barber-Surgeons' Company, much to their dismay.[16] At first, James's Physician General, Thomas Lawrence, gained reappointment (as the nephew of Henry Lawrence, a Puritan and Cromwellian MP, he had far from Catholic loyalties);[17] but by the summer of 1689 he had been shifted to the post of "Physician General to the Army in Ireland",[18] while John Hutton, first physician to Their Majesties, became the acting Physician General to all the forces.[19] Hutton, a Scotsman who had served the King loyally in The Netherlands, had come over with William as Physician General to the invading army.[20] When, during the preparations for the Irish campaign in the

[12] The list of *Commissioned Officers*, op. cit., note 7 above, shows there were or had been commissioned garrison surgeons at the Scilly Isles (Price: 1666), Isle of Wight (Yelverton: 1673), Portsmouth (Grundy: 1677, 1685), Jersey (Salanove: 1674, 1678), Guernsey (Warner: 1678), Hull (Hardy: 1683; White: 1686), and the Tower of London (Seele: 1685). In addition, the important English garrisons at Dunkirk (sold to France in 1662), and Tangiers (until its abandonment in 1683), had garrison physicians (Wyatt: 1661; T. Lawrence: 1664, respectively).

[13] The latest "Physician to the Forces" was T. Lawrence (formerly of Tangiers); the Apothecary General, a position established in 1685 and not continued, was held by R. Whittle from 1685; and the Surgeon General was J. Pearce.

[14] Van Loon also served as Serjeant Surgeon (or personal surgeon) to the King: *Calendar of Treasury Books, 1702*, prep. William A. Shaw, London, HMSO, 1939, pt. 2, pp. 1021, 1027.

[15] Keevil, op. cit., note 8 above, p. 203; on Pearse, who is much praised by Keevil, see pp. 131–47.

[16] Ibid., p. 203.

[17] See the article on Thomas Lawrence's grandson, also named Thomas Lawrence (1711–83), in the *Dictionary of National Biography*, (hereafter, *DNB*). Our Physician General Lawrence was the son of a London apothecary with an MD from Padua: Joseph Foster, *Alumni Oxoniensis*, Oxford, James Parker, 1891.

[18] *Calendar of Treasury Books, 1689–92*, prep. William A. Shaw, London, HMSO, 1931, pt. 2, p. 657; ibid., *Oct. 1700–Dec. 1701*, prep. William A. Shaw, London, HMSO, 1938, p. 31; *Cal. Treas. Books, 1702*, op. cit., note 14 above, pt. 2, pp. 1021, 1024–5, 1027, 1029.

[19] *Calendar of State Papers, Domestic Series, 1689–90*, prep. William John Hardy, London, HMSO, 1895, pp. 47, 160; *Commissioned Officers*, op. cit., note 7 above. According to the latter, under the former regime, the English forces in Ireland had been given a commissioned Physician General (W. Currer, 1661; D. Fontaines, 1671), Surgeon General (J. Fountain, 1661), and Apothecary General (R. Miller, 1671); and the "Hospital for wounded soldiers and lepers, etc." in Ireland got a commissioned apothecary in 1662 (R. Miller). The more active interest William had to take in Ireland caused him to appoint another Apothecary General, I. Teale, there in 1689 as well as Lawrence; he seems not to have renewed the appointment of a special Surgeon General in Ireland, that falling to Van Loon's purview.

[20] For Hutton, see William Munk, *The Roll of the Royal College of Physicians of London*, 2nd ed., London, The College, 1878, vol. 1, pp. 481–2; *DNB* article by Gordon Goodwin; and Foster, op. cit., note 17

spring of 1690, the Duke of Schomberg complained of the medical arrangements, Hutton took on the responsibilities of inspecting the military hospitals, inquiring into the qualifications of all "who pretend to the employment" of army physician, surgeon or apothecary, overseeing the care of the sick and wounded, guaranteeing the provision of the necessary medicines, nursing, and attendance, and reforming and amending anything found amiss or defective.[21] Hutton and Van Loon continued to deal with the surgeons and hospitals in Ireland in the spring of 1691,[22] and in 1691 Hutton earned the new title of Physician General to the Armies and Land Forces.[23] He also became head of the Commission for Sick and Wounded Soliders and Physician General to the Hospitals.[24]

But in addition to changing personnel, William and Mary restructured the medical systems of both army and navy, making them somewhat more like the Dutch system and less dependent on the Commission for Sick and Wounded Soldiers. One such important innovation was the establishment of military hospitals of two sorts. One kind cared for the sick and wounded. The major Dutch ports had small military naval hospitals, and Dutch armies had developed the practice of establishing field hospitals (or "marching" hospitals) when operating in hostile territory; the large municipal hospitals of The Netherlands also provided care for soldiers and sailors who could be evacuated. During the Civil War, the Savoy and Ely House in London were also fitted out as hospitals to deal with the Parliamentary sick and wounded, and the Savoy had to be opened again in 1665 because of the war, but they were closed afterwards.[25] During the Restoration, the English established two small military hospitals in distant regions: at Dublin (Kilmainham) and in Scotland (Heriot's).[26] The navy and army also contracted with local hospitals, especially the two large London hospitals, to take care of sick and wounded troops during periods of war. William's new wars and the Dutch example caused changes in this *ad hoc* system: a permanent naval hospital was established at Plymouth in 1689 and others followed in the eighteenth century.[27] The armies in Ireland and Flanders also adopted very quickly the practice of setting up large field hospitals.[28]

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above. He had also been involved in William's spy network before 1688: John Carswell, *The descent on England*, London, Barrie and Rockliff, 1969, p. 131.

[21] *Cal. St. Papers, Dom., 1689–90*, op. cit., note 19 above, p. 570.

[22] *Cal. St. Papers, Dom., 1690–91*, op. cit., note 5 above, pp. 308, 373, 374, 387.

[23] Ibid., p. 549, and 'Appointment by William and Mary of Dr. John Hutton as Physician General of the Army, 1691', London, Guildhall MS 10,494.

[24] *Cal. Treas. Books, 1702*, op. cit., note 14 above, pt. 2, pp. 1194–5.

[25] David Stewart, 'Some early military hospitals', *J. Soc. Army Hist. Res.*, 1950, **28**: 174; W. R. M. Drew, 'Military hospitals', in F. N. L. Poynter (ed.), *The evolution of hospitals in Britain*, London, Pitman Medical, 1964, pp. 157–67.

[26] G. A. Kempthorne, 'Some notes on the medical services of the Restoration army', *J. Roy. Army med. Corps*, 1939, **72**: 340–6.

[27] John Ehrman, *The Navy in the War of William III 1689–1697: its state and direction*, Cambridge University Press, 1953, p. 126.

[28] F. Watkins was appointed "Surgeon to the hospital to attend the army" on William's invasion and F. Smith got a commission of Physician to the Marching Hospital in 1689 (*Commissioned Officers*, op. cit., note 7 above). Thereafter are many references in the English state papers to physicians, apothecaries, and surgeons to the military hospitals in Ireland and Flanders, some of which are mentioned below. On field

The other kind of military hospital was what we would now call a hospice, taking custodial care of those permanently disabled in a national conflict. The Royal Hospital at Chelsea for army pensioners had first been proposed to Charles II by John Evelyn, who had been impressed by the Dutch Soldaatenhuis at Amsterdam; stimulated by the subsequent building of Louis XIV's Hôpital des Invalides in Paris, Sir Stephen Fox, Paymaster of the army, began to finance the building of this, the first major hospital built in England in several centuries, through deductions from soldiers' pay. William and Mary speedily completed what their predecessors had begun, and invested heavily in the hospital themselves.[29] They not only completed Chelsea, but also planned and constructed the grand new naval hospital at Greenwich.[30] Both institutions had a medical staff consisting of a physician, a surgeon, and apothecaries, nurses and assistants.

The Navy system was also reformed in the early 1690s.[31] While there had formerly been poorly paid, irregularly appointed surgeons at the naval dockyards of Chatham, Deptford, Woolwich, Sheerness, Portsmouth, and Plymouth,[32] the Navy Board now appointed regular physicians and surgeons to watch over the medical care of the forces: each of the main staging areas of Rochester, Deal, Plymouth, and Portsmouth had a physician and a surgeon to supervise the medical preparations for the fleet, the care of the sick and wounded, and the qualifications of the lay and medical people involved in their care. In addition, the main squadrons of the fleet, the Red and the Blue, had their own physicians to supervise the medical care aboard ship. When the major West Indies expedition was prepared in 1693, both a physician to the forces and a naval physician were appointed.[33] In an attempt to attract more experienced men to the service, substantial wages were paid: the physicians drew £1 per day, the four surgeons in port £200 per year, and in 1693 the wages of the sea surgeons were more than doubled, to £5 per month.[34] Also, in 1690 the Navy commissioned a hospital

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hospitals as an innovation of William's Irish campaigns, see Niel Cantlie, *A history of the Army Medical Department*, 2 vols., Edinburgh, Churchill Livingston, 1974, vol. 1, p. 22; also see John Childs, *The British Army of William III, 1689–1702*, Manchester University Press, 1987, pp. 157–9, which gives some information on British hospital contracting in The Netherlands; and G. A. Kempthorne, 'The medical services of William the Third's army', *J. Roy. Army Med. Corps*, 1937, **69**: 373–82.

[29] C. G. T. Dean, *The Royal Hospital Chelsea*, London, Hutchinson, 1950, pp. 19, 26, 111, and *passim*; and *Papers illustrative of the origin and early history of the Royal Hospital at Chelsea*, London, George E. Eyre and William Spottiswoode, 1872.

[30] J. Cooke and J. Maule, *An historical account of the Royal Hospital for Seamen at Greenwich*, London, G. Nicol, 1789; 'The Royal Hospital for Seamen at Greenwich 1694–1728', *Wren Society*, vol. 6, Oxford University Press, 1929; R. R. James, 'The Medical Officers of Greenwich Hospital from AD 1695 to 1800', *J. Roy. Nav. Med. Serv.*, 1934, **20**: 164–73.

[31] Late in 1690, the Admiralty consulted with Richard Lower, a Whig physician who had suffered a great loss of practice under Charles II and James II: although his proposals were never implemented, they were re-examined again in 1693: Keevil, op. cit., not 8 above, pp. 193–5.

[32] Ibid., p. 132.

[33] Ehrman, op. cit., note 27 above, pp. 445–6; Keevil, op. cit., note 8 above, pp. 176, 182, 253–4.

[34] Michael Lewis, *England's sea-officers: the story of the naval profession*, London, George Allen and Unwin, 1948, p. 255; Clowes, op. cit., note 6 above, p. 235; Keevil, op. cit., note 8 above, pp. 132, 176. The base rate of pay for surgeons was supplemented as previously by payments of 2*d.* per month, docked from the wages of each sailor aboard ship, and money from the "Chatham Chest" paid for curing seamen: 6*d.* per month was deducted from the sailor's pay for this.

ship for the fleet; two more were hired in 1691, and from 1693 to the end of the war there were never fewer than five in service.[35]

In many respects, the new medical establishment resembled that of the Dutch. In The Netherlands, each of the five Admiralty Colleges into which the Republic was divided had long had the assistance of well-paid and experienced physicians and surgeons who advised on the medical preparations and care of each fleet and examined the surgeons who applied for the remunerative posts aboard the men-of-war. The Admiralty Colleges also employed surgeons in the home ports. The Dutch armies had surgeons and surgeon's mates for the regiments, and Physicians and Surgeons General supervising the medical care of each army overall, including undertaking examinations of the surgical staff.[36] It was a system that William had found useful; and while Charles II's and James II's military reforms had already begun to adopt some of these modern methods, the Revolution forced rapid change.

Perhaps just as important as the changes in the military's medical administration was the expansion of the size of the army and navy during William's wars. With every ship and regiment having its own surgeons and surgeon's mates, and with the rapid increase in the overall number of ships and regiments, the number of British medical practitioners with military experience grew quickly. There were not only many more places to fill, there was a rapid turnover in medical manpower as well, especially in the navy, where the surgeons ranked among the warrant-officers and contracted individually for each voyage. The naval physician William Cockburn estimated that as many as one-half the surgeons in the navy each year were novices.[37] Surgeon General Van Loon first tried to solve the problem by impressment; Josiah Burchett later suggested that increasing the surgeon's pay yet further or putting them on a yearly salary might help "to invite knowing Men to undertake this Employment".[38]

But there were some attractions to the service for practitioners just starting out in the world and willing to endure the hardships and risks of military life. Military surgeons gained personal contacts with men and officers who might later help introduce them into civilian practice. Military employment also provided a means of avoiding the civilian infrastructure that otherwise dominated urban medical practice: when army and navy officers thought it necessary, surgeon's mates could be promoted to surgeon without having fulfilled any of the requirements ordinarily established for masters by the guilds. Many surgeons also took advantage of the Act of 1698 that allowed all discharged "soldiers" to practise their trades regardless of guild rules.[39] Therefore, when former military men moved into civilian practice, they often had little patience with the established medical corporations or with their

[35] Ehrman, op. cit., note 27 above, pp. 445–6; J. J. Sutherland Shaw, 'The hospital ship, 1608–1740', *The Mariner's Mirror*, 1936, **22**: 422–6; Christopher Lloyd, 'Naval hospitals', in Poynter (ed.), op. cit., note 25 above, pp. 147–55.

[36] A. H. M. Kerkhoff, *Over de geneeskundige verzorging in het staatse leger*, Nijmegen, R. Tissen, 1976; A. E. Leuftink, *De geneeskunde bij 's lands Oorlogsvloot in de 17e eeuw*, Assen, Van Gorcum, 1953; G. F. Pop, *De geneeskunde bij het Nederlandsche zeewezen*, Weltevreden, Kolff, 1922.

[37] Cockburn, op. cit., note 2 above, Preface.

[38] Burchett, op. cit., note 4 above, Preface.

[39] Keevil, op. cit., note 8 above, p. 202; Lloyd G. Stevenson, 'A note on the relation of military service to licensing in the history of British surgery', *Bull. Hist. Med.*, 1953, **27**: 420–7.

subordination to more learned but not always more experienced physicians.[40] Noted English practitioners like William Clowes, James Yonge, and Richard Wiseman had earlier founded their reputations in large part upon the experience gained as military surgeons.[41] By the eighteenth century, the advantages of army or navy surgery for obtaining a foothold in the medical world were such that it lured many, especially Scotsmen, into the services: among the most noted of them were William Smellie, William Cullen, Tobias Smollet, William and John Hunter, and John Pringle.[42] Thus, while Geoffrey Holmes has argued both for the importance of William's wars in professionalizing military service in eighteenth-century England and for the coincident "rise of the surgeon" in spreading professional medical practitioners throughout England,[43] for many surgeons these developments were interlinked.

THE MILITARY AND THE LEARNED PHYSICIANS

Given the military needs of the defence of the Revolution, it is not surprising to find that after 1688 the Crown began not only to reform military medical institutions but also to adapt the established civilian medical corporations to its purposes. In doing so, it helped to reshape the medical community of London. Among the medical institutions there was the London College of Physicians, which had notions of regulating all medical practice in and around the city so as to make its standards the *de facto* measure of good practice in England. The officers of the College had been encouraged by the previous regime to act vigorously against anyone and everyone who practised badly or without their permission. But gradually the new regime and the College developed important differences, not least about the content of medicine. While at first the Crown and the London College of Physicians co-operated in efforts to provide medical care to the armed forces, they soon had a falling out, which weakened the authority of the learned physicians of London.

As the country's military needs became ever more apparent, the King turned to the College of Physicians for help. Its officers were happy to make themselves serviceable to the Crown if the Crown would help them attain their goals in return. Before William and Mary's reign, the College had revived its efforts to police the streets of London and Westminster medically, especially after the renewal of its charter and James's strong directives in 1687. The College officers had become especially concerned both to limit the influence of the other two London medical corporations,

[40] *Idem*, 'The siege of Warwick Lane: together with a brief history of the Society of Collegiate Physicians (1767–1798)', *J. Hist. Med.*, 1952, **7**: 105–21; Ivan Waddington, 'The struggle to reform the Royal College of Physicians, 1767–1771: a sociological analysis', *Med. Hist.*, 1973, **17**: 107–26. Both articles stress the split between the Scots-educated licentiates and the Oxbridge Fellows of the College; it might be noted that most of those not educated in Scotland were educated in The Netherlands, and that many licentiates in both groups had military experience as well.

[41] Clowes, op. cit., note 6 above. F. N. L. Poynter (ed.), *The Journal of James Yonge (1647–1721): Plymouth surgeon*, London, Longman's, 1963; Richard Wiseman had been apprenticed as a surgeon in the Dutch navy for several years (*DNB* article by D'Arcy Power).

[42] See Joan R. Butterton, 'The education, naval service, and early career of William Smellie', *Bull. Hist. Med.*, 1986, **60**: 1–18, esp. pp. 6–11 on the advantages of naval service for eighteenth-century Scots.

[43] Geoffrey Holmes, *Augustan England: professions, state and society*, London, George Allen and Unwin, 1982; also see *idem*, 'The professions and social change in England, 1680–1730', reprinted in his *Politics, religion and society in England 1679–1742*, London, Hambledon, 1986, pp. 309–50.

the Barber-Surgeons' Company and the Society of Apothecaries, and to prevent their members and unlicensed empirics from practising medicine without the supervision of the physicians. They were trying to maintain a medical hierarchy in which learned physicians who exercised their educated judgement would control the practitioners of only an empirical and practical sort of curative medicine.[44] Yet the College was a constitutional anomaly, dependent on the goodwill of the Crown for its strength, having no place within the Corporation of the City of London or the two English universities. To continue their policies of policing the medical community, the officers of the College would need to continue in the good graces of Their Majesties.

While William and Mary were not adverse to taking advantage of the London College of Physicians, they were unaccustomed to dealing with such an organization. Before Mary had left England for The Netherlands as a young woman in 1677, the College had been a publicly weak institution, while Dutch colleges of physicians, found in many of the larger cities, were small learned societies, only occasionally having nominal control of medical practitioners. Not surprisingly, therefore, William and Mary seem to have been somewhat confused about the purposes of the London College. For instance, in July 1693, the King sent a warrant to the College directing them to grant Samuel Woodgate an MD, something the College had no power to do.[45] Moreover, at first the physicians did not seem especially helpful to the new government. As early as January 1690, a Crown agent informed the Solicitor General that among the reasons the Poll Tax had not raised the projected amount of money for the war was that many lawyers and physicians were under-rated.[46] But attempts to get the physicians to pay more turned in part on the question of whether they could be required to provide or furnish arms for the militia (or the monetary equivalent). The College physicians had long defended their privilege of being exempt from "supplying arms". The test case, "Millington's Case", in 1690, upheld their privileges against the government's need for money.[47]

Still, as William prepared for the Irish campaign over the winter of 1689–90, his advisers tried to take advantage of all medical talents, including those of the College physicians: the Committee of Lords for Managing the Affairs of His Majesty's Army in Ireland asked them for assistance in equipping the army, perhaps at the urging of Hutton. The College did its best to oblige. The officers drew up a list of medicines to be sent to the army and provided the money to purchase them from appropriate apothecaries.[48] They also drew up plans for establishing a military hospital in Ireland, with lists of beds and other furniture needed. The drugs alone cost the College £1,417, for which they were eventually reimbursed; the Crown also paid out as directed by the

[44] For more on these disputes, see my *Decline of the old medical regime in Stuart London*, Ithaca, Cornell University Press, 1986.

[45] *Calendar of State Papers, Domestic Series, 1693*, ed. William A. Hardy, London, HMSO, 1903, p. 214. The matter is not mentioned in the Annals of the College.

[46] *Cal. Treas. Books, 1689–92*, op. cit., note 18 above, pt. 2, p. 443.

[47] See the legal documents, London Royal College of Physicians 2019/6–8, 13–14. My thanks to the Royal College of Physicians for permission to quote from and to cite its records.

[48] The list (in the College Annals, vol. 5, fols. 153b–152b [*sic*]) was drawn up by the Censors Thomas Millington, Richard Lower, Charles Goodall, and Robert Pitt.

College a sum of £1,952 9*s.* 2*d.* to fit out the hospital.[49] In 1691, the College again provided medicines for the army in Ireland.[50]

In addition to requests from the army, the College also received requests from the Lords of the Admiralty. In March 1692, the Lords wrote that Peter Gelsthorp had resigned as physician at Deal. They wished to know if Robert Conny was a capable physician, to which the College responded affirmatively.[51] Not long after, Queen Mary directed a letter to the College stating that she intended to send an expedition to the West Indies soon, and asking its advice on an able physician. The College recommended William Grimbalston to the ill-fated expedition.[52] The Queen then asked the College to consult with Grimbalston and to recommend jointly an apothecary and assistant to the forces, and the kinds and quantitites of medicines to be sent on the expedition; it obliged.[53] When plans were set afoot to reform the navy medical system, and establish the positions of physicians to the fleet or yard, the Crown also asked for the College's advice on whom to appoint.

Yet the College soon found that co-operation with the Crown in the matter of recommending physicians for naval service undermined rather than strengthened its privileges. At the end of December 1692, the Lords of the Admiralty asked the College for a list of three or four nominations for a physician to take care of the sick and wounded at Portsmouth, from which they would choose one. This arrangement would have placed the final decision of who should serve in the hands of the Admiralty rather than the College. After some debate, the College officers decided that "to recommend so many", from which only one would be chosen, "might be a prejudice to their Majesties affairs by discouraging fitt, and able Physicians from proffering themselves for the future". They therefore recommended only one person.[54] Their Lordships recognized the question at issue, however, and forced the College to submit three names.[55] This arrangement worked occasionally over the next two years, but the conflict over who should choose navy physicians rankled with the College officers, and caused the Admiralty to appoint several physicians without even bothering to consult them; after 1709, they gave up entirely and asked the College only to look over the physicians they themselves decided to appoint.[56]

[49] *Cal. Treas. Books, 1689–92*, op. cit., note 18 above, pt. 2, pp. 341, 375, 440, 531, 538, 541; Count de Solms later thought that the provision of medicines for the army by cash rather than credit saved one-third the cost: *Calendar of State Papers, Domestic Series, 1691–92*, ed. William John Hardy, London, HMSO, 1900, p. 75.

[50] Ibid., p. 374; *Cal. Treas. Books, 1702*, op. cit., note 14 above, pt. 1, pp. 297, 413.

[51] Annals, VI, 11–12.

[52] *Cal. St. Papers, Dom., 1691–92*, op. cit., note 49 above, p. 409; Annals, VI, 15–16.

[53] *Cal. St. Papers, Dom., 1691–92*, op. cit., note 49 above, p. 424; Annals, VI, 16–17; the catalogue of medicines is in Annals, VI, 19–28.

[54] Annals, VI, 42–44. The licentiate, foreign-born and Leiden-trained Christopher Crell was chosen by the College, but when he said he would prefer to serve in the fleet, the officers sent up the young Samuel Garth's name.

[55] Annals, VI, 45–7.

[56] At the end of April 1693, the College recommended Drs Thomas Alvey (a learned physician in the Oxford mould), and William Oliver (who had a Leiden MD, and had been involved in Monmouth's rebellion, returning with William's army in 1688) for the Red Squadron; Their Lordships chose Oliver. In April 1694, after debating whether it should send just two names, the College recommended for the Blue Squadron four licentiates, who had all studied in The Netherlands (Thomas Sutton, Joseph Gaylard, George Fleming, and William Cockburn); Their Lordships chose Cockburn. (Annals, VI, 60–2, 121–3).

In the matter of supplying medicines for the armed forces, too, the officers of the College found that co-operation with the new government had become a Trojan Horse. The College began by energetically obliging the military, but it soon found that it had set in motion a project that it could not control. There had been problems with the 1691 batch of drugs sent to the army, and the Society of Apothecaries seized its opportunity. Early in the next year, the officers of the College found that they had not even been notified of preparations for making up a new supply of medicines for the army by apothecaries at the Savoy. The inspection of all drugs made up by apothecaries being a jealously guarded right of the College physicians, they wrote to Physician General Hutton to suggest that they should be brought in on the matter. Hutton replied that he was "morally sure" that nothing was being done by contract between "the publick and the Apothecaries . . . that does in any manner touch or can lessen our [physicians'] privileges". But the justification he gave for saying so was weak: the drugs were being made up in a public laboratory that was open to any qualified person's inspection (rather than being under the direction of the College alone); there was a pressing need for medicines for the army (which seemed no reason to leave the College out); "and it would be thought a hardship upon the publick if his Majesty should not be allowed the freedom to lay his commands on one or more of his own domestick attendants and those of your number" to inspect them. In short, Hutton meant no harm to the College, but the government had to get on with the war without being bothered about corporate niceties. It would contract with whomever it pleased.

Standing on their prerogatives, the officers of the College insisted that in order to serve His Majesty and the public as they would like, they required timely notice to view the drugs "before they be mingled, as well as the Compositions themselves when fully made up, for want of which (by the fault of some we shall not now mention) we could not bee so answerable for many of the Medicines the last yeare, as we could on the preceding one." Hutton answered that he would tell the apothecaries to give the College notice of when they were preparing the army's medicines; and the physicians did inspect the laboratory twice in March.[57] Yet the meaning of these events was clear: the armed forces needed a good supply of medicines for the troops, and they wished to obtain it as efficiently as possible, contracting with suppliers themselves rather than going through intermediaries who were tetchy about the proper relationships between medical practitioners. The College had lost the right to inspect, much less supply, the huge quantities of drugs needed by the army and navy.[58]

Among the physicians not nominated by the College were Richard Brown (Red Squadron), Jeremiah Butt (Blue Squadron), Samuel Spencer (Rochester), Patrick Adair (Portsmouth), Joseph Maucleer (Plymouth), and Nicholas Ogle: Keevil, op. cit., note 8 above, p. 254.

[57] Annals, VI, 4–8.

[58] The quarrel flared up again early in Queen Anne's reign, when the College, having established a dispensary in London, again tried to contract with the Crown for supplying the medicines to the army and navy. The apothecaries, feeling deeply threatened, petitioned the Crown to keep the supply of medicines to the army and navy to themselves; to this the College replied with a petition to the Lord High Admiral that they, not the apothecaries, should examine all the army's and navy's medicines. But in the end the new government accepted the Society of Apothecaries' proposals on supplying medicines, keeping the physicians shut out. *Cal. Treas. Books, 1702*, op. cit., note 14 above, pt. 1, pp. 334–5; Annals, VII, 201–2; Society of Apothecaries, Court of Assistants Minute Books, Guildhall Library no. 8200, vol. IV,

These differences over the supply of medicines led to an open quarrel between the College and the Admiralty in November 1695. In light of the disastrous failure of the 1693 West Indies expedition through the ravages of disease, an expedition for which the College had furnished a list of medicines, and the many continuing medical problems of the navy, the Admiralty had written to the College complaining that the medicines furnished to the surgeons on board the fleets were doing little good. They wanted the College to recommend "a scheme of the severall species of Medicines, which in your opinion are most proper for the care of the sick and wounded men in the fleet", with instructions on how much of each medicine should be supplied in a chest for the care of 200 men. Instead of replying directly, the officers of the College arranged an interview with Their Lordships. The physicians believed that the issue at stake was the supply of wholesome as opposed to inactive or spoiled medicines, and they recommended that the Admiralty support their efforts to guarantee the quality by firmly governing the apothecaries. Their Lordships replied that what they wanted was not a discussion about medical reforms but an invoice for efficacious medicines for 200 men for six months. The President and Censors then remarked that the Admiralty letter had indicated a problem with unwholesome medicines in the chests, a problem they wished to prevent in the future. Their Lordships in turn insisted that they could supervise the inspection of the quality of the drugs themselves.[59]

Clearly, the officers of the College and the Lords of the Admiralty had different formulations of the underlying problem. The College thought that the proper question should be how to ensure the supply of wholesome drugs; for Their Lordships, the issue was the supply of medicines that would work to cure the diseases suffered by the sailors. As the meeting continued, it became plain to the officers of the College that Their Lordships wanted specific medicines, the kind of medicines the physicians associated with quackery: good for a specific disease in all cases whatsoever, no matter what the age, temperament, or circumstances of the patient. For their part, the learned physicians believed that no disease was precisely the same in every patient, and that consequently patients had to be treated individually, with the drugs varied according to the gender, age, and circumstances of the patient and the precise moment at which the ever-changing manifestations of the illness was found. To the Admiralty Lords, the approach of the learned physicians might be fine for well-to-do patients with money to spend and time to recuperate, but it would not do on board military vessels, where all common sailors were treated alike and where quick cures were needed to get them back on the job.

In the course of the argument, the officers of the College told Their Lordships that "they humbly conceived, that making a bald envoice" of specific drugs good in all cases for specific diseases "would be of no service or use to attain the ends their Lordships aimed att". Rather, they insisted that in discharging "their Duty, as became them, whom the laws of the land had intirely and most properly trusted with the care, and inspection of Medicines", they would give Their Lordships "the best information they could, of the wayes and methods most proper in this case" to ensure

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1694–1716, fols. 171, 174–5, 180–1. From 1703 on, the Society of Apothecaries, through its "Navy Stock Company", supplied all the surgeons' chests: Keevil, op. cit., note 8 above, pp. 272–5.

[59] Annals, VII, 6–7.

that uncorrupted medicines were supplied. But Captain Preutiman blew up, replying angrily that all they wanted was an invoice of efficacious drugs. The President tried to mollify him by saying that they were there to serve His Majesty. Therefore, where might the ships be going? One had to know in order to make out a list of drugs appropriate for the climate. Sir Robert Rich, however, said, "an Envoice for 200 men was an Envoice, and a fever was a fever all the world over". The physicians' reply, that different places and climates had different diseases, brought the interview to an end. Their Lordships were getting nowhere, and dismissed the physicians.[60]

Conflicting interests made co-operation between the College physicians and the armed services increasingly difficult, if not impossible. When the Admiralty decided to ask the College one last time for its recommendation of four physicians in January 1697, the College took no trouble. The officers asked the members present in a meeting if anyone was interested; Joseph Gaylard and John Woolaston, both young physicians with Dutch degrees, volunteered and the officers sent up only these two names.[61] Not unexpectedly, neither nominee was chosen, and their rejection in favour of Dr Mitchel was announced in one of the London newspapers.[62]

The military leadership and the officers of the College of Physicians clearly had different institutional goals. The military wanted simple and efficient medical services to keep the troops healthy; the College wanted to become a part of the new governmental system in order to gain more authority over its surgical and pharmaceutical rivals—something that would have made the system of military supply less efficient. Moreover, a crucial difference in attitudes toward medicine itself divided the two groups. The military wanted quick and efficacious cures for specific diseases that would be good for any soldier or sailor in any circumstances, while the learned physicians wished to maintain the importance of learned physic, with its emphasis on the individual.[63] The growing interest of the British military establishment in curative medicine further legitimized the increasingly respectable medical empiricism.

THE MILITARY AND THE PROMOTION OF MEDICAL EMPIRICISM

The encouragement given to medical empiricism by the armed forces went beyond general principles, beyond creating institutional conflicts. For the military practitioners themselves, anything that would promote quick diagnoses and easy treatments was heartily welcomed. The demands of their work were great during the many periods of rampant illness or, less frequently, after battles. For their part, the admirals and generals to whom the practitioners were responsible welcomed medical practices that could be communicated according to clear and uniform rules that promised quick, cheap, easily administered, and efficacious cures to get their troops

[60] Annals, VII, 7–8; the length of this report written into the College Annals is unusual, and demonstrates that the officers placed great importance on this meeting.

[61] Annals, VII, 97–96.

[62] *The Post Man*, no. 274, 6–9 Feb. 1697.

[63] On the contemporary difference between "physic" and "medicine", see the first chapter of my *Decline of the old medical regime*, op. cit., note 44 above, and my 'The new philosophy and medicine in seventeenth-century England', in D. Lindberg and R. Westman (eds.), *Reappraisals of the scientific revolution*, Cambridge University Press, (in press).

back on their feet.[64] Not only the new military leaders but William himself supported efforts to find new and effective therapies for the medical problems plaguing the armed forces.

Since military employment remained more advantageous to young practitioners starting out in the world than to experienced men with established practices, many army and navy surgeons learned their trade on the job. Josiah Burchett wrote that "many of the Chirurgeons, but more especially their Mates . . . are not altogether so well Qualify'd as they ought to be."[65] Since few had much experience working under the supervision of a more practised person, military surgeons needed to learn as quickly as possible the basic rules about what to do when confronting a particular problem, not the fine art of exercising medical judgement. In difficult cases, the more experienced surgeons and physicians of the fleets and in port could be consulted. But for ordinary practice, one needed to learn a set of rules and procedures that would allow quick diagnosis and treatment. The simpler the rules and therapies, and the more certain the outcome, the better. One result of this was that military practitioners sometimes had a more "practical" orientation towards medicine than their civilian counterparts: they little needed to impress their captive patients with their reasoning, while they had to get on with their burdensome job as simply as possible.

Military surgeons and physicians therefore based their practices on what they considered to be hard-nosed medical experience rather than Latinate erudition. A few decades earlier, many military practitioners had been involved in chemical medicine. William Rand was apothecary to the Parliamentary hospital at Ely House; John French was a physician to the Parliamentary army and the hospital at Savoy House; the important English proponent of Van Helmont, "Noah" Biggs, was probably a surgeon to the naval dockyards on the Thames; the physician Timothy Clarke, also sympathetic to the new chemistry, served as Physician General to the army within the Kingdom from 1663.[66]

Chemistry still figured in the practice promoted by military practitioners of the end of the century. But Thomas Sydenham's "clinical" medicine provided the foundations for the new "practical" men: one observed cases closely and kept notes, identified the specific diseases as ontological entities on the basis of signs and symptoms in the same way that one identified plants from their appearances, wrote up the notes into rules, and systematically noted the effects of different therapies. For many military practitioners, this natural-historical approach to medicine provided a secure foundation for rules of diagnosis and therapy; in combination with laboratory experiments it also promised, they believed, a precise way to develop medical specifics

[64] In addition to keeping their manpower healthy and establishing a system that would make it as easy as possible for inexperienced practitioners to treat the sick, the military leaders had to worry about the costs of medicines for the troops. In 1696, for instance, it was reported that the accounts for the "physick" for the army and hospitals was about £8,000 in arrears, and that Van Loon and Lawrence estimated an extraordinary expense for physic for the summer's campaign of £3,937 10*s*.

[65] Burchett, op. cit., note 4 above, Preface; Cockburn, op. cit., note 2 above, Preface.

[66] Stewart, op. cit., note 25 above. On Rand and French, see Charles Webster, *The great instauration*, New York, Holmes and Meyer, 1975, pp. 296–7, 306–8, *passim*; and *idem*, 'English medical reformers of the Puritan Revolution: a background to the "Society of Chemical Physicians" ', *Med. Hist.* 1967, **14**: 16–41. On Biggs and Clarke, see Cook, op. cit., note 44 above, pp. 122–4, 143.

that could be easily administered and get excellent results in all cases of a disease no matter to whom it was given. The new and larger army and navy after 1688 offered strong and explicit encouragement to medical practitioners who claimed to offer new and effective medical treatments for the sick and wounded. King William himself gave his blessing to some experimental trials of new medicines in order to see if they would be of use. Military service served not only as a training ground for medical practitioners, but also to inculcate in them certain medical values.

One of the most public examples of the military interest in medical specifics was an experiment for the army concerning a new treatment for wounds developed by John Colbatch. According to his own testimony, Colbatch had been apprenticed as an apothecary in Worcester; convinced of the crucial importance of the apothecary's knowledge and skill for medical practice but also aware of his master's defects, he studied hard in medical books while training for his future trade. After becoming a master apothecary, he built up a considerable local business. But he also worked to develop new medicines based upon his own reading and experiment. In the early 1690s, he moved from Worcester to London, to try his fortune.[67] Eventually he became one of the great medical practitioners there: a licentiate of the College of Physicians from 1696, he was knighted by George I in 1716.

Colbatch's simple chemical experiments with drugs in his laboratory and his equally crude but numerous experiments on "dogs and other animals" (he claimed to have performed over 100) had caused him to "light upon" several new medicines.[68] Two of them, both powders, had surgical applications: his "Tincture of the Sulphur of Venus" was internal; and the "Vulnerary Powder", named after one of Sir Kenelm Digby's remedies, was external. The latter, after being dissolved in water (or, if that was unavailable, in urine) was to be applied to the surface of the wound and squeezed or injected into it, and the lips of the wound stitched together; at the same time, the internal medicine was to be taken dissolved in wine.[69] The Vulnerary Powder could stop bleeding almost immediately, even in very bad wounds, without the application of a tourniquet; and by helping the nutriment of the body restore the flesh, it brought about painless cures, even in the body cavity, in a matter of days.[70] Colbatch was not unusual in believing that nature would eventually heal the body herself, "if she were not hindered, but assisted".[71] While the common surgical remedies (such as suppuration, low diet, and tenting) operated against nature,[72] he argued, his powders aided her. Needless to say, new medicines of great usefulness in surgery would be valuable during war, and he brought his medicines to the attention of the King.

[67] John Colbatch, *A physico-medical essay, concerning alkaly and acid*, London, 1696, Preface; the surgeon William Cowper mentioned in passing that Colbatch's advertisements for his "Vulnerary Powder" (on which, see below) were being widely circulated in London at the end of 1693: Cowper, 'An account of some experiments lately made on dogs, and of the effects of Mr. John Colbatch's styptick on humane bodies', *Phil. Trans. R. Soc.*, Feb. 1693/4, no. 208, pp. 42–4.

[68] John Colbatch, *Novum lumen chirurgicum: or, a new light of chirurgery. Wherein is discovered, a much more safe and speedy way of curing wounds . . . illustrated with several experiments made this year in Flanders*, London, D. Brown, 1695, 'To the Reader'.

[69] Ibid., pp. 81–2.

[70] Ibid., pp. 27–39.

[71] Ibid., p. 17.

[72] Ibid., pp. 17–27.

The new King had already shown that he would promote promising new medicines. In May 1689 he had granted the right to sell an antidote against poison "from any stage in any city or town" to Cornelius à Tilbourne, since he had "made experiment of the virtue" of the antidote, "to the general satisfaction";[73] and in February 1692 the King received a report from the Earl of Nottingham on a beer that Sir Brian Broughton believed cured "green wounds". In the latter case, William wanted some of the liquor sent along so that "an experiment" could be made of it before "some further resolution" would be taken with regard to it.[74]

When Colbatch came to London, his remedies met with suspicion and scepticism from practitioners in London, especially the established surgeons. Nevertheless, given William's willingness to experiment with new remedies, Colbatch gained the right to try out his medicines on some soldiers in Lord Cutts's regiment of the Coldstream Guards.[75] Unfortunately, three of his experiments "miscarried". Colbatch blamed two of the three failures on the soldiers being poisoned "after the danger" from their wounds "was over". In another case, a soldier in the experiment died. After five days of Colbatch's watching over the patient day and night "for fear of Roguery", the soldier had become free of "all ill symptoms", and had become "almost well". Unfortunately, according to Colbatch, he was then left alone for four or five hours, during which time someone got him drink; he died an hour or two after Colbatch's return. "My failing in these last Experiments, I suppose, was the Reason I was not then employed by His Majesty" for the Flanders campaign.[76] According to the report on these experiments in the *Philosophical Transactions*, by Mr Cowper, Colbatch's external remedy was nothing but a caustic to stop the bleeding, a view Colbatch vehemently denied.[77]

Undeterred, however, in May 1694 Colbatch applied for and received a pass from the government to go with two servants to Holland for the summer campaign, to try yet again to prove the efficacy of his remedies.[78] He had invested a large amount of money in making up a batch of his medicines to take with him.[79] Colbatch had

[73] *Cal. St. Papers, Dom., 1689–90*, op. cit., note 19 above, p. 111. In December 1692 the College of Physicians ordered that several people, including "Tilburn", who was advertising widely, be summoned to account for practising without their licence; but in January "Tilburn . . . sent word, the Censors might doe what they please, [he] valued them not." (Annals, VI, 38, 48–50). In June 1693, the College ordered that "Tilburn" be sued for illicit practice (Annals, VI, 70–1). In 1696 the College again heard testimony against "Cornelius à Tilburg", this time for malpractice, one Mr Andrew Brinches claiming that his eyesight had been lost through Tilburg's "ill management" (Annals, VII, 24, 25, 26, 27).

[74] *Cal. St. Papers, Dom., 1691–92*, op. cit., note 49 above, pp. 130–1.

[75] Cutts had been with Monmouth at the Battle of Sedgmore, then at the Battle of Buda on the eastern edge of the Holy Roman Empire, and then in charge of one of the Scottish regiments in The Netherlands. This able captain and strong Williamite distinguished himself again at the siege of Namur. Perhaps his loyalty and no-nonsense attitudes made his regiment the perfect choice for Colbatch's experiment.

[76] Colbatch, *Novum lumen chirurgicum*, op. cit., note 68 above, 'To the Reader'.

[77] Cowper, op. cit., note 67 above; Colbatch, *Novum lumen chirurgicum*, op. cit., note 68 above, 'To the Reader'.

[78] *Calendar of State Papers, Domestic Series, 1694–5*, ed. William John Hardy, London, HMSO, 1906, p.130 (10 May 1694). The last "experiment", or case report, printed in Colbatch, *Novum lumen chirurgicum*, op. cit., note 68 above, p. 80, mentions that he was in Ghent on 23 September, and that he had already returned to England when he received a letter dated 3 October from an officer giving an account of the successful outcome of the case.

[79] Ibid., 'To the Reader'.

evidently gained the favour of Major-General Sir Henry Bellasis: the King issued a general order requiring reports of wounded men to be brought to Colbatch's "most worthy Friend" the General, so that trials could be made.[80] According to Colbatch, this time "thanks to God, amongst the great number of Patients I had, there was none but one that miscarried."[81] Colbatch also played on the King's curiosity about medical experiments by taking the unusual step of dedicating his report on his successes to His Majesty, whom he thanked for his "good Wishes".[82]

His success was not complete, however, for many surgeons refused to countenance Colbatch or his methods. He wrote that their jealousy was so great that he was even publicly threatened with his life. Subsequently he and two friends were "secretly Poysoned": one died, and Colbatch and his other friend barely escaped death.[83] In the early months of 1695, after his return to London,[84] some of the London surgeons, led by Charles Bernard, organized their own test of his Vulnerary Powder on a patient undergoing an amputation at St Bartholomew's Hospital. Several surgeons used this failure as the centrepiece of a published attack on Colbatch.[85] When Colbatch published a rebuttal, Bernard, a very well-respected London surgeon, wrote to Colbatch expressing his "surprize" at the reasons he gave to explain the result. While Bernard said that he wished very much to have the remedy succeed, "it looks very much like a jest that a medicine designed for universal use, and generally to be used in a hurry should be capable of being artificially or successfully applyd but by one man", that is, Colbatch's representative at the trial.[86] If London surgeons could not get good results from it, how would it be successful in the field, when used by sometimes inexperienced army surgeons?

Colbatch apparently felt the need to vindicate himself by literally returning to the field of battle, for by the summer of 1695 he was in Flanders again. According to him, the trials were again successful: he even gained the position of local Surgeon General during the siege of Namur (one of William's great military successes). There he became well acquainted with Dr John Radcliffe when Radcliffe was called over to minister to one of the King's most important lieutenants, the Duke of Arlington.[87]

[80] Ibid., 'To the Reader', p. 43. Colbatch's *Physico-medical essay* (op. cit., note 67 above) was dedicated to the now Lieutenant-General Sir Henry Bellasis, who is said to have helped Colbatch when he "stood most in need of your Assistance".

[81] Colbatch, *Novum lumen chirurgicum*, op. cit., note 68 above, 'To the Reader'.

[82] Ibid., Dedication.

[83] Ibid. Colbatch repeated this charge in his *Novum lumen chirurgicum vindicatum, or the new light of chirurgery vindicated from many unjust aspersions*, London, 1696, p. 11.

[84] The preface to Colbatch's *Novum lumen chirurgicum*, op. cit., note 68 above, is signed "from my House in St. Anne's Court, in Dean-Street, near So-ho-Square".

[85] W. W., *Novum lumen chirurgicum extinctum*, 1695. I have not seen a copy of this tract, the British Library copy having been lost in the bombing, but according to Colbatch, it had come out by 18 April 1695; Colbatch, op. cit., note 83 above, Preface. Both the surgeons' pamphlet and Colbatch's reply were directed to the attention of Secretary of War, William Blaithwaite, through their dedications to him.

[86] Letter of C. Bernard to Colbatch, British Library Sloane MS 1783, fols. 80–1, expressing "surprize" at Colbatch's reply in *Novum lumen chirurgicum vindicatum* (op. cit., note 83 above).

[87] Radcliffe, one of the royal Physicians Extraordinary (that is, without a regular appointment), cured the Duke and earned £1,200 from William and 400 guineas and a diamond ring from Arlington for it. It is said that he was also offered a baronetcy by William but declined it because he had no heirs. This well-known story about Radcliffe is first told by [W. Pittis], *Some memoires of the life of John Radcliffe, M.D. Interspersed with several original letters*, London, E. Curll, 1715, pp. 39–40.

Radcliffe may even have helped obtain the position of Surgeon General for Colbatch.[88] After returning to London, he wrote to "Dr. Colbatch, Surgeon General to the Army": "I Congratulate you very heartily upon your new Aquisition of Fame, by the Help of your renowned Stiptick. The Cure you have performed is Attested by so many Persons, and comes from so good Hands, that I, who am never too credulous in Things of this Nature, give into the Belief of them very greedily."[89] Indeed, one of the strongest arguments in favour of his remedy was Colbatch's claim that he had gained "the good Will of most Officers of the Army" by open trials and successful cures that were followed with interest by the officers, and even the King.[90]

Yet the point of Radcliffe's letter was to warn Colbatch that his new reputation in surgery was arousing enormous jealousy among his rivals at home, including one "St— —n", "who boggles not at affirming that he is appriz'd of every Ingredient [your remedy] is compos'd of", "H—ch—m, your old Antagonist", and Alexander Read the oculist.[91] Some of the army surgeons also continued to abuse him, for in 1696 Colbatch wrote that he would "never design" any more to go to the Army in Flanders, "being sufficiently deterred from it, by the ill Treatment I had there last Year, by the means of some of my old friends the surgeons".[92]

Yet, for a vigorous medical entrepreneur, the wide publicity surrounding the army experiments was a great help in making a medical reputation and therefore a fortune.[93] He, like others, could utilize the current truism that every good innovation met with abuse from entrenched interests: his persecution validated the worth of his cause. He therefore "sold the Receipt of my Vulnerary Powder and Tincture, and all the said Medicines I had by me, to a Gentleman who is better able to dispose of them for the Publick Good of Mankind than I could":[94] his publisher, Daniel Brown, who could advertise and sell the powders very widely.[95] If we are to believe Brown's advertisements for the Vulnerary Powder and Tincture, Colbatch got a large sum for them indeed.[96] Moreover, Colbatch used his successes with his wound medicines to

[88] According to the third edition of Pittis's *Dr. Radcliffe's life, and letters*, London, E. Curll, 1716, p. 30, Colbatch was "a Person whom he had favored with his Conversation; more especially, one whom he had recommended". This edition is the first to contain the letter quoted below, the source of which must have been Colbatch himself (this is the year in which he was knighted), so it may be well to interpret Pittis's words with a grain of salt.

[89] Ibid., pp. 31–2, dated 23 July, 1695. A large excerpt from the letter is reprinted in Campbell R. Hone, *The life of Dr. John Radcliffe 1652–1714*, London, Faber and Faber, 1950, pp. 59–60.

[90] Colbatch, *Novum lumen chirurgicum vindicatum*, op. cit., note 83 above, Preface.

[91] Pittis, op. cit., note 88 above, pp. 31–2.

[92] Colbatch, *Some farther considerations concerning alkaly and acid, by way of appendix to the late essay*, London, Fr. Mills and W. Turner, 1696, sigs. A6–A6v.

[93] One letter to Hans Sloane from an Irish correspondent (the name at the bottom of the page is torn), dated 18 September 1698, inquires about London opinion concerning Colbatch, mentioning that "two or three years ago [I] heard much of Colbatch's methode of curing wounds". The writer concluded by asking "what the powder and tincture are he talks so much of for tho he talk as a quack yet he may improve some methods of cure wherein he is best skilled". Sloane MS 4037, fol. 119.

[94] Colbatch, *Some farther considerations*, op. cit., note 92 above, sigs A6–A6v.

[95] Daniel Brown and Colbatch also brought out a collected edition of Colbatch's works, no doubt to keep interest in him and his remedies high: Colbatch, *Four treatises of physick and chirurgery*, The Second Edition, Corrected and Enlarged, London, Daniel Brown, 1698.

[96] One advertisement (in *The Post Man*, no. 295, 20–23 March 1697) said: "This is to give notice that the vulnerary Powder and Tinctures (so famous for the safe and speedy cures of all External and Internal wounds) invented by Dr. Colbatch; were constantly sold for a Guinea the Bottle Now for the conveniency

move into the practice of physic. It was during the siege of Namur that he wrote the draft of his book on using acid remedies rather than alkaline ones to cure diseases,[97] a book that was to get the physicians as stirred up against him as the surgeons had been.[98] Despite the disapproval of many of the learned physicians, Colbatch had accumulated so many friends in high places that they found it impossible not to make him a licentiate of the College when he applied in 1696;[99] his knighthood has already been mentioned.[100]

Here was a medical empiric, using all the techniques of self-advertisement at his disposal to make a fortune based upon a purported treatment for wounds (and later for all diseases) that the established surgeons and physicians thought fraudulent. He announced to the world that he was a practical and "experimental" physician, rather than a man learned in books. Within the medical community, only other physicians who despised the medical establishment such as John Radcliffe, or other successful empirics like Moses Stringer, publicly supported his treatments.[101] But the King and his generals not only tolerated but positively encouraged Colbatch to try out his treatment of wounds on soldiers in Flanders. They, too, were practical men, who would believe their eyes alone. If Colbatch was successful, the army would benefit greatly. If not, what had been lost? Some soldiers with grave wounds, who probably would have died anyway? Despite what orthodox physicians and surgeons liked, William's army sought to help people with new medical ideas that might have curative value.

So did the navy and its admirals. The differences over medicines betwen the learned physicians of the College and the members of the Admiralty Board has already been

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of those who can not spare so much money, they are divided into smaller bottles, and sold for half a Guinea each bottle: and each small bottle will cure (at least) ten considerable wounds . . ." They were sold by Mr Peter Radison, next to the Coach and Horses in Princess St., and Mr Brown bookseller, without Temple Bar. "As for the truth and goodness of the said Medicins, the said Doctor Colbatch will at all times attest, he being bound in an obligation of two Thousand pounds, to Inspect the preparation of all that shall be made, during his life." Perhaps the "two thousand pounds obligation" was a guarantee of Colbatch's to return the selling price for the remedy to Brown if the remedies proved no good; it at least suggests that Colbatch was good for a large sum.

[97] Colbatch, *Some farther considerations*, op. cit., note 92 above, Preface.

[98] Colbatch, Physico-medical essay, op. cit., note 67 above. Among the published objections to Colbatch's theory were William Coward, *Alcali vindicatum: or, the acid opiniator not guilty of truth*, London, Tim. Childe, 1698, and Thomas Emes, *A dialogue between alkali and acid*, London, 1698. One reply, Richard Boulton, *An examination of Mr. John Colbatch his treatise of the gout*, London, A. and J. Churchill, 1699, was commissioned by a strong defender of the College of Physicians, Charles Goodall: see Goodall's letter to Hans Sloane, Sloane 4037, fol. 143; and Boulton, *A letter to Dr. Charles Goodall*, London, A. Baldwin, 1699. Colbatch's career and the debate surrounding these theories over acids and alkalis in medical treatment deserve fuller consideration.

[99] Annals, VII, 34: Colbatch was admitted after proving (as the College statutes demanded) that he had been disenfranchised from the apothecaries' Society, but only after his sincere apology for having said that he had been treated rudely by the College committee. The letter he had written to the President of the College on this subject, he said, had been instigated by Dr John Badger, one of the College's most vocal opponents.

[100] Colbatch tried other entrepreneurial endeavours, too, in 1697 applying for a patent on "his invention for raising waters", which was referred to "Mr. Attorney" (*Calendar of State Papers, Domestic Series, 1697*, ed. William John Hardy, London, HMSO, 1927, p. 150).

[101] Stringer used Colbatch's *elixir vitrioli* with success in curing a patient of the bite of a viper: John H. Appleby, 'Moses Stringer (fl. 1695–1713): iatrochemist and mineral master general', *Ambix*, 1987, **34**: 34.

noted. That the admiralty did not just adopt a different attitude toward medical provision but actively encouraged the development of medical specifics is best exemplified by its support for William Cockburn's cures.

William Cockburn, a Scotsman with a foreign education,[102] became a licentiate of the College of Physicians in early 1694,[103] and was chosen by the Admiralty Board from among the four physicians recommended by the College in April that year as physician to the Blue Squadron.[104] This may have been because he was already well known to important people: he had just translated a book by the royal physician Walter Harris (although without Harris's knowledge beforehand), dedicating it to his Scottish patroness Margaret, Countess of Roxburgh.[105] Admiral Sir William Bridgeman received the dedication of Cockburn's next book, a Latin treatise on physiology (with special attention to the hydraulic views of the new iatromechanists).[106] But he may have been chosen because of his outspoken support for practical and experimental medicine in his preface to Harris's book. There he praised the medicine of Thomas Sydenham and argued strongly that the best parts of Descartes's philosophy had been derived from Francis Bacon. Cockburn thought very highly of Bacon's experimental philosophy and the Sydenhamian medicine based upon it that harked back to Hippocrates' precise natural-historical descriptions of disease. This new approach to medicine, unlike that of the "mathematicians" of physic, he argued, would result in new and verified remedies for disease.[107] Indeed,

[102] Munk's *Roll*, op. cit., note 20 above, 507–9; *DNB*, article by Charles Creighton. Cockburn had an M.A. from Edinburgh and matriculated at Leiden in 1691, but although he is often reported to have taken an MD there, there is no evidence for the supposition. Anita Guerrini has pointed out that he purchased an MD from King's College, Aberdeen: Guerrini, 'The Tory Newtonians: Gregory, Pitcairne, and their circle', *J. Br. Stud.*, 1986, **25**: 303.

[103] In April. There is a letter of Cockburn's to Hans Sloane, dated 30 January 1693/4, requesting a time when he could "visit" him before being voted on as a licentiate: British Library, Sloane MS, 4036, fol. 159.

[104] Annals, VI, 123.

[105] Walter Harris, *An exact enquiry into, and cure of the acute diseases of infants. Englished by W[illiam] C[ockburn], M.S. With a preface* [by Cockburn] *in vindication of the work*, London, Sam. Clement, 1693, dedication.

[106] Cockburn, *Oeconomia corporis animalis*. I have not seen the London edition of 1695, but only the edition published in Augsburg in 1696, which reprints the imprimatur of the London College of Physicians dated 7 December 1694.

[107] Harris, op. cit., note 105 above, 'Epistle to the Reader', Theodore M. Brown has included Cockburn among the medical "Newtonians": Brown, 'Medicine in the shadow of the "Principia" ', *J. Hist. Ideas*, 1987, **48**: 629–48, pp. 633–4; *idem*, *The Mechanical Philosophy and the 'Animal Oeconomy'*, Ph.D. diss., Princeton University, 1968, repr. New York, Arno Press, 1981, pp. 239–50. Also see Guerrini, op. cit., note 102 above, pp. 303–4; and *idem*, 'Newtonian matter theory, chemistry, and medicine, 1690–1713', Ph.D. diss., Indiana University, 1983, pp. 35, 99–110, 129–32. Indeed, Cockburn's physiological ideas are rooted in the hydraulic accounts of many "iatromechanists": he praised "Borelli, Bellini, and the great Ornament and Improver of our Northern Physick, the learned Dr. Pitcairn" in the Preface to his *Profluvia ventris: or the nature and causes of loosenesses plainly discovered, their symptoms and sorts evidently settled, the maxims for curing 'em fully demonstrated*, London, B. Barker and G. Strahan, 1701; and his schematic table "Shewing the Doses of purging and vomiting Medicins according to the Solution of Dr. Cockburn's Problem" was published in the December 1705 *Philosophical Transactions* (and also distributed separately) after Cockburn consulted with Newton and secured his blessing (Cockburn, *The nature and cure of fluxes*, 3rd ed., London, John Clarke, 1724, p. 327). However, all his books after *Oeconomia rationalis* pursue the case-history method associated in Cockburn's mind with Sydenham (for his rationale, see especially the preface to *The nature and cure of fluxes*, 3rd ed.), and he mounted an attack on knowing about medicines "scientifically" (that is, through corollaries deduced from natural philosophical principles), strongly defending the "experimental" approach as the only alternative: Cockburn, *The present uncertainty in the*

the text of the book he chose to translate also praises Sydenham's natural-historical approach highly, and focuses attention on how to cure diseases by new methods.[108]

In Cockburn, the Lords of the Admiralty found a physician who believed in simplifying and codifying medical methods with a view to developing new and certain cures. As Physician to the Blue Squadron he closely observed and kept a detailed account of the cases of sickness he encountered, following the Sydenham method. These observations, with his views on subjects like victualing, scurvy, the diet and lodging of seamen, fevers, diseases "nearer and under the line", and chemical medicine, were published after his first year in the service in a book dedicated to the Lords of the Admiralty.[109] Cockburn oriented all this work toward finding cures for the diseases incident to seamen. A book published the next year followed up by trying to set out rules for precisely describing and treating fevers in such a manner that anyone, even inexperienced surgeons, could successfully cure any cases, including very dangerous ones, by bleeding the precise amount necessary and no more.[110] The books together went through two more editions in English[111] and one in Dutch,[112] which Cockburn claimed had been required by the Dutch government to be provided to every surgeon aboard their ships.[113]

But in addition to his rules for curing fever cases, even in the first book Cockburn mentioned a new "powder" he used to cure cases of looseness. Various kinds of looseness often accompanied fevers aboard ship and could be of grave consequence, especially dysentery. A remedy would be a very important advance in military medicine, especially if it could be given in the form of a simple specific to any sick sailor and get quick and easy cures. Cockburn claimed that his powder (later an

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knowledge of med'cines in a letter to the physicians in the Commission for Sick and Wounded Seamen, London, Benj. Barker, 1703, pp. 1–2. It is probably much too simple to divide turn-of-the-century physicians into theorists and experimenters, or "iatromechanists" (or "iatrochemists") and "clinicians", or Newtonians and Baconians-Sydenhamians, as many have done.

[108] Harris's book begins by stating that Sydenham himself has encouraged Harris to publish the book after trying out Harris's methods of treating children: *Exact enquiry*, op. cit., note 105 above, pp. 1–2. Compare Brown, *Mechanical philosophy*, op. cit., note 107 above, pp. 184–5, who categorizes Harris's book as "iatromechanical".

[109] Cockburn, *An account of the nature, causes, symptoms and cure of the distempers that are incident to seafaring people*, London, Hugh Newman, 1696. The imprimatur the College gave the book carries the date 21 February 1695[/6].

[110] Cockburn, *A continuation of the account of the nature, causes, symptoms and cure of the distempers that are incident to seafaring people*, London, Hugh Newman, 1697. The text is dated, at the back, 28 September 1696. Cockburn's idea, first announced in the *Account* (op. cit., note 109 above, pp. 51–3) and developed at length in the *Continuation*, was that the ill consequences of fevers come from intermittent sweating resulting in "retained steams" that must be let out, preferably by bleeding. The difficulty lay in knowing precisely how much to bleed in cases of different fevers and different people under different circumstances. To this problem Cockburn devoted much attention, trying to gain exactitude by measuring the pulse rate and the temperature of the blood (see especially the *Continuation*, pp. 18–26). Also see Andrew Cunningham, 'Sydenham versus Newton: the Edinburgh fever dispute of the 1690s between Andrew Brown and Archibald Pitcairne', in *Theories of fever from antiquity to the Enlightenment*, ed. W. F. Bynum and Vivian Nutton, *Medical History* Supplement 1, London, Wellcome Institute, 1981, pp. 71–98.

[111] Cockburn, *Sea diseases*, 2nd ed., op. cit., note 2 above; and *Sea diseases*, 3rd ed., London, G. Strahan, 1736.

[112] Govard Bidloo, trans., *Redenering en aanmerkingen omtrent de ziektens ter zee voorvallende*, Leiden, Jordaan Luchtmans, 1701. Bidloo added very extensive notes to Cockburn's text, and a list of medicines and instruments for surgeons in the Dutch navy.

[113] Cockburn, *Sea diseases*, 2nd ed., op. cit., note 2 above, Preface.

electuary) worked in all cases of all kinds of loosenesses and could be administered quite simply. Like Colbatch, Coburn did not reveal the formula of his secret, explaining:

> I conceal this Medicine, because I think it better than the Fr. Ipicochoana itself, by which Helvetius has made so plentiful a fortune, for I dare affirm with all modesty, that I have tried it with above 200 [cases], when I thought a Diarrhea was to be stopt, without ever missing of the success, and that without any vomiting or violent consequences that attend the other, and a great deal more certain. . . . But its further confirmation, I leave to experience, and the trial of others. I tried it for stopping Gonorrheas, in their proper time, but it did not answer expectation.[114]

Needless to say, given the attitudes of the Admiralty Board, the navy took a very great interest in Cockburn's medicine, and soon required it to be supplied to all His Majesty's ships.

As Cockburn later explained, in late July 1696, during a dinner conversation he had aboard ship with Captains Meese and Beaumont and the Admiral, the Earl of Berkeley of Statham, "his Lordship was pleas'd to express himself very favourably about my great and useful Services in the Fleet." Captain Meese seconded the Admiral's compliments, "adding, there was nothing farther wanted, if I could help them, in a better Method of curing Fluxes." Cockburn politely returned thanks and then suggested that "I had reason to think, I was able to serve them in that Particular."[115] Whatever credence we place in Cockburn's story, the fact was that the Blue Squadron had put in to Torbay after some months at sea attacking the French coast to prevent the rumoured invasion of England.[116] The sailors were suffering badly from sickness, especially fevers accompanied by loosenesses. So the commanders ordered Cockburn's medicine to be given a trial. According to Cockburn again, the experiment was ordered for the day after his conversation with the Admiral. The medicine was given to about one hundred men on Captain Meese's ship, the *Sandwich*, over twenty of whom were confined to their hammocks, while the others could still walk about. Cockburn first gave them a mild purge, and then had them take his medicine, "which being repeated at proper Intervals, cured them in three Days. The weakest could leave their Hammocks in a Week or ten Days."[117]

Needless to say, when the word of Cockburn's success got around, he had patients everywhere in the Fleet. Sir Cloudesley Shovell, that October made Admiral of the Blue, ordered a large batch of the medicine to be supplied for his voyages in the Mediterranean, with great success. Shovell reported this outcome to the Admiralty Board, "and on his Report the Medicine was entertain'd in the Navy".[118] At a later date, an improper and "scandalous" experiment brought the efficacy of Cockburn's medicine into doubt. But shortly thereafter the Earl of Berkeley, Cockburn's former

[114] Cockburn, *Account*, op. cit., note 109 above, pp. 156–7; also mentioned in *Continuation*, op. cit., note 119 above, p. 79.
[115] Cockburn, *Sea diseases*, 3rd ed., op. cit., note 111 above, p. 216; also see sig. A3v.
[116] Clowes, op. cit., note 6 above, pp. 487–9.
[117] Cockburn, *Sea diseases*, 3rd ed., op. cit., note 111 above, pp. 217; also see sig. A3v.
[118] Ibid., p. 218, and sig. A4.

commander, became head of the Commissioners of the Navy, who "resented" the "Abuse of the Navy, and of its Officers, by the Manager of the Trial" and went ahead with the purchase of a large quantity of the drug for the Mediterranean and Indies fleets.[119] Cockburn bragged that the French "experienced" his medicine in 1698, with applause, and at the end of the war Louis XIV's ambassador in London began to negotiate for obtaining it, although the War of the Spanish Succession broke out before final arrangements could be made. Even the Pope regained his health by the help of his remedy in 1731, he said.[120] Whether we believe all Cockburn's claims or not, it is clear that Sir Cloudesley Shovell insisted that the hospital ships in the fleets he commanded in 1701 and 1706 carry large quantities of the drug.[121]

Although the Admiralty's support for specific medicines and the "quackery" associated with them in the minds of the learned physicians had already created a split between it and the College of Physicians, the Admiralty tried once more to get the learned physicians on board. In the spring of 1700, they asked the College to comment on Cockburn's new suggestion to have all naval surgeons record on a schematic chart the precise symptoms of the dangerous fevers in the West Indies, and the effects of the remedies he proposed, in order to gain a more exact understanding of the disease and its cure.[122] The College delegated the elderly and very learned Walter Charleton to look into Cockburn's proposal and to draft the reply. He concluded that "the Experientes and observations brought by the Dr. as the sole Ground, upon which he builds his new Method of treating the sick, seems to us neither authentick enough to engage our Belief, nor Consistent with those made by other physicians in the same Countries." Charleton explained that Cockburn's experiments and observations were "not authentick because not made by the Dr. himselfe, but collected from the relations of others, not physicians" but surgeons. Nor were Cockburn's proposals consistent "with the Reports of others", either "the printed Testimonies of Learned foreigners, who have expressly written of the same subject", or the testimony of "one of our own Fellowes" who had lived in Jamaica—probably Hans Sloane. The College therefore recommended that, instead of trying to find specifics, the Admiralty would be better advised to exercise "a prudent Choice" of "learned and expert Physicians" for the fleet, to treat the sick "according to the most approved Method of Healing now in use among us", and to make sure the sick had a "Convenient diet, clean Lodging, and diligent attendants".[123]

Once again, the learned physicians argued that the Admiralty should place their faith in learned men whose judgement could be trusted, rather than innovations derived from the reports of self-interested or unlearned men like Cockburn and the surgeons. When asked, the College examined Cockburn's proposal by having one of

[119] Ibid., sigs. A5–A5v.
[120] Ibid., sigs. A4–A4v.
[121] Keevil, op. cit., note 8 above, p. 289. Keevil gives a contempuous account of Colbatch and the medicine of the period (pp. 285–96).
[122] For Cockburn's account of this affair, see his *Sea diseases*, 2nd ed., op. cit., note 2 above, Preface. He claimed to have sent out to the West Indies his "scheme" of charting anyway, with good results, despite the College's rejection of the idea.
[123] Annals, VII, 162–3.

its elder members examine books, written reports, and physicians who had not been in the West Indies for many years. But Their Lordships continued to be excited about the possibilities of simple, easily administered medicines that would provide sure cures for specific diseases, and wanted these investigated. In 1701, they purchased a large quantity of Moses Stringer's specific for the cure of fevers and scurvy, and subjected it to field trials on a naval expedition to the West Indies.[124] William and his admirals and generals went their own way, encouraging those who held out hope of new, efficacious, and specific medicines. The learned physicians and the new regime continued on their collision course.

As for Cockburn, his specific brought him fortune as well as renown, being advertised even after his death.[125] The book he published after the war on the nature, causes, and cure of the four kinds of loosenesses (diarrhoea, lientery, coeliac passion, and dysentery) went through several editions.[126] He wrote against the learned physicians' views of medical practice.[127] And he continued to have friends and patients among the nobility and highest officers of the armed forces.[128]

CONCLUSION

The restructuring of the British military medical establishment meant two things for civilian medicine: a new career structure for practitioners, and a reinforced legitimacy for medical specifics. In the long run, a trusted and influential medical corps would provide a crucial framework for investigations into public hygiene as well as "clinical" problems. Peter Mathias has shown how problems affecting the supply of manpower increasingly became the subjects of medical investigation; and how the gradual development of solutions to the many problems of military hygiene led directly to later developments in civilian public health.[129] But although the new administrative system for the medical services in his armed forces provided the foundations for these later developments, in William's reign the military's chief interest was in immediate cures for wounds and diseases. It was an age enthusiastic about specifics.

[124] Keevil, op. cit., note 8 above, p. 253; Appleby, op. cit., note 101 above, p. 35. While Appleby treats Stringer with respect, the College would have seen him as a "quack", since his secret medicines were widely advertised.

[125] Henry Boësnier de la Touche, *Some observations of the power and efficacy of a medicine against looseness* (at least three London editions: 1757, 1757, 1764). I have not been able to locate a copy of the English edition of another account of Cockburn's medicine, translated into French and Spanish: John Dove, *Relation fidele et incontestable des effets surprenans du remède specifique contre les devoyemens, flus de sang, &c.*, London, 1751, and *Imparçial y verdadera relaçion de los effectos admirables de la medeçina compuesta por el Dr. William Cockburn*, London, 1751.

[126] Cockburn, *Profluvia ventris*, op. cit., note 107 above, dedicated to the King, on p. 70: the "Excellencies and Powers" of his electuary "are known wherever any of his Majesty's Ships have gone: they being generally provided with it, by Order of their Lordships of the Admiralty . . . ". *Nature and cure of fluxes*, op. cit., note 107 above. I have not seen the second edition.

[127] Cockburn, *Present uncertainty*, op. cit., note 107 above.

[128] See his letters to Hans Sloane, British Library Sloane MSS nos. 4053, fol. 230; 4058, fol. 138.

[129] Peter Mathias, 'Swords and ploughshares: the armed forces, medicine and public health in the late eighteenth century', in *War and economic development: essays in memory of David Joslin*, ed. J. M. Winter, Cambridge University Press, 1975, pp. 73–90; Caroline Hannaway, 'From private hygiene to public health: a transformation in Western medicine in the eighteenth and nineteenth centuries', in *Public health*, ed. Teizo Ogawa, Tokyo, Saikon, 1980, pp. 108–28.

The kinds of medical practitioners and institutions the new monarchs encouraged or failed to encouraged show that they themselves had little interest in physicians who claimed to be superior to other practitioners on the grounds of learning alone. This seems to have been policy built on personal sympathy, for William survived and conquered by giving close attention to ends and means, not general theories. One historian has called William a political "empiricist", perhaps a more significant characterization than he realized.[130] Military medicine under William and Mary exhibited a strong tendency to reward medical specifics rather than personal dignity and learned philosophy, those with a reputation for having healing skill or new therapies as opposed to Oxford and Cambridge educations. Thus, the growing weight of the military forces during William's reign played an important role in spreading trained medical practitioners around England. But equally significant is the kind of medical skill encouraged by the armed services: it was curative knowledge based upon direct experience and of immediate benefit, with the same practice good for anyone rather than tailored to unique individuals, precisely that kind of empirical medicine for which the eighteenth century is known. The medical infrastructure created to wage William's wars strongly promoted a more universalistic and empirical, less individualistic and learned, medicine. In France, too, military events later led to similar developments.[131]

It is not that the militarization of Britain after 1688 alone created the conditions in which this kind of medical practice developed: the story is far more complicated. The movement of medicine in a "clinical" direction and the "rise of the surgeons" also occurred elsewhere and had many causes, not least the developments of the market economy and the changing role of the hospital. Like these other changes, the transformation of medicine at the end of the seventeenth century had its roots in previous decades; but like them, too, the new settlement institutionalized *laissez-faire* commercialism and helped to establish a new medical orthodoxy that lasted well into the nineteenth century. In addition to the constitutional and financial changes for which the Glorious Revolution is celebrated, 1688–89 brought changes to British medicine, setting practical Englishmen, Scotsmen, and Dutchmen against the dignified Anglican establishment.

[130] Carswell, op. cit., note 20 above; for example, p. 220.

[131] Erwin H. Ackernecht, *Medicine at the Paris Hospital 1794–1848*, Baltimore, Johns Hopkins University Press, 1967, pp. 37, 25–6, 141–2; Dora Weiner, 'French doctors face war, 1792–1815', in *From the ancien régime to the popular front*, ed. C. K. Warner, New York, Columbia University Press, 1969, pp. 51–73; David M. Vess, *Medical revolution in France, 1789–1796*, Gainesville, University Presses of Florida, 1975; J. des Cilleuls, et al., *Le service de santé militaire de ses origines à nos jours*, Paris, S.P.E.I., 1961; Pierre Pluchon (ed.), *Histoire des médecins et pharmaciens de marine et des colonies*, Paris, Bibliothèque Historique Privat, 1985.