Early Modern Bodies

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Chapter 17

Medicine

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17 Medicine

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What was early modern medicine? The answer to this question is far from obvious, for 'medicine' and medical ideas permeated early modern life at every level. Food, sleep, and sex could be medicine; so too could bloodletting, amputation, and trepanning. Accidents and disease stalked every aspect of life, from infancy, to employment, to childbearing. Epidemics, most notoriously the plague, periodically devastated entire nations. Defining 'English' or 'British' medicine is equally fraught, since medical ideas, practices, and practitioners were highly mobile. Many of early modern England's most popular medical treatises were translated from Latin, German, or French, while European cities such as Leiden and Paris were renowned as centres of excellence in medical training. Medicine was a trade and an art that allowed and even encouraged its practitioners to traverse borders. The Portuguese Roderigo Lopez, for instance, was one of several continental physicians to attend English royalty, though more unusual in being executed for a supposed attempt to poison his patient, Elizabeth I.[1] Moreover, the boundaries between medical and philosophical thought were repeatedly blurred by research into cognition and the senses. This chapter will explore how medical ideas shaped early modern people's concept of the body, both in health and illness. Medicine provided a framework within which the body was at once malleable and mysterious, available to be scrutinized and yet in some respects fundamentally unknowable. This contradiction was, I will argue, visible at every point on the medical 'spectrum', from the most innocuous regimen to the most extreme intervention. It is most apparent in early modern approaches to disability and visible difference (so-called 'deformity'), which ranged from cruelty and stigmatization to rehabilitation and renewal.

Foundations: Models and Practitioners

Most early modern medical care was based to some extent on the principles of humoralism. This model owed its origins to Galen of Pergamon (129–c. 210 CE) and had permeated Western European medicine since the medieval period. In many respects, Galen's model was a complex one, involving a tripartite soul which was allied to different parts and processes of the body.[2] Notwithstanding these complexities, however, the basic principles upon

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which Galenic medicine was based were appealingly simple. The body was held to contain four fluids, or humours: black bile, or melancholy; yellow bile, or choler; blood, and phlegm.[3] These humours in turn corresponded with certain qualities: black bile was deemed cold and dry, choler hot and dry, phlegm cold and wet, and blood hot and wet. Influences of various kinds – including gender and life stage – could affect the heat and moistness of the body, and in so doing foster an imbalance of the humours which in turn led to illness. The role of medicine was thus to promote *eucrasia*, or balance.[4]

Humoralism appealed to both medical practitioners and patients partly on the basis that it suggested that health might be attained and maintained by relatively simple actions. As Gail Kern Paster notes, 'all being-in-the-humoral-body involved a turbulent interior plenitude capable of absorbing and being physically altered by the world around it and … not distinctly separable from it'.[5] Humoralism allowed early modern people to think of the body as enmeshed with the broader environment in 'ecological' terms, such that 'subjectivity is constituted out of the passage of matter through and across the body'.[6] As other chapters have noted, certain types of bodies might appear especially 'permeable' within this model, but all bodies were open to continual reshaping. Furthermore, humoralism implied that physical and emotional health were intimately connected – indeed, that they were virtually inextricable. Thus, when describing people subject to melancholy humours, physician Alexander Read warned of both mental and physical effects. Melancholy people, he asserted, were 'silent, pensive' insomniacs troubled by 'fearful Dreams', who could also be known by their 'small, slow and hard' pulse, rapacious appetite, and 'thicker and blacker than ordinary' blood.[7] This model of joint somatic and psychological affect was imaginatively appealing, and numerous literary scholars and historians have shown how the language of 'embodied emotion' permeated literature and culture.[8] Utilized in this way as a rhetorical tool, humoralism shaped how people understood their own feelings, and in so doing extended its importance far beyond the sick chamber.

However, humoralism was far from the only show in town. Throughout the sixteenth, seventeenth, and eighteenth centuries, alternative models of medicine abounded. The most widespread and abiding of these were the Paracelsian and Helmontian systems. As part of a broader shift towards 'iatrochemistry', both these theoretical models shifted medical focus away from the systemic and towards individual diseases. The father of this movement, Paracelsus (1492–1541), rejected the notion of the four humours and opted instead for explanations of bodily function that were partly alchemical, partly mechanistic, and sometimes magical. His doctrine of signatures held that the cure to every disease might be found in nature if one knew where to look.[9] Perhaps most significantly, he presented himself as an iconoclast with a mission to upset the fixed doctrines of Galenic humoralism, and this was the guise in which later adherents often presented iatrochemical ideas. Over a century after Paracelsus' death, for instance, physician George Acton claimed

that 'it is a most undoubted truth, that Paracelsus, Van Helmont, and many others, have been able to conquer all Diseases Gallenical [sic] Physitians now call incurable'.[10] As Acton recognized, Paracelsus' baton was taken up in the seventeenth century by Jan Baptist von Helmont (c. 1580–1644), who similarly treated diseases as distinct entities, curable by chemical medicines.[11] Both Paracelsus and Van Helmont were in their turn influential on ideas of medical 'sympathy', which propounded that ailments might be cured at a distance from the patient, often by application of a mysterious 'weapon salve' to an item stained with the afflicted person's blood.[12]

The popularity of iatrochemical and sympathetic models is testament to early modern patients' and physicians' readiness to embrace models of the body that were *both* mechanistic and mysterious, seeming to rely equally on definable chemical forces and less evident metaphysical influences. This duality appeared in the experimental activities that informed medical theory throughout this period. For instance, William Harvey's 1628 *De Motu Cordis* explained the mechanics of the human circulatory system, discerned by Harvey through a series of vivisections. This text has frequently been viewed as contributing to the idea that the human body was essentially an automaton, controlled by predictable forces.[13] However, Harvey's findings were also instrumental in a series of experiments in blood transfusion undertaken by members of the Royal Society in the 1660s. These procedures focused on determining whether subjective human and animal characteristics might inhere, in some mysterious way, in the blood. Taking place mainly in dogs (though some adventurous colleagues in Paris transfused a calf's blood into a human being), the experiments sought to answer questions such as:

1. Whether by this way of Transfusing Blood, the disposition of individual Animals of the same kind, may not be much altered (As whether a *fierce* Dog, by being often quite new stocked with the blood of a *cowardly* Dog, may not become more tame; & *vice versa*, &c.?)
2. Whether immediately upon the unbinding of a Dog, replenisht with adventitious blood, he will know and fawn upon his Master; and do the like customary things as before? And whether he will do such things better or worse at some time after the Operation?
3. Whether those Dogs, that have *Peculiarities*, will have them either abolisht, or at least much impaired by transfusion of blood? (As whether the blood of a *Mastiff*, being frequently transfused into a *Blood-hound*, or a *Spaniel*, will not prejudice them in point of scent?)[14]

The results of the trials were mixed, with further tests stymied by the tendency of the experimental subjects to run away. Nonetheless, both the experiments and the responses thereto showed a certain theoretical flexibility even among learned physicians. Mixing Helmontian, humoral and Paracelsian ideas, Acton concluded from these experiments that

> It cannot be deny'd, but that the blood of Beasts as well as men, is full of Vital spirit, and volatile Salt. Fernelius … defines the spirit of all living creatures to be *Corpus aetherium*, and Aristotle holds it to be of a Caelestial Divine nature; answering to the Element of the Starrs.[15]

Writing in 1711, almost 50 years later, the noted physician William Beckett still sought to utilize both hydraulic and humoral idioms for describing the human body when he wrote that:

> The more inquisitive and learned Part of the World, are at this time very well assured that the Animal Body is an exquisitely fram'd Machine, and that its Composure is little else than a Compass of branching and winding Canals … the whole *Fabrick* is govern'd by certain Laws impress'd on the Fluids; and we often find the unhappy consequences of the Discomposure of a Part, to discover themselves first by an Interruption of the Motion of the animal Juices.[16]

This omnivorous approach to medical models characterized early modern physics. While humoralism's absolute dominance faded somewhat over the period 1600–1750, it remained a powerful force. As Silvia de Renzi contends,

> the mechanical and hydraulic model of the body did not replace, but rather coexisted with, the older notion – shared by patients – of a healthy body in which humours were required to flow freely, and stagnation, when it occurred, had to be removed to restore balance.[17]

At length, even theories which seemed staunchly opposed were mined by medical practitioners for their most useful aspects and assimilated into the healthcare landscape. This flexible and heterogeneous medical model was fostered by, and in turn supported, a varied landscape of healthcare providers.

The majority of medical texts surviving from this period are those authored by formal medical practitioners; that is, physicians and surgeons. There were numerous routes to being accepted as a member of the College of Physicians, including gaining a degree from Oxford or Cambridge, or studying medicine at a continental university before gaining a licence from the College of Physicians in London. Outside London, the requirements were more moveable, with physicians often licensed by local bishops. The criteria for becoming a surgeon were less strict again: to be admitted to the Company of Barber-Surgeons required one to have undertaken an apprenticeship or a university degree, but these criteria were only patchily enforced outside the capital. The desire of licensed medical practitioners in this period to formalize their profession was demonstrated by disputes over medical territory which took place between the College of Physicians and the Company of Barber-Surgeons throughout the seventeenth century, and by the establishment of a separate Company of Surgeons in 1745.[18] It is further evidenced

by vituperative attacks on 'quackery' and 'mountebanks'. Surgeon John Browne, for instance, complained in 1703 that

> [one can] find twenty … Quacks to one true bred Physician or Surgeon; and … Weavers, Combers, Taylors, Cobblers, Horseleeches, Old Women and Strowling Sluts, who with an undoubted impudence do practice in both faculties in the publick face of Mankind.[19]

Despite their protests, however, the sheer vehemence of physicians' attempts to limit who could practise medicine only highlighted the thriving market that existed for unlicensed practitioners. In addition to physicians and surgeons, the early modern medical landscape played host to many specialist practitioners such as tooth-drawers and bone-setters, apothecaries, and midwives, as well as to domestic medical practitioners who administered medical care to members of their own household and to the local community. Furthermore, members of these diverse groups contributed fully to both the theory and practice of medicine. Doreen Evenden, for instance, has shown that while midwifery has often been under- or mis-represented in the historical record, midwives were 'high-status' members of their communities with medical knowledge often gained from several long apprenticeships.[20] Similarly, domestic medical practice and recipe books have been the subject of much recent scholarly scrutiny; far from tinkering around the edges of medical practice, it has been shown that (usually female) domestic practitioners spent large amounts of time and money constructing remedies of extraordinary complexity.[21]

Prevention and Cure

Early modern patients thus had a vast range of medical approaches and providers from which to choose, depending on their location, finances, connections, and preference. These providers offered vastly different kinds of therapies, but their treatments can be broadly categorized as regimen-based, medicinal, and surgical. The first recourse in most cases of illness was to changes in regimen. Patients suffering from anything from venereal disease to melancholia might be advised to change their habits of exercise, sleep, air, and diet. Most commonly, they attempted to redress their faulty humours by looking to ingestion and excretion; that is, food and drink, and purges and bloodletting. These measures were not viewed as poor relations in the early modern medical landscape; on the contrary, they were indicated even for the most serious diseases, including pox, infectious diseases, and cancer. In his 1635 *Chirurgical Lectures*, for instance, Read advised cancer sufferers that 'all thick and strong wines are to be shunned, course bread, Cabbage, and Colwoort, Cheese, old and salt flesh, old Hares, and Venison: Watching, immoderate labour and griefe are to be shunned'.[22] A 'cooling' diet might, he suggested, slow the progress of a cancerous tumour, or even eradicate a

cancer in its earliest stages. In 1694, when Richard Morton encountered a young man whose melancholy lack of appetite had brought him into a consumption, he initially administered 'Anti-scorbutick, Bitter, and Chalybeate Medicines'.[23] However, he soon changed to a more regimen-focused treatment plan:

> when I found that the former Method did not answer our Expectations, I advis'd him to abandon his Studies, to go into the Country Air, and to use Riding, and a Milk Diet (and especially Asses Milk) for a long time. By the use of which he recover'd his health in great measure.[24]

Both Read's and Morton's advice treated diet as the cornerstone of a regimen change which included several of the Galenic 'non-naturals': emotions or passions, air, exercise, and sleep. Moreover, these kinds of changes in regimen bled easily into other forms of treatment that aimed to restore health by amending humoral balance.

The long-established practice of phlebotomy became the subject of intense controversy during the seventeenth century, with numerous writers – particularly adherents of the Helmontian and Paracelsian models – decrying the practice as barbaric, and those who engaged in it as 'cutthroats'.[25] Nonetheless, it remained in use as a treatment for any number of diseases well into the eighteenth century. Other forms of purging included emetics, laxatives, clysters (enemas), and sudorifics (medicines to induce sweating). Each of these categories might in turn encompass substances from the comparatively mild (rhubarb and senna as laxatives, for instance), to the highly toxic (poisonous hellebore and henbane administered as emetics). Even commonly used medicines could thus be dangerous in the wrong hands, as when Edmund King reported having seen a case in which 'four Physicians, who having blouded, purged, and clystered [a patient], as they thought fit, he grew at last so weak, that he was unable to stir, lost his speech and senses, and vomited all that he took'.[26] The unfortunate man died soon afterwards; perhaps from the purges, or possibly from an attempted transfusion of calf's blood.

Unsurprisingly, some patients resisted such burdensome and unpleasant therapies, much to the chagrin of their physicians. William Beckett, for instance, complained in 1711 that

> There's nothing can create a greater trouble to the *Surgeon*, than to find Patients negligent of their healths, by not endeavouring to prevent or regulate Miscarriages, nor taking so much Care of themselves, as they expect that the *Surgeon* should take of 'em.[27]

Nevertheless, the appeal of regimen-based cures, including purges, was enmeshed with the popularity of the humoral medical model. Like that model, these cures framed the body as something that could be manipulated and understood. They placed self-management and self-knowledge at the

forefront of health.[28] Thus, when Reverend John Ward found himself under the weather, he confidently administered his own laxative medicines and took a certain pleasure in observing the results:

> Taking a purge twice with y^e^ same recipe: viz: syrrups Cichory cu*m* Rhab 3[oz], with a dram of Jalap: I had a convenient purg: y^e^ first 5 or 6 stooles phlegmatique y^e^ last chollerick and vehemently twinging and stinging y^e^ Sphincter … w^ch^ appeared to mee to bee choller for its citrine colour, if there bee any such thing, or possibly it might bee y^e^ naturall ferment of y^e^ Guts.[29]

As Ward's experiences show, the lines between regimen and medicine were often blurred. Ward's self-medication, while producing dramatic effects, was as much an effort to maintain wellness as to cure any specific ailment. His access to and knowledge of medicines was exceptional owing to his lifelong interest in the subject, which saw him correspond with numerous physicians, voraciously collect medical textbooks, and even attend surgeries. 'Regular' patients, however, might collect prescribed remedies from an apothecary, procure one of the many 'cure-alls' advertised in periodicals and newspapers, or draw on a pre-prepared supply.[30] Recent work on domestic medicine has shown the extent to which many medium-sized households manufactured and held a stock of remedies for common complaints such as headache and fever.[31] Whatever their source, remedies might include animal, vegetable, and mineral ingredients, most of which had more than one use, and which operated according to a general principle of (for example) reducing inflammation or settling the stomach. For instance, an anonymous 1657 text provided a recipe for pills including Lapis Lazuli, aniseed, cloves, and thyme. These, it was promised, would help in 'Leprosie, Canker, quartane Fever, and all diseases that arise from melancholical humours, or adust Bile'.[32] More adventurously, an ointment recommended by John Pechey for treating cancers required 'juyces of *Night-shade, Housleek, Sorrel, Scabious, Honey-suckles, Mullein, Figwort, Dropwort, Plantain, Toads flax, Agrimony* … juice of *green Olives* one pint, the Flesh of *Frogs*, and *River-Crabs*'.[33]

In many respects, such remedies remained unchanged from the preceding centuries, though they made far greater use of imported substances. However, a new breed of medicines was emerging, from both licensed and unlicensed sources, with far more profound effects. The seventeenth century saw an explosion in the use of 'chemotherapies' – that is, chemical medicines – which offered spectacular cures but were accompanied by significant dangers. These included alum, lead, and (most notoriously) arsenic and mercury. These wonder drugs were prescribed for a range of serious illnesses, most notably for venereal pox. As John Woodall explained in his 'On Mercury':

> The perfect cure proceeds from thee,
> for Pox, for Gout, for Leprosie,

> For scabs, for itch, of any sort,
> These cures with thee are but a sport.[34]

While mercury and other chemical cures appeared to mark a move away from traditional medicine, the purgative principles on which these remedies were believed to work remained the same. Mercury 'salivations', for instance, attempted to expel disease from the body by provoking extreme sweating, drooling, and vomiting. Like older medicines, these remedies were part of a discourse in which medical practitioners' ability to manipulate the body was only ever partial. The side effects of these 'perfect cures' included tooth loss, bleeding from the gums, fainting, and death.

Early modern patients were thus accustomed to the idea that tackling illness might mean undergoing treatment that was extremely unpleasant, painful, and even dangerous. Arguably the most extreme form of intervention was surgery. Undertaken without anaesthesia, antibiotics, or antiseptics, seventeenth- and eighteenth-century surgery was a fearful prospect. Early modern physicians often expressed disdain for surgeons, whom they viewed as ill-educated and closely akin to 'butchers'.[35] However, the image of a saw-happy barbarian is not consistent with surgical texts from the period, which show the range and complexity of surgical procedures available at this time, and the close collaboration that took place between physicians and surgeons. Admittedly, the greatest need for surgeons was in the army and navy, where the demands of warfare meant that surgeons often operated hastily and in poor conditions. The realities of naval medicine are grimly conveyed by John Moyle's 1686 *Abstract of Sea-Chirurgery* in which he advises young surgeons preparing for battle, 'You are … to have by you two Tubs with water; the one to throw amputated Limbs into until there is conveniency to heave them over-board; and the other to dip your dismembring Bladders in'.[36] However, insights gained from military surgery spread into civilian contexts. As well as amputations, lithotomies, and tumour removals, seventeenth-century surgical texts detail operations including trepanning, permanent tracheotomy, correction of cleft lip, opening of the chest and belly (to relieve dropsy), and caesarean birth.[37] These ambitious procedures were undertaken in the knowledge that patients risked death from shock, blood loss, or infection. However, we should not infer that surgeons coerced patients into operations. Long-suffering patients might seize any chance at cure, as when Hugh Ryder recorded his encounter with a boy whose leg was ridden with infected fistulas and ulcers:

> I told his Father, I had considered, the circumstances he lay under, were so severe, that I thought, there was no likelyhood of his recovery, nor possibility of Cure; to which the Boy very heartily replied, he knew he should be well, if I would cut off his Thigh; and that if I would lend him a Knife, he would cut it off himself.[38]

Ryder's claim may have exaggerated his young patient's fortitude, but it exemplifies the difficult choices faced by early modern people when deciding on medical treatment.

Moreover, while pain was an inevitable part of much medical treatment, there is evidence that both surgeons and physicians endeavoured to ease their patients' pain after surgery or in cases of serious illness. Simple anodynes might include camomile, dill, elder, mallow, fenugreek, almond oil, and the 'grease' of chickens, swine, geese or 'Man'.[39] More serious narcotics designed to 'stupifie the part' included 'Lily, the Henbane, Hemlock, the deadly nightshade, Mandrake, the apple of *Peru*, the black Poppie and *Opium*'.[40] Opiates were dangerous drugs, particularly in the doses required to knock somebody out for surgery. Nonetheless, they offered relief in cases of extreme suffering:

> This Laudable medicine … deserveth rightly his name, although thou call it *Laudanum*, for in all sharpe pains whatsoever hot or cold within the body or without the body, yea, even when through extreamitie of paine, the parties are at deaths doore, or almost mad with the vehemencie of the same, this precious medicine giveth ease presently, yea, and quiet sleepe, and that safely.[41]

Once again, risk had to be balanced with reward, and patient demands reconciled with medical practitioners' need to preserve their reputations.

Finally, all early modern patients and practitioners were aware that the medicines and operations in which they placed their hopes might require divine assistance. Both bodily suffering and religious practice were often described as medicines for the soul; equally, it was a truism that physic and surgery could only work alongside the grace of God.[42] Hannah Newton has lately shown how illness was often the most spiritually testing and edifying period in the life of both a patient and their loved ones, offering a chance to contemplate one's former sins and offer thanksgiving for recovery.[43] Conversely, physicians and surgeons admitted that they assisted God but could not work against His will. As John Ward wryly observed, 'God who is the great Phisitian of the soul, sees it best for our help and health sometimes to be kept fasting'.[44]

Disability and Difference

Medical practice thus involved a constant and concerted effort to shift the body back to 'normal', to a perceived golden mean at which one's physiology would regulate itself without the need for acute interventions. What happened, however, when one's regular state was itself not conformable to an ideal? How did these models account for the maimed, lame, blind, or otherwise non-normative body?[45] This question is of particular importance to the seventeenth and eighteenth centuries, for this period saw a number of factors combine to produce large numbers of physically disabled or 'disfigured'

citizens.[46] Risks associated with manual trades, and with handling livestock and horses, were omnipresent. In addition, this period saw intense military activity involving large portions of the population.[47] In the Nine Years War (1688–1697), for instance, it is estimated that one in seven Englishmen served in the military.[48] During long campaigns, these men were exposed to infectious disease and loss of extremities from frostbite, as well as from traditional close combat. They were also, more than ever, vulnerable to firearms and artillery. Such wounds were particularly likely to become gangrenous, as fragments of cloth, metal and wood were carried deep into the flesh.

In this climate, the figure of the 'maimed' soldier became socially and culturally important. The first concerted effort to provide relief for maimed soldiers came in 1593, when the 'Act for the Necessary Relief of Soldiers and Mariners' was passed in order to alleviate the plight of those who returned from wars unable to work and were forced to beg in order to survive.[49] This measure was followed by others, including the establishment of military hospitals, throughout the seventeenth century.[50] However, the perception remained that 'great Numbers … [of] loose and vagrant Persons, infest the Nation, but no Place more than the City of *London* and Parts adjacent'.[51] In literature, concerns about the moral, economic, social and libidinal status of disabled people were omnipresent.[52] Throughout the seventeenth and eighteenth centuries, various kinds of 'rogue' literature, satire, and natural philosophy sought to expose the 'truth' about people with disabilities.[53] This 'truth' was often unfavourable, for as numerous scholars have shown, people with disabilities were widely regarded with distrust, even contempt. Many onlookers apparently agreed with Francis Bacon's opinion that 'there is a consent between the body and the mind; and where nature erreth in the one, she ventureth in the other'.[54] Even when this was not explicitly the case, Simon Dickie has shown that disabled or 'deformed' people were regarded as objects of mirth (albeit of a kind who might occasionally turn the tables on their tormentors).[55] Writing in 1754, William Hay, himself disabled by spinal abnormality, noted that whatever his achievements, 'the highest Post cannot redeem a deformed [man] from Contempt; it follows him like his Shadow, and like that too is ever reminding him of his ill Figure, which is often objected for want of real Crimes'.[56]

Medical approaches to physical disability reflected both cultural biases around bodily difference, and the increasing ambition of medical practitioners. Where many forms of literature represented people with disabilities as either fraudsters or helpless 'cripples', medical writings established a somewhat different dichotomy. On one hand, people with congenital disabilities were often visually anatomized in medical works in which bodily difference was easily elided with monstrosity. For instance, Ambroise Paré's influential *Workes* (published in an English translation in 1634) included in its section on 'monsters and prodigies' a man born without arms, who could nevertheless 'with the top of his shoulder, head and necke … strike an Axe or Hatchet with as sure and strong a blow into a poast, as any other man could doe'.[57]

Conversely, many medical writings on impairment focused on the restoration of the body through mechanical means – that is, through prosthesis. In 1717, Johannes van Horne boasted that

> we [surgeons] supply the want of an Eye with a Glass or golden one clour'd: and the loss of an Ear by thick Paper or Parchment painted; we repair the want of a Nose by Silver Plates … we can restore lost Teeth, if the speech be deficient, by factitious ones of Ivory; and we fix a Silver *Lamina* or Plate, when a Portion of the Palate is eaten away … Thus likewise we use wooden Legs to walk with, and an Instrument, made of Iron, may be fixed to the Arm; by which, in defect of a Hand, its Use may be somewhat supply'd.[58]

Indeed, it appears from such texts that virtually everybody in this period must have known somebody who used a long-term medical 'aid' of one variety or another. Accounts from military hospitals give the impression of wooden legs being issued virtually as standard to men who had lost a leg, with wooden or hook 'hands' only slightly less common. For instance, von Arni has shown how at Ely House military hospital:

> the hospital carpenter … was frequently required to provide wooden legs and the associated attachments for them … on 12 February 1654, a soldier named Fisher was provided with a wooden hand costing 5s. On 15 May 1654 he fitted Thomas Swain with a pair of legs with straps and buckles, adjusted the wooden legs of seven residents and supplied spare 2 pins for another.[59]

Moreover, surgical handbooks revealed an expectation of prosthesis usage when they repeatedly advised surgeons to amputate limbs in such a way as to make fitting a wooden arm or leg easier. The 1699 *Compleat Body of Chirurgical Operations* suggested that:

> The Leg must be cut off as near the Knee as possible … for the more commodious carrying a Wooden Legg … On the contrary cut as little as may be off the Arm, because it serves as an Ornament and Counterpoise to the Body, and an Artificial Hand may be made to be useful in some cases.[60]

The majority of prostheses available in this period were simple and relatively cheap. Nonetheless, certain medical texts suggested designs for much more sophisticated articulated arms and legs. In 1698, for example, William Salmon assured readers of his *Ars Chirurgica* that

> some [prostheses] have been made by ingenious smiths, or other artificers, with which the party which wore them, have performed the proper

> functions of going, standing, and handling; and with their artificial legs, feet, arms and hands, have done other necessary flexions and extensions, beyond what can possibly be imagined, by any but such as have seen them.[61]

In Salmon's utopian vision, the prosthesis user would be restored to social acceptability by medical technology. He was not alone. Practitioners including Paré and Woodall likewise imagined a scenario in which

> with an artificial foot adjoyned, a man may decently and comely walke, and ride, goe over a style, yea, and runne, and sit streight, and behave himselfe man-like in Bed, and at Boord, and doe good service for the defence of his countrey, or of himselfe.[62]

In many ways, these articulated, moveable limbs were less desirable than simple wooden 'peg-legs'. Made largely of metal, they were prohibitively expensive, heavy, and uncomfortable. However, they were framed as allowing the user to perform their 'proper functions'; that is, they allowed them to perform able-bodiedness. This highly mechanistic view of bodily normalcy reflected the degree to which medical models of the body were enmeshed with broader cultural trends. Visions of the body as a machine with replaceable parts clearly drew on Cartesian dualist understandings of selfhood. However, they were equally indebted to contemporary technological advancements. As Reed Behamou observes, the same craftsmen involved in producing clocks and automata were also involved in making innovative prostheses.[63]

In the later eighteenth century, the desire for prostheses that *looked* lifelike began to overtake that for prostheses that *functioned* in a lifelike way. In a culture increasingly occupied with fashion and politeness, prostheses would be sold as 'objects of taste and technological innovation that in turn defined the consumer in terms that went beyond the medicalized "patient"'.[64] In a competitive medical marketplace, patients chose to vote with their pockets for limbs such as those offered by John Sewers, who promised prosthetic feet 'so *Exact* as hardly to be discern'd, and so *Light* as in the whole proportion not to weigh more than Three Pound and half'.[65] Until this sea-change, however, early modern discourse on prosthesis sought to 'fix' the body, in every sense of that word. As Elizabeth Bearden observes, 'Identifying and excluding unnatural bodies are fundamental … to early modern people's understanding of the world and to their arguments about human beings' right to dominate that world'.[66] In promising to restore the disabled person, practitioners visually dissected bodily difference. Treatment-focused renderings of disability therefore shared much in common with teratologies, and with popular texts that sought to sift the 'truly' disabled from the imitators. In each case, hyperfocus on the disabled body enabled writers and readers to push to one side the complex socio-cultural factors that rendered life difficult for disabled people. By attempting to pin down the features of a non-normative body,

writers sought to fix a threshold for 'normalcy' within a medical model that saw human physiology as characterized by flux and variability.

Conclusion

Early modern medical attitudes toward the body were characterized by tensions and contradictions. On one hand, medicine promised to render the body eminently readable. The humoral system maintained a strong influence on medical thought well into the eighteenth century precisely because it offered an intuitive and comprehensible approach to physical wellbeing, which situated the well or ill person in their social and environmental context. This was an essentially democratic model, in which understanding of the body was not confined to licensed practitioners but extended to providers of domestic medicine and to patients themselves. Medical and surgical treatments might be difficult, dangerous, and unpleasant, but the broad medical marketplace offered something for almost everybody. On the other hand, however, medical writings show that this discipline was uncomfortably aware of its own limitations. Medical practitioners were continually experimenting and corresponding in an effort to understand more about the mysterious workings of the blood, organs, and nerves. However, they were obliged to explain their findings in terms which seemed inadequate to the task, mixing old and new philosophies as they did so. This tension is most powerfully evident in the medicalization of non-normative bodies. Early modern medical texts show surgeons and physicians indulging in utopian visions of prosthesis in which people with disabilities might be fully restored to social normalcy by the use of medical technologies. Nonetheless, the insistence in these texts on mobility and bodily functionality as the sole criteria for normalcy determinedly ignores the complexity of socio-economic and cultural biases against disabled people. In sum, medical thinking sought to render the body entirely 'visible'. In so doing, however, it revealed how far that body continued to resist categorization and control.

Notes

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3 Somewhat confusingly, humoral blood was different from nutritive blood, the liquid within which all four humours circulated in the body.
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13 See D. Judovitz, *The Culture of the Body: Genealogies of Modernity* (Ann Arbor, MI: University of Michigan Press, 2001), 67–81.
14 R. Boyle, 'Tryals Proposed by Mr. Boyle to Dr. Lower, to be Made by him, for the Improvement of Transfusing Blood out of one Live Animal into Another', *Philosophical Transactions*, 22 (11 February 1666), 385.
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16 W. Beckett, *New Discoveries Relating to the Cure of Cancers, Wherein a Method of Dissolving the Cancerous Substance is Recommended, with Various Instances of the Author's Success in Such Practice, on Person Reputed Incurable, in a Letter to a Friend. To which is added, a Solution of Some Curious Problems, Concerning the Same Disease* (London, 1711), 10
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18 See: I. Mortimer, *The Dying and the Doctors: The Medical Revolution in Seventeenth-Century England* (Woodbridge: The Boydell Press, 2009); M. Pelling (with F. White), *Medical Conflicts in Early Modern London: Patronage, Physicians, and Irregular Practitioners, 1550–1640* (Oxford: Clarendon Press, 2003); R. Porter, *Health for Sale: Quackery in England, 1660–1850* (Manchester: Manchester University Press, 1989).
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29 J. Ward, *Notebook of John Ward, Volume 7* (1658–1660), Folger Shakespeare Library, Va.290, f.51v–52r.
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31 See for instance A. Stobart, *Domestic Medicine in Seventeenth-Century England* (London & New York, NY: Bloomsbury, 2016); E. Leong, *Recipes and Everyday Knowledge: Medicine, Science and the Household in Early Modern England* (Chicago, IL: University of Chicago Press, 2018).
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34 J. Woodall, *The Surgeons Mate, or, Military and Domestique Surgery. Discovering Faithfully & Plainly y^e^ Method and Order of y^e^ Surgeons Chest y^e^ Uses of y^e^ Instruments, y^e^ Vertues and Operations of Medicines, w^th^ y^e^ Exact Cures of Wounds Made by Gunshott, and Otherwise, as Namely, Wounds, Apostumes, Ulcers, Fistula's, Fractires. Dislocations, w^th^ y^e^ Most Easie & Safest Wayes of Amputation or Dismembering* (London: Rob. Young for Nicholas Bourne, 1639 [1617]), 228.
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47 C. Carlton, *This Seat of Mars: War and the British Isles, 1485–1746* (New Haven, CT: Yale University Press, 2011), 37.
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51 J. Gee, *The Trade and Navigation of Great-Britain Considered* (London: Sam Buckley, 1729), 38.
52 See Row-Heyveld, 'Dissembling Disability'; Eccles, *Vagrancy in Law and Practice*; L. Woodbridge, *Vagrancy, Homelessness, and English Renaissance Literature* (Chicago, IL: University of Illinois Press, 2001); D. Turner, *Disability in Eighteenth-Century England: Imagining Physical Impairment* (New York, NY: Routledge, 2012); A. Skuse, 'Missing Parts in *The Shoemaker's Holiday*', *Renaissance Drama*, 45:2 (2017), 161–79.
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