



## “Saucy Stink”: Smells, Sanitation, and Conflict in Early Modern London

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Volume 44, numéro 2, printemps 2021

Experiencing the Environment in the Early Modern Period: Seasons, Senses, and Health  
Saisons, sens et santé : l'expérience de l'environnement au seuil de la modernité

URI : <https://id.erudit.org/iderudit/1082696ar>

DOI : <https://doi.org/10.33137/rr.v44i2.37521>

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Éditeur(s)

Iter Press

ISSN

0034-429X (imprimé)

2293-7374 (numérique)

[Découvrir la revue](#)

Citer cet article

Logue, A. (2021). “Saucy Stink”: Smells, Sanitation, and Conflict in Early Modern London. *Renaissance and Reformation / Renaissance et Réforme*, 44(2), 61–86.  
<https://doi.org/10.33137/rr.v44i2.37521>

Résumé de l'article

Cet article examine les délits olfactifs dans la ville de Londres de la première modernité. Il explore la gestion que faisaient les habitants des pratiques engendrant de mauvaises odeurs, en se concentrant sur les désagréments courants découlant de pratiques domestiques quotidiennes comme la lessive et la gestion des déchets. Des cordes à linge étaient suspendues entre les logements, les ménages jetaient leurs déchets de cuisine dans des caniveaux débordant d'ordures, et des toilettes communes puantes servaient tout un voisinage. Le climat saisonnier intensifiait la mauvaise qualité de l'air de la ville et l'eau de pluie charriait les déchets dans les rivières urbaines. Au début du XVII<sup>e</sup> siècle, une prise de conscience de l'incidence de la qualité de l'air sur les conditions de santé coïncida avec d'importants changements démographiques dans la ville. L'insalubrité de l'air était intrinsèquement liée à une augmentation des flux migratoires, à la présence de quartiers surpeuplés et à la propagation des maladies. L'amélioration de la qualité de l'air de la ville devint une préoccupation plus pressante pour les Londoniens, les autorités civiques et les premiers monarques de la dynastie des Stuart, qui déployèrent une série de stratégies d'assainissement pour remédier à la situation. La croissance de Londres à cette période s'accompagna d'un intérêt accru pour le bien-être de ses habitants et pour les logements qu'ils occupaient.

# “Saucy Stink”: Smells, Sanitation, and Conflict in Early Modern London

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*This article examines olfactory offenses in early modern London. It explores how inhabitants managed causes of malodorous air, focusing on common nuisances stemming from everyday household practices like laundry and waste management. Clotheslines were hung up between lodgings, households disposed of kitchen waste in gutters overflowing with garbage, and neighbours used stinking, communal privies. Seasonal weather intensified the city's poor air quality, and rainwater washed refuse into urban rivers. In the early seventeenth century, the growing awareness of the effects of air quality on health coincided with significant demographic changes in the city. Insalubrious air was intrinsically linked to increased migration, overcrowded neighbourhoods, and the spread of diseases. The improvement of the city's air quality became a more immediate concern for Londoners, civic authorities, and the early Stuart monarchs, who deployed a range of sanitation strategies. As London grew, so too did concern for its inhabitants and the dwellings they occupied.*

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When he visited England in 1560, the Dutch physician Levinus Lemnius noted with interest the good health of the English, which he attributed to the “wholesome and healthful air” of their lodgings. According to Lemnius, English dwellings had a “comfortable smell, [which] cheered me up and

entirely delighted my senses.”<sup>1</sup> This description of salubrious homes would have surprised Londoners, who had to withstand various olfactory offenses from their neighbours. Crowded urban neighbourhoods meant that inhabitants’ sanitary and hygienic practices were part of city dwellers’ daily lives. Lines of laundry were hung up between lodgings; households disposed of kitchen waste in shared gutters, which overflowed with refuse like rotten food and animal carcasses; and neighbours used communal privies, or emptied chamber pots out of windows and doors, spilling excrement into the street. Seasonal weather impacted the city’s air quality, and although rainwater cleared gutters and streets of waste, the refuse that washed into the Fleet, Walbrook, and Thames rivers polluted these urban waterways.<sup>2</sup> Rather than the “wholesome and healthful air” Lemnius described, London’s malodorous air was perhaps more accurately captured by Sir John Harington, the inventor of the flush toilet. Despite attempts to mitigate the stench from London’s privies and streets, Harington reported that in his own house, as well as in the “goodliest and stateliest palaces of this realm,” a “saucy stink” invaded the city’s dwellings.<sup>3</sup>

People’s daily interactions with their environment affected the air quality, and human practices that corrupted air warranted further investigation. Analyzing common nuisances resulting from (un)sanitary household practices, such as airing of dirty laundry or failing to maintain private and shared privies, this article explores how London’s inhabitants and authorities managed everyday causes of insalubrious air. Some of the most foul-smelling sites adjoined domestic spaces; noisome air arose from “filthy sinks, stinking sewers, channels, gutters, privies, sluttish corners, dunghills, and uncast ditches” where households dumped their refuse.<sup>4</sup> London’s large population increased the volume of household waste, and privies and gutters quickly filled up. Cramped urban spaces meant olfactory offenses were a pressing problem for city dwellers, but these same conditions made it difficult to mitigate the spread

1. William Brenchley Rye, *England as seen by Foreigners in the Days of Elizabeth and James the First* (London: J. R. Smith, 1865), 78–79.

2. William M. Cavert, *The Smoke of London: Energy and Environment in the Early Modern City* (Cambridge: Cambridge University Press, 2016), 33, dx.doi.org/10.1017/CBO9781139680967.

3. Sir John Harington, *The Metamorphosis of Ajax* (London, 1596), 88.

4. Sandra Cavallo and Tessa Storey, *Healthy Living in Late Renaissance Italy* (Oxford: Oxford University Press, 2013), 71, dx.doi.org/10.1093/acprof:oso/9780199678136.001.0001; Steven Bradwell, *A Watch-Man For the Pest* (London, 1625), 4.

of bad smells and corrupt air. In densely populated urban neighbourhoods, the sensory boundaries between houses and households were permeable—if they were there at all.

Studies of early modern air quality have focused on the properties of good and bad air in urban and rural environments, and their impact on inhabitants' health. Chorographers, medical practitioners, and pamphleteers agreed that environment and health were inextricably linked. It was widely believed that the countryside was healthier than cities, and the realities of urban life meant pollution was a daily concern. In rural areas, air was purified and refreshed when it flowed through open spaces like fields and gardens, while city air was stagnant, trapped by cramped streets.<sup>5</sup> According to accepted theories of pollution, or miasma, malodorous air was the source of potentially fatal bodily disorders and diseases.<sup>6</sup> Attention to air quality can be found in a wide range of printed material, as chorographers, health practitioners, and plague pamphleteers outlined the salubrious effects of clean air. In his *Naturall and Artificial Directions for Health* (1600), William Vaughan explained that “the whole constitution of our lives dependeth” on “good” air.<sup>7</sup> Medical practitioners characterized good air as clear, light, sweet smelling, pure, and wholesome, and it nourished the body. Stephen Bradwell's 1625 plague tract likened “pure and wholesome” air to good food and water; but “corrupt air,” he warned, like “corrupt meats” would cause sickness and diseases.<sup>8</sup> Corrupt air was described as vile, stinking, venomous, noisome, unwholesome, and unsavoury, and it spread disease and infection.

The environment of a place determined the properties of its air, and anxiety about polluted cities took on greater urgency in the early modern period. In her contribution to this special issue, Julia Rombough investigates the sound- and scentscapes of early modern Italy, and encourages us to consider how noise pollution and air pollution were deemed interchangeable. Noise pollution, such as the noisemaking from sex workers and their clients, and air pollution, such as the “infected air” during plague outbreaks, were the result of both human and environmental factors. Environmental and individual practice also helped

5. Cavallo and Storey, 85.

6. Leona Skelton, *Sanitation in Urban Britain, 1560–1700* (London: Routledge, 2016), 36; Cavallo and Storey, 71–72.

7. William Vaughan, *Naturall and Artificial Directions for Health* (London: 1600), 2.

8. Bradwell, 6.

to rid the air of its impurities, and Italians deployed a range of sensory practices, such as bellringing and the burning of herbs, to cleanse the air. Florentines and Londoners shared a concern for the environmental consequences of increased immigration, migration, and poverty. In London, the growing awareness of the effects of air quality on health, and its improvement, became a more immediate concern as the city's population exploded. From 1580 to 1650, London grew from one hundred thousand inhabitants to four hundred thousand, largely as a result of migration from elsewhere in the British Isles and immigration from the Continent.<sup>9</sup> This wave of relocation occurred alongside serious outbreaks of plague in 1593, 1603, 1625, and 1665.<sup>10</sup> Londoners, civic authorities, and the crown explicitly linked polluted environments to migration, overcrowded neighbourhoods, and the spread of diseases. Significant demographic changes forced neighbours into closer quarters and exacerbated tensions around shared space. Concerns for the preservation of community health are evident in court battles between neighbours, in civic regulations concerning sanitary practices, and in the Stuart monarchs' royal proclamations, which focused on mitigating the spread of disease in the overcrowded city. The closer attention paid to air quality and urban sanitation reflects an emergent investment in healthy homes. As London grew, so too did concern for its inhabitants and the dwellings they occupied.

### Neighbourhood nuisances

At a time when an unprecedented population boom forced neighbours into closer quarters, the danger bad air posed to residents' health made it subject to more aggressive regulation and control from women and men at all social levels. A dispute arising in the London parish of St. Bartholomew's the Less

9. Roger Finlay, *Population and Metropolis: The Demography of London, 1580–1650* (Cambridge: Cambridge University Press, 1981), 51, [dx.doi.org/10.1017/CBO9780511735325](https://doi.org/10.1017/CBO9780511735325).

10. Finlay, *Population and Metropolis*. The expanding population also exacerbated air pollution. John Graunt identified the population boom, as well as “universally used” sea coals for heating domestic and industrial interiors, as reasons for London's higher mortality during the 1665 plague. Burning sea coal also produced more smoke than wood, and the smoke smelled strongly of sulphur. John Graunt, *Natural and Political Observations ... upon the Bills of Mortality* (London, 1676), 94–95; see also Ken Hiltner, *What Is Pastoral? Renaissance Literature and the Environment* (Ithaca: Cornell University Press, 2011), 97, [dx.doi.org/10.7591/9780801460760](https://doi.org/10.7591/9780801460760).

illuminates the tensions that resulted from shared urban space. In November 1605, Francis Denman appeared before the Court of Star Chamber in a suit against his next-door neighbour, Thomas Cotton, who counter-sued the same month. In the years they spent as neighbours, the two men “grew in bitter terms, the one against the other” until their mutual animosity escalated to violence: both men accused each other of assault, unlawful assembly, destruction of property, conspiracy, and affray.<sup>11</sup> When Cotton and Denman appeared before the court, they testified to the “exceeding malice” and “grudge” the one had against the other, and their complaints detail long-standing conflict in the parish, with their neighbours taking sides in the dispute.<sup>12</sup> What prompted this verbal and physical violence was a clothesline stretched across their shared courtyard.

The parish of St. Bartholomew’s the Less is part of the precinct of St. Bartholomew’s Hospital, which was founded in 1123. In the early modern period, the hospital’s functions were partly funded by rents and leases from land holdings in London and nearby rural counties, and the city’s population growth provided an opportunity for generating further revenue. In his 1598 *A Survey of London*, John Stow comments on urban expansion, noting that there were “many large houses builded” in St. Bartholomew’s the Less. Along the North Wall towards Long Lane, a “number of tenements are there erected, for such as will give great rents.”<sup>13</sup> The hospital’s ledgers of rents paid records a “house new builded” in 1596, located next door to Thomas Cotton’s father, Bartholomew Cotton.<sup>14</sup> Francis Denman moved in the same year. (For an example of new construction in the parish, see fig. 1.) Denman paid rent in St. Bartholomew’s the Less until 1606, and his departure from the neighbourhood overlapped with the court battle between himself and Thomas Cotton. The two men came to blows over a shared courtyard adjoining their dwellings called the Well Yard, nestled in the centre of the St. Bartholomew’s Hospital complex (fig. 2).

11. The National Archives UK, Court of Star Chamber (STAC) 8/93/8: Cotton v. Denman, 1605; Bill of complaint.

12. STAC 8/126/10: Denman v. Cotton, 1605; Bill of complaint; STAC 8/93/8: Cotton v. Denman, 1605; Bill of complaint.

13. John Stow, *A Survey of London* [1603; 1598], ed. William Thomas (London: Whittaker and Co., 1842), 141.

14. St Bartholomew’s Hospital Archives (SBHB): SBHB/ HB1/3: Treasurers’ Ledger with Rentals, 1589–1614: 1597.

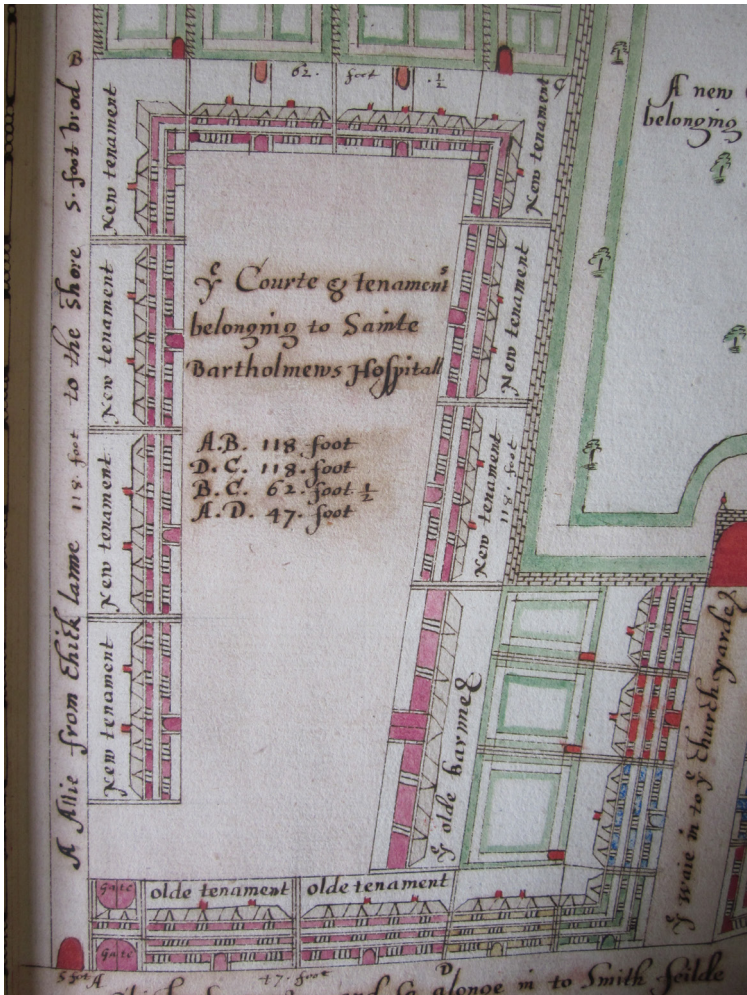


Figure 1. An example of old and new tenements off an alley from Chick Lane, St. Bartholomew's the Less. Attributed to Martin Llewellyn, 1617. St. Bartholomew's Archives, SBHB/HC/19/1 f.56. Reproduced with permission.

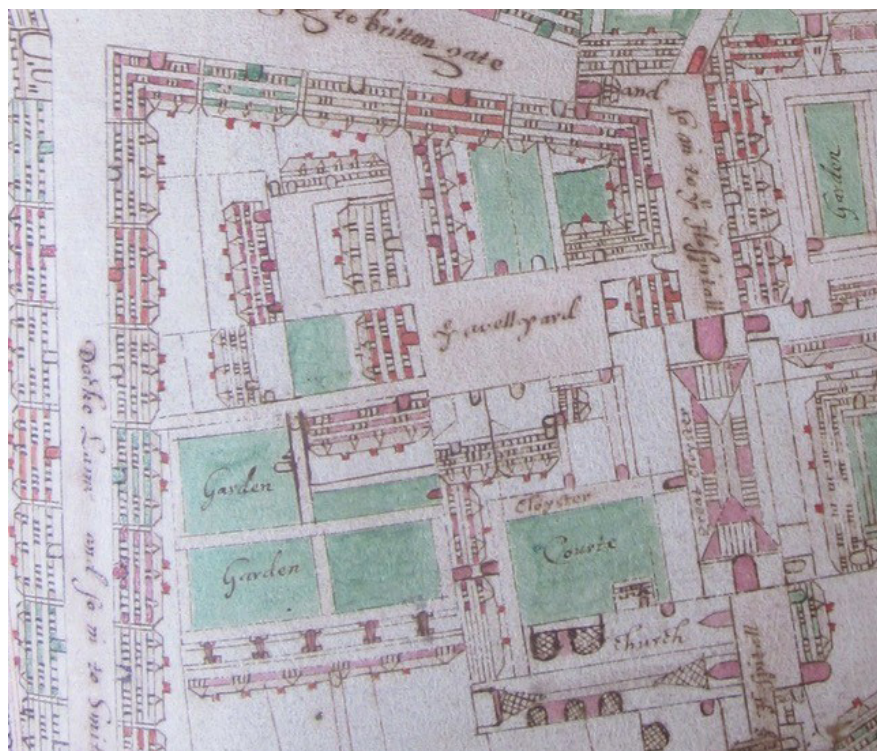


Figure 2. Detail of Well Yard, St. Bartholomew's the Less. Attributed to Martin Llewellyn, 1617. St. Bartholomew's Archives, SBHB/HC/19/1, f.52. Reproduced with permission.



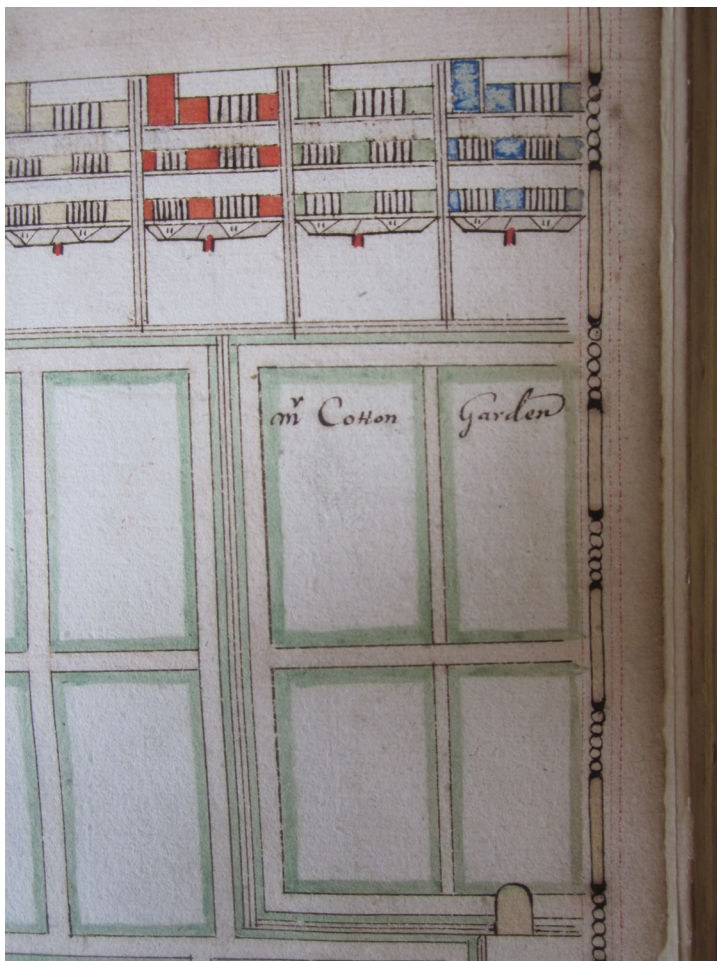


Figure 3. Detail of “Mr. Cotton’s Garden” in the Well Yard, St. Bartholomew’s the Less. Attributed to Martin Llewellyn, 1617. St. Bartholomew’s Archives, SBHB/HC/19/1, f.58. Reproduced with permission.

London’s population growth put pressure on already crowded urban neighbourhoods, as inhabitants struggled to eke out what living space they could. According to one account, the yard was roughly thirty by sixty feet, and enclosed by tenements and gardens.<sup>15</sup> A map of the neighbourhood shows

15. SBHB, HC/19/1 f.52, Plan of St. Bartholomew’s Hospital, attributed to Martin Llewellyn, 1617.

one such garden as belonging to “Mr. Cotton” (fig. 3), but most dwellings were without private outdoor spaces. This scarcity of gardens or nearby open fields was at the root of Denman and Cotton’s dispute and highlights the problems facing urban neighbourhoods. Denman explained to the court that “inhabitants are far distant from any field and they, or most of them, have no other so public or convenient place to dry clothes as upon such lines.”<sup>16</sup> Cotton insisted that, while three or four of the householders with properties adjoining the yard had “sometimes used to hang a line cross some part of the said yard from one house to another to dry clothes upon,” the practice caused much suffering, “annoyance,” and “peril” to everyone in the neighbourhood.<sup>17</sup> The clothing hanging on the line blocked the entrance to Cotton’s house and forced his family and friends to push aside Denman’s laundry in order to gain access to the property. Cotton cut down the line on several occasions, claiming that the issues had already been litigated before the hospital’s governors, who determined that householders could not hang clotheslines up in the yard. Denman, only “coming lately to dwell in the said yard,” ignored the authority of the hospital’s governing body.<sup>18</sup> Cotton characterized Denman as an unruly neighbour who encouraged bad behaviour in others: he “animated, stirred, [and] persuaded some of the rest of the inhabitants dwelling within the same well yard to annoy [Cotton] with hanging their clothes before [Cotton’s] gate, and to claim and challenge a right of custom to do so.”<sup>19</sup> In their complaints before the court, both men described tense relations between their households, neighbours, and the hospital’s governing body, and which began almost as soon as Francis Denman arrived in the parish. The clothesline was a source of ongoing friction between both families, largely because inhabitants had limited access to outdoor space.

Cases brought before the Court of Star Chamber detail long-standing neighbourhood conflicts that resulted in verbal and physical violence. What started as a disagreement between close neighbours escalated into an armed conflict within the parish. Each man had a band of neighbourhood friends, family, and servants who armed themselves with swords, daggers, pikes, and pistols—all weapons typically listed in an assault case. Denman and Cotton both claimed they were seriously wounded in a subsequent neighbourhood brawl,

16. STAC 8/126/10: Denman v. Cotton, 1605; Bill of complaint.

17. STAC 8/126/10: Denman v. Cotton, 1605; Bill of complaint.

18. STAC 8/126/10: Denman v. Cotton, 1605; Bill of complaint.

19. STAC 8/126/10: Denman v. Cotton, 1605; Bill of complaint.

and both emphasized the multitude of weapons and dangerous blows that left them languishing for their lives. According to Cotton, not only did he suffer physical and verbal violence, but his wife was frightened out of her wits and his servant was repeatedly beaten. Denman countered that it was Cotton who instigated the violence, and described how two women were badly injured in the fray. Narratives of violence were strategies used to make legal cases more persuasive, as the presence of weapons suggested premeditated, targeted assaults. It is this violence that brought the case under the jurisdiction of the Star Chamber, but as with so many other Star Chamber cases, allegations of violence provided a necessary cover for settling neighbourhood disputes over shared space.

Records from the Court of Star Chamber are rife with tales of frustration over neighbourhood nuisances, and help to bring the experience of shared urban living into sharper focus. The Court of Star Chamber was the judicial arm of the monarch's privy council, and by the Jacobean period had clear jurisdiction over cases of public disorder and disputed property. Reforms in the early sixteenth century, coupled with the influx of property into the land market following the 1536 Dissolution of the Monasteries, made the court attractive to newly propertied men. In the early sixteenth century, the court heard 1,685 cases between private parties; by the early seventeenth century litigation reached its peak volume, and sixty-five thousand defendants appeared in over eight thousand suits.<sup>20</sup> The rich archival records from the reign of King James VI and I (1603–25) are the most well-catalogued set of extant Star Chamber cases and reflect the court at the height of its popularity and judicial output, but there are limitations to the sources. The clerks of Star Chamber kept a register book where they recorded orders, decrees, and the verdicts and sentences.<sup>21</sup> These books have since been lost, and only the proceedings are extant, many of which are incomplete.<sup>22</sup> We do not know the outcome of Thomas Cotton and Francis Denman's court cases, but the archive offers evocative narratives

20. Steve Hindle, *The State and Social Change in Early Modern England, c. 1550–1640* (London: Macmillan Press, 2000), 70.

21. Thomas G. Barnes, "The Archives and Archival Problems of the Elizabethan and Early Stuart Star Chamber," *Journal of the Society of Archivists* 2.8 (1963): 350, [dx.doi.org/10.1080/00379816009513767](https://doi.org/10.1080/00379816009513767); G. R. Elton, *Star Chamber Stories* (London: Methuen & Co Ltd, 1958), 16–17.

22. Some Star Chamber verdicts are extant, preserved in a bound collection found at the British Library. The collection contains descriptions of the Chief Justices and Privy Council's court rulings, from 1565 to 1635. Punishments included forms of public penance, such as standing in the pillory, riding on

of daily life in the early modern city. What is clear in these cases is that the tensions between neighbours forced to share their living spaces threatened to disrupt community peace.

Nuisance accusations were at the heart of many neighbourhood conflicts. When they appear in Star Chamber cases, nuisances are one part of expansive conflicts over shared space—some, like Denman and Cotton’s dispute, lasting years.<sup>23</sup> Cotton’s contention that the clothesline blocked access to his dwelling would have been a familiar complaint to the court. Women and men accused their neighbours of a variety of nuisances, from spying and eavesdropping, to erecting unlawful partitions and enclosures that blocked light, access, and rights of way. The same walls that separated properties also connected them, and in failing to maintain shared walls, or letting privies, gutters, cesspits, and eaves overflow, Londoners had sensory access to their neighbours’ domestic spaces. The sights, smells, and sounds of neighbours traversed the boundaries between properties, invading dwellings in a kind of sensory trespass that plaintiffs in Star Chamber went to great lengths to protect against.

The clothesline that stretched across the Well Yard was a nuisance because it obstructed the entrance to Cotton’s dwelling, but Cotton also took issue with the laundry hanging on the line. Adding to his complaint that the clothesline blocked his front door, Cotton testified that his guests, friends, and the members of his household, “often repairing to [his] house, could not (without the danger of the vapour and infectious clothes and hindrance of their passage) pass in and out, to and from, the said house and office about their necessary affairs.”<sup>24</sup> Cotton described Denman’s hanging clothes as “noisome” and “unwholesome”—a claim Denman vehemently denied—but did not go into more detail.<sup>25</sup> We know from Denman’s own account that residents in St.

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horseback from gaol to the pillory, whipping, and cutting off ears. But overall, the court favoured fines as punishment. See The British Library *Star Chamber Cases* Stowe MS 397: 1565–1635.

23. There is a long history of nuisance litigation in medieval and early modern English courts. See Helena M. Chew and William Kellaway, eds., *London Assize of Nuisance 1301–1431: A Calendar* (London: London Record Society, 1973); Janet Loengard, *London Viewers and Their Certificates, 1508–1558: Certificates of the Sworn Viewers of the City of London* (London: London Record Society, 1989); and Janet Loengard, “The Assize of Nuisance: Origins of An Action at Common Law,” *The Cambridge Law Journal* 37.1 (April 1978): 144–66, dx.doi.org/10.1017/S0008197300092928.

24. STAC 8/93/8: Cotton v. Denman, 1605; Bill of complaint.

25. STAC 8/93/8: Cotton v. Denman, 1605; Answer of Francis Denman and Sara Denman; STAC 8/126/10: Denman v. Cotton, 1605; Bill of complaint.

Bartholomew's the Less found it difficult to launder their clothes, given the limited space. It is possible that the garments were not thoroughly laundered, or washed at all. Advising readers on proper hygiene, especially during times of plague, Bradwell explained that "to keep [garments] clean requires variety and shifting," meaning that women and men should change their clothes regularly.<sup>26</sup> "To keep them sweet," he continues, "requireth much airing and perfuming."<sup>27</sup> Cotton's description of unclean laundry was perhaps a legal strategy meant to add weight to his case, further emphasizing the nuisance of the clothesline. It is also conceivable that Denman's household linens were not thoroughly washed but merely hung up for "airing and perfuming," a potentially inadequate practice when dealing with garments and bedding. More than simply an annoyance to the neighbourhood, unclean laundry put community health at risk.

### Seasons, air, and diseased bodies

After prolonged tensions between neighbourhood factions, Denman and Cotton finally came to blows in September, and seasonal change contributed to the outbreak of violence in the parish. During one of their altercations, Denman railed at Cotton: "thou has been a lunatic, and it is now full moon and fall of leaves, thou art [a] lunatic again."<sup>28</sup> Mental and physical well-being had long been tied to diurnal cycles, and Denman blamed Cotton's violent temperament on the shift from summer to autumn. Hippocrates warned against "violent changes of the seasons" when unseasonable or extreme weather led to the onset of diseases.<sup>29</sup> The most violent transitions occurred at the equinoxes, and the autumnal equinox at the end of September was particularly dangerous.<sup>30</sup> William Vaughan described Autumn as "equinoctial," when "meteors are seen, the times do alter, the air waxeth cold, the leaves do fall."<sup>31</sup> For early modern

26. Bradwell, 19.

27. Bradwell, 19.

28. STAC 8/93/8: Cotton v. Denman, 1605; Interrogatory of Francis Denman (1605); STAC 8/93/8: Cotton v. Denman, 1605; Interrogatory of Thomas Collier (1605).

29. Hippocrates, *Hippocrates: Works, English and Greek*, trans. W. H. S. Jones (Cambridge, MA: Harvard University Press, 1923, 2014), 105.

30. Hippocrates, 105.

31. Vaughan, 62.

women and men, astronomical and terrestrial changes were harbingers of good and bad health, both physical and mental.

Londoners had to be especially mindful of their health during the hot summer months. Hippocrates instructed readers to heed the rising of certain stars, like Sirius, “for it is especially at these times that diseases come to crisis.”<sup>32</sup> In his health manual, Vaughan echoed Hippocrates, and cautioned against the taking of “physick” when Sirius was at its zenith.<sup>33</sup> Celestial movements indicated seasonal change, and times of extreme weather; for centuries, the heliacal rising of Sirius has marked the “dog days” of summer in the Northern hemisphere, when the days were at the warmest and driest. During the summer, the sun’s heat could corrupt air by “drawing the vapours out of dunghills and other corrupt things” and causing a noisome stench.<sup>34</sup> Standing water, too, would putrefy in corrupt air, “especially in hot weather.”<sup>35</sup> Hot and dry weather increased the risk of plague outbreaks (as in 1636, for example, when “being extremely dry, the pestilence much increased”).<sup>36</sup> Bradwell observed that the “hot and dry parching summer” was the “forerunner to this year’s pestilence.”<sup>37</sup> The relationship between summer’s heat and outbreaks of disease appears in the case between Cotton and Denman, which came to a head in September 1605 after a summer of disease. From May to September there were plague and smallpox outbreaks in St. Bartholomew’s the Less, beginning when the daughter of Denman and Cotton’s neighbours, John and Beatrice Lilly, died of the plague. In July and August, smallpox circulated throughout the parish. Cotton’s son and sister-in-law were taken ill and “laid sick” in his house, though both recovered.<sup>38</sup> A second outbreak followed in September, when smallpox visited “the house of some other of the inhabitants dwelling in the Well Yard,” including the house of Thomas Collier, a close friend of Denman and one of

32. Hippocrates, 105.

33. Vaughan, 62.

34. Vaughan, 4.

35. Vaughan, 14.

36. Kira L. Newman, “‘Shutt Upp’: Bubonic Plague and Quarantine in Early Modern England,” *Journal of Social History* 45.3 (Spring 2012): 820.

37. Bradwell, 5.

38. STAC 8/126/10: Denman v. Cotton, 1605; Interrogatory of Robert Fryett (1606).

the men involved in the assault on Cotton.<sup>39</sup> In the context of these outbreaks, neighbours in St. Bartholomew's worried that Denman's clothesline and his "infectious clothes" might contribute to the spread of contagious diseases. Cotton's concern for "vapours" reflects early modern anxiety about malodorous air, contagious diseases, and seasonal change in weather.

Cotton's purported reason for contesting the clothesline was to safeguard the health and safety of the parish. For Cotton and the neighbours in the Well Yard who opposed Denman's clothesline, the "filthy and nasty savours" from sick bodies and unclean laundry threatened to contaminate the bodies of healthy residents. Denman asserted that there were "wholesome, and no noisome" clothes hanging on the line, but his assurances did little to assuage his neighbours' anxiety.<sup>40</sup> After Denman ignored repeated entreaties to remove the clothesline, Cotton forcibly tore it down and justified his actions by insisting that the safety of the neighbourhood was at stake. Cotton's argument drew on contemporary understandings of contagion, whereby contaminated objects—like clothing—could transmit diseases as easily as sick bodies.<sup>41</sup> During outbreaks of disease like the plague, civic authorities warned inhabitants about the potential dangers posed by laundry, and tried to prevent people from hanging clothes out to dry or air.<sup>42</sup> "Drying of clothes before the door" was among the causes of plague listed in an anonymous pamphlet from 1665.<sup>43</sup> Steven Bradwell's plague tract noted that "woolen clothes will retain the infection three or four years, except they be well and thoroughly aired," and some fabrics, like rugs and furs, needed special care.<sup>44</sup> Bradwell recommended washing clothes in boiling water, but airing and perfuming garments would do in a pinch.<sup>45</sup> An obtrusive clothesline threatened neighbourhood health by exposing inhabitants to infection.

Protecting community health was perhaps a convenient legal cover for Cotton, meant to appeal to a court anxious to avoid plague or smallpox epidemics,

39. STAC 8/93/8: Cotton v. Denman, 1605; Interrogatory of Francis Denman (1605); STAC 8/93/8: Cotton v. Denman, 1605; Interrogatory of Thomas Collier (1605).

40. STAC 8/126/10: Denman v. Cotton, 1605; Bill of complaint.

41. Cavallo and Storey, 76.

42. Paul Griffiths, *Lost Londons: Change, Crime, and Control in the Capital City, 1550–1660* (Cambridge: Cambridge University Press, 2008), 51–52, dx.doi.org/10.1017/CBO9780511495823.

43. Anonymous, *The Shutting Up of Infected Houses* (London, 1665), 12–15.

44. Bradwell, 8.

45. Bradwell, 10.

but disease and infection were real problems for urban communities, especially in London. In the early modern period, laundering was a time-consuming and labour-intensive process that required access to open spaces, ideally fields and gardens. References to washing days found in Samuel Pepys's diary usually mention the amount of time his maids and wife devoted to their tasks, starting early in the morning and working well into the night. Pepys returned home one night at nine o'clock to find “my wife and maid a-washing,” a task that occupied them until one o'clock in the morning when Pepys “went to bed and left my wife and maid a-washing still.”<sup>46</sup> A popular husbandry manual noted that “good citizens” laundered their clothes and linens once a month, and “if they wash all the clothes at home, [use] about as many pounds of soap as there be heads in the family.”<sup>47</sup> Pepys complained that washing days made the house smell foul, likely referring to the lye or potash in soap.<sup>48</sup> His family usually did their washing at home, but on at least one occasion Elizabeth Pepys took advantage of washers on the south bank of the Thames. In August 1667, Elizabeth and her maids brought their clothes “over the water to the Whitsters [...] this being the first time of her trying this way of washing her linen.”<sup>49</sup> Whitsters bleached laundry and dried the clothes in open fields like Lambeth Marsh.<sup>50</sup> The south bank of the Thames offered more space for industries like the bleaching and dyeing trades, which required clean air and sunlight to naturally freshen and whiten laundry.<sup>51</sup> For the residents in St. Bartholomew's the Less who did not have access to gardens or fields, the Well Yard was the only available space to launder and hang up garments.

Cotton's complaints about Denman's laundry suggests that his neighbour's garments were not always thoroughly laundered, perfumed, or aired out. It is difficult to know exactly what Cotton meant when he described Denman's laundry as “unwholesome,” but Pepys's candid diary entries are useful here. It

46. Samuel Pepys, *The Diary of Samuel Pepys. Vol. 1: 1660*, ed. Robert Latham and William Matthews (Berkeley: University of California Press, 1995), 19.

47. John Houghton, *Husbandry and trade improv'd: being a collection of many valuable materials*, compiled by Richard Bradley (London: 1728 [1681–1683]), 1:348–49.

48. Pepys, *Diary*, Vol. 4: 1663, 65; and Vol. 5: 1664, 13–14.

49. Pepys, *Diary*, Vol. 8: 1667, 383.

50. Pepys, *Diary*, Vol. 8: 1667, 383n5.

51. S. D. Chapman, “David Evans & Co.: The Last of the Old London Textile Printers,” *Textile History* 14.1 (1983): 30 and 32, dx.doi.org/10.1179/004049683793690714.



is clear from his descriptions of the daily hygienic (or unhygienic) practices of early modern Londoners that laundresses and washing maids were responsible for cleaning stained and soiled linens, garments, and bedding. Pepys recalled a “strange dream of beissing myself, which I really did [...] and found myself all much-wet in the morning.”<sup>52</sup> On another occasion, a friend of Pepys was nursing a sick dog in her bed when “the bitch pissed (and shit) abed,” and Pepys supplied the coals from his chamber to dry the mattress.<sup>53</sup> At least once in his diaries he notes his wife’s menstrual cycle, commenting that he left Elizabeth sick in bed, her “not well, having her *moys* [monthly].”<sup>54</sup> Pepys’s anecdotes demonstrate that bed linens needed regular and thorough washing, as did undergarments. In the *Metamorphosis of Ajax* (1596), Sir John Harington’s tract on privies and urban sanitation, Harington observes that even if women and men neglected their hygiene, “their laundresses shall find it done in their linen.”<sup>55</sup> Neighbours and servants were not above exposing unhygienic practices. Harington recalls a servant who publicly shamed his mistress by circulating a rude slander: “my Lady hath polluted her lineal vesture, with the superfluity of her corporal disgesture.”<sup>56</sup> Given the possible implications of what “unwholesome” laundry meant in this period, Cotton’s frustration with the obstructive clothesline in front of his house is perhaps more understandable. Clothing was soiled by dirt, sweat, urine, feces, and menstrual blood, and haphazard laundering meant that stained, noisome clothes exposed women and men’s bodily functions to the whole neighbourhood.

Encountering a neighbour’s dirty laundry was not the only time Londoners had to contend with the unsanitary conditions created by refuse. Excrement was a source of olfactory assault, and plaintiffs in Star Chamber cases complained when the stench of dung from a neighbour’s property invaded their homes. In a 1611 case, Henry Clinton, the Earl of Lincoln, brought a suit against his neighbour, William Arnold, who repeatedly fertilized his lawn with dung and carrion. Their properties backed onto the Thames, and Arnold’s fertilizer arrived via the river on a dung boat laden with feces and other waste. The boat’s route brought it close to Clinton’s property, and allegedly, the “noisome

52. Pepys, *Diary*, Vol. 1: 1660, 162.

53. Pepys, *Diary*, Vol. 6: 1665, 290.

54. Pepys, *Diary*, Vol. 3: 1662, 3.

55. Harington, unnumbered page, image 7.

56. Harington, unnumbered page, image 7.

and unwholesome smells and savours” wafting from the frequent deliveries and from Arnold’s newly fertilized lawn “endangered the healths and lives” of Clinton’s family, friends, and servants.<sup>57</sup> Arnold dismissed the complaints, arguing that he had every right to fertilize his lawn how he saw fit. Clinton and Arnold’s case, like many nuisance complaints, was a disagreement about proper neighbourly conduct. In other instances, excrement was used more purposefully. In 1625, married plaintiffs Thomas and Mary Bulver accused a former servant, Joan Snipe, of smearing “dirt, dung, and other filthy stuff” against their front door.<sup>58</sup> Joan’s assault against the Bulver’s house accompanied verbal and physical attacks on the whole family. She accused Mary Bulver and her daughters of sexual transgressions and attacked the women in the street. Joan weaponized excrement, using it to signal the moral filth of the Bulver family. Londoners were in close proximity to noisome human waste, and when it appeared in court battles, plaintiffs and defendants emphasized the threat excrement posed to the health and honour of their households.

Olfactory offenses resulted from the proximity of excrement to domestic spaces. Londoners complained about “evil odors” emanating from their neighbour’s privy cesspits, and described the “filth and rubbish” thrown into latrines that bordered their properties.<sup>59</sup> When cesspits were built too close to property lines, overflowing privies breached the boundaries between neighbours’ domestic spaces.<sup>60</sup> Writing in his diary in October 1660, Pepys recounts that he had plans to meet with a builder about installing a new window in his cellar, as his neighbour had blocked the existing one.<sup>61</sup> Descending into the cellar on the morning of the meeting, Pepys found himself standing in “a great heap of turds,” after a different neighbour’s “house of office” had overflowed and seeped into Pepys’s home.<sup>62</sup> Three years later, the neighbour, Mr. Turner, decided to expand his “vault for turds,” which required construction in Pepys’ and Turner’s adjoining cellars. On another occasion, Pepys awoke to find “a great deal of foul water come into my parlour from under the partition between

57. STAC 8/91/25: Earl of Lincoln v. Arnold, 1611; Bill of complaint.

58. STAC 8/56/17: Bulver v. Snipe, 1625; Bill of complaint.

59. “644. Robert Asshecombe (1400)” in Chew and Kellaway, eds., *Assize of Nuisance*.

60. Chew and Kellaway, eds., xxv.

61. Pepys, *Diary*, Vol. 2: 1660, 269.

62. Pepys, *Diary*, Vol. 2: 1660, 269.

me and Mr. Davis.”<sup>63</sup> In both instances, Pepys expressed his anxiety about the permeable structural boundaries that connected domestic spaces as much as they divided them.

In addition to shared walls and courtyards like the Well Yard in St. Bartholomew’s the Less, many Londoners shared latrines. Cartographer Ralph Treswell’s 1612 drawings of dwellings in Cow Lane, West Smithfield—right around the corner from St. Bartholomew’s the Less—show two properties with privies in the backyard, as far from the domestic space as possible. In contrast, there are seven households adjoining a shared courtyard, Pheasant Court, and those households shared three outdoor privies between them.<sup>64</sup> Shared privies were an urban reality, and there were at least sixteen public latrines across the city, some large in scale: a 1450 house of easement had sixty-four seats each for men and women. When it was rebuilt after the Great Fire in 1666, the city reduced the privy to only six seats each, because neighbours had long complained that the privy’s smell was a nuisance.<sup>65</sup> Alehouses, inns, and markets made privies available for customers, and for those in need of quick relief, shrubs, hedges, and alleyways sufficed. Pepys was forced to detour to an alehouse when he was “very much troubled with a sudden looseness,” and another night he, “having need to shit, went into an Inn door that stood open, found the base of office, and used it.”<sup>66</sup> When his wife Elizabeth was taken ill at the theatre one evening, Pepys notes that he “was forced to go out of the house with her to Lincoln’s Inn walks, and there in a corner she did her business.”<sup>67</sup> Unsurprisingly, complaints of stinking privies also include references to foul gutters and alleys.

Filthy streets and courtyards filled with refuse, together with latrines and privies, frustrated urban dwellers and civic authorities. There was a clear

63. Pepys, *Diary*, Vol. 2: 1660, 304–05.

64. The Clothworkers’ Company Archives CL/G/7/1: Ralph Treswell “A Surveye of all the Landes and Tenements belonging to the Worshipfull Company of the Clothworkers” (1612); see also Dorian Gerhold, *London Plotted: Plans of London Buildings c.1450–1720* (London: London Topographical Society, 2016), 66.

65. Mark S. R. Jenner, “Sawney’s Seat: The Social Imaginary of the London Bog-House, c.1660–c.1800,” in *Bellies, Bowels, and Entrails in the Eighteenth Century*, ed. Rebecca Anne Barr et al. (Manchester: Manchester University Press, 2018), 106, [dx.doi.org/10.7228/manchester/9781526127051.003.0006](https://doi.org/10.7228/manchester/9781526127051.003.0006); Ernest L. Sabine, “Latrines and Cesspools of Medieval London,” *Speculum* 9.3 (July 1934): 308 and 309.

66. Pepys, *Diary*, Vol. 7: 1666, 26; Vol. 1: 1660, 287.

67. Pepys, *Diary*, Vol. 8: 1667, 442.

link between bad air and unsanitary conditions, and Londoners used different strategies to keep the city clean. Common wisdom dictated that landlords install privies over a source of running water. Concerned with water pollution, civic authorities had banned Londoners from emptying privies into the Fleet and Walbrooke rivers in 1463, but in the seventeenth century many inhabitants still took advantage of these urban waterways.<sup>68</sup> If a property lacked access to running water, builders installed stone or timber cesspits and tubs beneath necessary offices, creating vaults for waste. As early as the thirteenth century, civic regulations required cesspits and vaults to be lined with stone, well before stone was a widely used building material.<sup>69</sup> Ideally, privies were located at the back of properties, as far from living spaces as possible. Cesspits required periodic emptying and cleaning, usually at great expense, meaning negligent heads of household, like Pepys’s neighbour Mr. Turner, regularly failed to maintain them.<sup>70</sup> Emptying cesspits was easier if gong farmers—the men employed to clean out privies—could access property from the main street.<sup>71</sup> The *Statutes of Streets of this City Against Annoyances*, which appeared in the 1633 edition of Stow’s *Survey of London*, prohibited gong farmers from carrying away “ordure” until after nine o’clock at night, when streets were quieter and less crowded.<sup>72</sup> Fines were imposed on gong farmers who spilled their carts in the street (13s, 4d.) and for men who buried dung within the city (40s). Imprisonment was the punishment for any man who threw into ditches, sewers, gutters, or grates “any manner of carrion, stinking flesh, rotten fish, or any rubbish [and] dung.”<sup>73</sup> London’s authorities tried to manage urban sanitation with prohibitions against unhygienic behaviour, and punishments for women and men who disregarded proper civic behaviour.

Rainwater compounded the sanitary issues around privies. Moist, humid air contributed to ill-health, and stagnant water was commonly understood as

68. Sabine, 310.

69. John Schofield, “The Construction of Medieval and Tudor Houses in London,” *Construction History* 7 (1991): 9.

70. Emily Cockayne, *Hubbub: Filth, Noise, and Stench in England, 1600–1770* (New Haven: Yale University Press, 2007), 143; Gerhold, 27.

71. Cockayne, 143.

72. “The Statute of the Streets of this City, Against Annoyances,” in *A Survey of London*, by John Stow (London: 1633 [1598]), 665.

73. “The Statute of the Streets of this City,” 665.

a source of contagion.<sup>74</sup> Swamps, fens, and marches were miasmatic sites, but so too were the city's gutters and ditches, which collected rainwater and refuse. For Hippocrates, rainwater was the "lightest, sweetest, finest, and clearest" of all waters, but it was also the most likely to turn foul, because rainwater is "a mixture gathered from many sources."<sup>75</sup> Rainwater comprised moisture from channels, filthy dung, carrion, "standing puddles," "stinking waters [...] or stinking privies," blood from wounded or dead men, and "common pissing places."<sup>76</sup> Rainwater mixed together the runoff water from household waste, and *The Statutes of the Streets* prohibited inhabitants from sweeping "filth" into the street or channel after rainfall.<sup>77</sup> According to Harington, the "fish-water coming from the kitchens, blood and garbage of fowl, washing of dishes and the excrements of the other houses joined together, and all in moist weather, stirred a little with some small stream of rain water."<sup>78</sup> The confluence of noisome air, waste, and rainwater contributed to what Harington characterized as the "saucy stink" of early modern London.

According to Harington, rain falling into privies created an especially dangerous miasma. When it rained, he argued, water mixed with refuse in privies and the moist air rose from cesspits, drawing up the air of other men's excrement like smoke from a fire.<sup>79</sup> Harington warned that bodies exposed to privies' pestilential air were at greater risk of contracting smallpox and the plague, echoing the focus of health manuals and plague tracts on bad air and contagion. In one of his more vivid descriptions of latrines' corrupt air, Harington linked shared privies to other ailments like hemorrhoids, anal fistulae, and "inward diseases," which "are no way sooner gotten than by the savour of other's excrements."<sup>80</sup> Privy vaults and cesspits contained feces, urine,

74. Andrew Wear, "Place, Health, and Disease: The *Airs, Waters, Places* Tradition in Early Modern England and North America," *Journal of Medieval and Early Modern Studies* 38.3 (Fall 2008): 446, dx.doi.org/10.1215/10829636-2008-003; Andrew Wear, "Making Sense of Health and the Environment in Early Modern England," in *Medicine in Society: Historical Essays*, ed. Andrew Wear (Cambridge: Cambridge University Press, 1992), 119–147, 143, dx.doi.org/10.1017/CBO9780511599682.005.

75. Hippocrates, 91.

76. Thomas Brasbridge, *Poor Man's Jewel* (London, 1578), 8–9.

77. "The Statute of the Streets of this City," 665.

78. "The Statute of the Streets of this City," 665.

79. Harington, 88–89.

80. Harington, 85.

and blood, which rainwater stirred together, and this insalubrious mixture afflicted the parts of the body exposed when women and men sat on privies. For Harington and others, the stench of privies spread contagion, and shared privies were the most offensive sources of infection and ill health, as foul-smelling privy air penetrated the bodies of those who used them.

### Healthy homes

Anxiety about air quality, the spread of disease, and community health was centred on overlapping bodies and bodily functions in shared spaces. Londoners connected the spread of disease and infection with close living quarters, and these concerns extended beyond the household drama of litigious neighbours like Cotton and Denman. In 1603, only two years before the parish of St. Bartholomew's the Less erupted into its violent dispute over the clothesline, London experienced its worst plague outbreak in a decade. Over thirty thousand of the city's inhabitants died in 1603. In September, which saw three thousand plague deaths, the newly crowned King James VI and I released the first of twelve royal proclamations issued during his reign intended to curtail the spread of diseases. The crown linked epidemics directly to shared space, and *A Proclamation Against Inmates and Multitude of Dwellers*, issued at the height of the outbreak, reflects the crown's growing concern for the relationship between overcrowding and contagion. According to the crown, the narrow, cramped “small and strait rooms” of the city's tenements were “the chiefest occasion of the great Plague.”<sup>81</sup> The proclamation accused “idle, indigent, dissolute, and dangerous persons” of “pestering” the city. In *A Survey of London*, John Stow observed that Bishopsgate ward is “too much pestered with people (a great cause of infection).”<sup>82</sup> To mitigate overcrowding, the crown issued frequent proclamations against erecting new buildings in the city, and banned landlords from constructing additions onto existing buildings, or subdividing tenements. The crown's proclamations make explicit the connection between poor bodies, shared space, and infection. Crowded streets and close living quarters were thought to spread the “sickness” and “infection” through “bedding, clothes, and

81. King James VI and I, “A Proclamation Against Inmates and Multitudes of Dwellers [Woodstock 16 September 1603],” in *Stuart Royal Proclamations, Vol. 1: Royal Proclamations of King James I, 1603–1625*, ed. James F. Larkin and Paul L. Hughes (Oxford: Oxford University Press, 1973), 47–48.

82. Stow, *A Survey of London* (1842 edition), 62.

garments.”<sup>83</sup> The same household manual that observed that “good citizens” washed their clothing monthly also noted that “the poorer the people are (and the poor are the most numerous) the seldomer they shift,” and connected these unhygienic practices to the spread of plague.<sup>84</sup> Proclamations, plague tracts, and health manuals aligned plague bodies and plagued houses in a cycle of infection. The relationship between space and contamination was expressed in anxiety about houses, and the bodies of those who dwelled within.

New architectural strategies were deployed to ensure healthier homes and a healthier city. The chaotic, cramped, and haphazard urban development of the rapidly growing city was countered by planned commercial and residential sites, designed by architects like Inigo Jones. Widely credited with introducing Italian Renaissance architecture to England, Jones undertook two formative trips to Italy, one from 1598 to 1603, and a second in 1613.<sup>85</sup> During his travels, Jones acquired influential treatises on architecture—notably, Andrea Palladio’s *Quattro Libri Dell’Architettura* (1570)—and observed classical and Renaissance buildings in Rome, Venice, and Florence. The influence of Italian Renaissance architecture is evident in three of Jones’s major works: The New Exchange (1603–09), Banqueting House (1619–22), and Covent Garden (1630). These new building projects demonstrate a growing investment in domestic sanitation inherited from Italy, where the revival of Greek and Roman architecture brought renewed interest in the relationship between climate, air, and health.<sup>86</sup> By the seventeenth century, English authors were engaging with these same ideas. In *Fumifugium* (1661), John Evelyn noted that Vitruvius “and the rest who follow that Master-Builder [... should] examine the Air and Situation of the places where he designs to build” because “there is no dwelling can be safe or healthy without it.”<sup>87</sup> Other medical and architectural treatises were aligned with this view of healthy homes. One noted that, “though all ill savours do not breed infection, yet sure infection commeth most by smelling” and advised that dwellings should be built a safe distance from the “evil scents

83. Griffiths, 52.

84. Houghton, 1:349.

85. Jérémy Filet, “Representations of Inigo Jones’s Banqueting House: Development of Sketches and Architectural Symbolism,” *Revue de la Société d’études anglo-américaines des XVIIe et XVIIIe siècles* 72 (2015): 175, dx.doi.org/10.4000/1718.367.

86. Cavallo and Storey, 80.

87. John Evelyn, *Fumifugium, or the inconveniences of the aer and smoak of London* (London, 1661), 4.

of puddle-waters, or of excrements [...] and free from faults that come of secret passages and vaults.”<sup>88</sup> Likewise, Harington noted that “a builder that will follow wise direction, must first foresee before any house he makes, that thair be clear, & free from all infection.”<sup>89</sup> The concern for clean, wholesome air in and around houses required new practices for curtailing the spread of malodorous air between dwellings.

Early seventeenth-century architecture incorporated ideas of healthy homes in tangible ways. Chimneys had almost entirely replaced open hearths as the primary means of heating the home.<sup>90</sup> The production of cheap glass increased the number of glazed windows as well as the number of windows in dwellings, so that rooms were warmer, brighter, and better ventilated.<sup>91</sup> In one of the first royal proclamations of his reign, King Charles I (1625–49) required windows be taller than they were wide so that “Rooms may receive air for health.”<sup>92</sup> Proclamations dictated that buildings should have straight, vertical walls, banned jutting windows, and mandated that the whole structure should be uniform in size, made of brick and not timber.<sup>93</sup> These proclamations were part of a larger urban design scheme orchestrated by the early Stuart kings for “the beautifying and adorning of the same City and places adjacent, to the honour, beauty, and luster thereof.”<sup>94</sup> One of Covent Garden’s design innovations was the destruction of the backyard and alley tenements behind the street-facing dwellings, which was typical for London neighbourhoods. There were 294 dwellings tucked behind Covent Garden’s street-facing houses, and nearly half were one or two-room tenements, often converted sheds or

88. Joannes de Mediolano, *The Englishman’s Doctor* (London, 1607), 7.

89. Harington, 85.

90. Lena Cowan Orlin, *Locating Privacy in Tudor London* (Oxford: Oxford University Press, 2007), 79; W. G. Hoskins, “The Rebuilding of Rural England, 1570–1640,” *Past & Present* 4 (November 1953), 45, dx.doi.org/10.1093/past/4.1.44.

91. Hoskins, 54, 57.

92. Charles I, “A Proclamation Concerning Buildings, and Inmates, within the Citie of London, and Confines of the Same [Whitehall, May 2 1625],” in *Stuart Royal Proclamations, Vol. 2: Royal Proclamations of King Charles I, 1625–1646*, ed. James F. Larkin (Oxford: Oxford University Press, 1983), 23.

93. Charles I, “A Proclamation Concerning Buildings, and Inmates,” 23.

94. James VI/I, “A Proclamation for the Due Making and Sizing of Bricke [Theobalds 7 November 1622],” in Larkin and Hughes, eds., *Stuart Royal Proclamations, Vol. 1*, 558.



other outbuildings.<sup>95</sup> One room could house multiple families; some of the worst accounts of London's extreme overcrowding include reference to six rooms let to sixty-four persons, with an average of nearly eleven people per room.<sup>96</sup> The removal of Covent Garden's tenements allowed for the installation of windows at the back of new buildings, so that light and air might flow more easily throughout. For the Stuarts, beauty and uniformity were indicative of healthfulness, order, and stability—in contrast to the chaos of unplanned, shoddy building, uncontrolled migration, and overcrowding. The Covent Garden plan was reproduced in other residential areas, like Great Queen Street, Lincoln's Inn Field, High Holborn, and Bloomsbury, creating more socially stratified neighbourhoods.<sup>97</sup> In these new building projects, the elimination of poor bodies and the noxious waste from those bodies was a strategy to ensure wealthier dwellings were free of the dangerous, malodorous air that plagued other neighbourhoods, like St. Bartholomew's the Less.

For all their design innovation, new residential and commercial sites like Covent Garden still had to contend with household waste. The same architectural treatises that advocated for better ventilated rooms also instructed builders to be careful that houses have clear air, “not annoyed with stench from any jakes [privies],” because the house will “be never so well appalled, never so well plastered and painted, if she have a stinking breath.”<sup>98</sup> Civic authorities prohibited Londoners from throwing the contents of chamber pots out of windows; instead, inhabitants had to “bring it [excrement] down, and lay it in the channel” but only after nine o'clock at night. There was a fine for any person who failed to adhere to these sanitary regulations (3s 4d), and if any excrement fell “upon any person's head” the injured party had legal recompense.<sup>99</sup> Strict sanitation practices were integrated into newly built residential and commercial sites as well. The leases for dwellings in the New Exchange banned inhabitants from throwing out of their windows “any piss or other noisome thing,” and the

95. Malcom Smuts, “The Court and Its Neighbourhood: Royal Policy and Urban Growth in the Early Stuart West End,” *Journal of British Studies* 30.2 (April 1991): 138.

96. William C. Baer, “Stuart London's Standard of Living: Re-examining the Settlement of Tithes of 1638 for Rents, Income, and Poverty,” *The Economic History Review* 63.3 (2010): 633, dx.doi.org/10.1111/j.1468-0289.2009.00494.x.

97. Baer, 148.

98. Harington, 85.

99. “The Statute of the Streets of this City,” 665.

porters at the Exchange were instructed “not to suffer pissing or other filthy thing about the house.”<sup>100</sup> Strategies for improving domestic sanitation included regulations for managing household waste, but the reality of city living made it difficult to implement more sweeping changes.

Perhaps the most ambitious plan for improving urban sanitation was Harington’s invention of the flush toilet in 1596. In his *Metamorphosis of Ajax*, Harington designed the privy for private homes, and part of the *Metamorphosis* was issued separately as a trade publication for “builders, housekeepers, and houseowners,” to show “how unsavory places may be made sweet, noisome places made wholesome, [and] filthy places made clean.”<sup>101</sup> He advertised the flush privy as an improvement of sanitation in private homes, which would help improve the health and sanitation of the city more widely. “Filthy jakes,” he argued, “were foul and most uncleanly to behold, so it is infectious with the horrible and vile savour.”<sup>102</sup> His design is remarkably similar to modern-day toilets: a cistern above the privy was filled with water, which was emptied into the seat to flush it. Below the seat was a false bottom made of lead or stone, with a sluice that emptied the basin when flushed with water from the cistern.<sup>103</sup> While there is evidence that some wealthy landlords installed flush privies in their residences, the invention was not widely implemented in the early modern period. With no manageable way to convey excrement out of the cistern after flushing, the city lacked the infrastructure to support flush privies.<sup>104</sup> It was not until the mid-nineteenth century that flush privies came into general use, and with limited success.<sup>105</sup> In seventeenth-century London, inhabitants continued to use shared and public latrines; they emptied chamber pots into gutters, cesspits, and rivers, and into the open street; they had their privies emptied by rakers and gongfarmers, and sometimes left excrement to build up beyond what was tolerable to their neighbours.

100. Lawrence Stone, “Inigo Jones and the New Exchange,” *Archaeological Journal* 114.1 (1957): 117, dx.doi.org/10.1080/00665983.1957.10854120.

101. Dolly Jørgensen, “The Metamorphosis of Ajax, Jakes, and Early Modern Urban Sanitation,” *Early English Studies* 3.4 (2010): 15; Harington, 1.

102. Harington, 56–57.

103. Harington, 101.

104. Jørgensen, 17.

105. Jørgensen, 22–23. When water mixed with excrement, it increased the volume of household waste, and even in the nineteenth century backed up the city’s cisterns and closed ditches.

## Conclusion

In 1560, Levinus Lemnius praised the “wholesome and healthful air” of English houses, but in 1661 John Evelyn described London dwellings very differently. The “exorbitant increase of tenements, poor and nasty cottages” in the city, Evelyn complained, was a “disgrace and take[s] off from the sweetness and amenity” of London and its air.<sup>106</sup> In the century between Lemnius and Evelyn’s differing accounts of air quality, London experienced an unprecedented population increase that brought neighbours into closer proximity. Francis Denman moved into a newly built tenement in 1596, and his dispute with his neighbour, Thomas Cotton, exemplifies the conflicts that result from shared urban space. Close quarters exacerbated olfactory offenses, and neighbours fought over nuisances like “unwholesome” laundry and noisome, poorly maintained privies. Seasonal weather intensified foul odors and heightened the risk of diseases, especially during plague outbreaks.

Demographic changes were also linked to problems of overcrowding and disease, and heightened concerns for the health of the city and its denizens. The early Stuart kings tried to curtail migration and settlement by prohibiting new building in the city unless licenced by the crown. Their strategy for improving civic health relied on removing poor tenements and poor bodies from the city’s environment. As court battles, contemporary accounts, and health manuals make clear, however, whether inhabitants lived in the poorest tenements or the “goodliest and stateliest palaces,” the noisome, pestilential air from unclean laundry, garbage-filled gutters, and stinking privies easily traversed the streets, penetrating dwelling houses and infecting the bodies of its denizens.

106. Evelyn, 25–26.