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THE POLITICS OF LONDON AIR JOHN EVELYN'S *FUMIFUGIUM* AND THE RESTORATION

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ABSTRACT. *Historians have commonly described John Evelyn's pamphlet about London smoke pollution, Fumifugium, as a precocious example of environmental concern. This paper argues that such an interpretation is too simple. Evelyn's proposals are shown to be closely related to political allegory and the panegyrics written to welcome the newly restored Charles II. However, the paper also shows that Fumifugium was not simply a literary conceit; rather it exemplified the mid-seventeenth-century English interest in the properties of air that is visible in both the Hartlib circle and the early Royal Society.*

I

This article¹ seeks to bring together the history of public health, the history of the urban environment and the social history of scientific ideas in seventeenth-century England through an examination of John Evelyn's pamphlet, *Fumifugium*. It discusses the various levels of meaning within the text and by extension explores what motivated seventeenth-century people to write about pollution.

In recent years many historians have been turning their attention to the history of the environment and humankind's impact upon and interaction with it. Scholars have traced the environmental degradation that accompanied the introduction of large-scale industrial production; they have shown the profound differences between the ecological niches occupied by native Americans and the intensive agricultural regimes introduced by European settlers. Other historians have explored how urban living, capitalism, religion and civility altered perceptions of the landscape, 'wilderness' and the environment in general.²

¹ I am grateful to the organizers and audiences of the seminars in Oxford, Cambridge and London which heard and commented on earlier versions of this paper and would like to thank Peter Goddard, James Robertson, Keith Thomas and particularly Patricia Greene for reading drafts. I wish to acknowledge the financial support of the Wellcome Trust for my post at Manchester where this article was completed.

² Examples of this genre include R. Nash, *Wilderness and the American mind* (London and New Haven, 1967); K. Thomas, *Man and the natural world: changing attitudes in England 1500–1800* (London, 1983); A. F. McEvoy, *The fisherman's problem: ecology and law in the California fisheries 1850–1980* (Cambridge, 1986); C. Merchant, *Ecological revolutions: nature, gender and science in New England* (Chapel Hill and London, 1989); D. Worster, ed., *The ends of the earth* (Cambridge, 1989); S. P. Hays, *Beauty, health and permanence: environmental politics in the United States, 1955–1985*

Many historians have further argued that environmental reform has often been linked to political agenda. In Fiji during the late nineteenth and early twentieth centuries the term 'sanitation' legitimated all kinds of intervention within native society by the island's British rulers and served to make the imposition of European values and practices.³ Within Europe, it has been argued that the impressive cleaning up of Berlin during the 1870s was inspired not by fear of cholera, but the desire to create a fitting capital for the new Reich, while Simon Schaffer has argued that eighteenth-century Italian atmospheric science was motivated by Enlightenment designs for a panoptic regulation and reordering of society.⁴ In the early modern period Harold Cook has recently argued that the 'medical policies of the first two Stuarts reflected their policies on other matters, underlining the connections between [what he, following George Rosen, terms] early modern medical police and "absolutism"'. In Cook's opinion, Caroline efforts to improve London's public hygiene and to cure the body politic expressed an absolutist political theory.⁵

This paper seeks to complement such studies and recent work within historical geography on the symbolic meanings of landscape,⁶ for I shall argue that *Fumifugium*, Evelyn's celebrated account of London smoke pollution in the 1660s, has consistently been misinterpreted and that it was a highly political text centrally concerned with Charles II's recent Restoration.

II

Fumifugium; or the inconveniencie of the aer and smoak of London dissipated is one of the best-known contemporary accounts of the atmosphere of seventeenth-century London. Apart from his *Diary* and possibly *Sylva*, it is also probably

(Cambridge, 1987); P. Brimblecombe & C. Pfister, eds., *Silent countdown: essays in European environmental history* (Berlin and London, 1990); T. Steinberg, *Nature incorporated: industrialization and the waters of New England* (Cambridge, 1991); P. J. Bowler, *The Fontana history of the environmental sciences* (London, 1992). For polemical overviews of the approaches adopted within environmental history, see R. Guha, 'Radical American environmentalism and wilderness preservation: a Third World critique', *Environmental Ethics*, xi (1989), 71–83; M. Chase, 'Can history be green? a prognosis', *Rural History*, iii (1992), 243–52.

³ N. Thomas, 'Sanitation and seeing: the creation of state power in early colonial Fiji', *Comparative Studies in Society and History*, xxxii (1990), 149–70, esp. p. 160.

⁴ R. J. Evans, 'Epidemics and revolutions: cholera in nineteenth-century Europe', *Past & Present*, cxx (1988), 144–5; S. Schaffer, 'Measuring virtue: eudiometry, enlightenment and pneumatic medicine', in A. Cunningham & R. French, eds., *The medical enlightenment of the eighteenth century* (Cambridge, 1990), pp. 281–318.

⁵ H. Cook, 'Policing the health of London: the College of Physicians and the early Stuart monarchy', *Social History of Medicine*, ii (1989), 31. Cf. T. G. Barnes, 'The prerogative and environmental control of London building in the early seventeenth century: the lost opportunity', *California Law Review*, LVIII (1970), 1332–63 and P. Slack, 'Books of orders: the making of English social policy, 1577–1631', *Transactions of the Royal Historical Society*, 5th ser. xxx (1980), 1–22.

⁶ E.g. D. Cosgrove and S. Daniels, eds., *The iconography of landscape: essays on the symbolic representation, design and use of past environments* (Cambridge, 1988).

John Evelyn's most famous work. First published in 1661, the pamphlet was felt relevant enough to be reprinted as part of a debate about the siting of Chelsea power station in 1930, while five further editions have been produced this century, by the National Smoke Abatement Society among others.⁷ However, Evelyn's text has received little scholarly attention and has consistently been fitted into a whiggish framework which provides only a very partial reading of its contents. A reconsideration of *Fumifugium*, therefore, offers an opportunity to examine the circumstances in which pollution might provoke controversy and take on political meaning during the seventeenth century.

The pamphlet is dedicated to Charles II and this dedication claims that the immediate inspiration for its composition was an incident which took place while Evelyn was in the royal palace of Whitehall. A 'presumptuous Smoake issuing from one or two Tunnels neer *Northumberland-House*,... did so invade the Court; that all the Rooms, Galleries, and Places about it were fill'd and infested with it; and that to such a degree, as Men could hardly discern one another for the Clowd, and none could support without manifest Inconveniency'.⁸ This 'pernicious Accident' so kindled Evelyn's indignation that he set to work to provide a remedy, one which when administered would render the people of London '*the most happy upon earth*'.⁹ The second preface emphasizes how inappropriate it was that '*this Glorious and Antient City*' which '*commands the Proud Ocean to the Indies*' should '*wrap her stately head in clouds of Smoake and Sulphur, so full of Stink and Darknesse*'. Evelyn then itemizes and condemns the other inconveniencies of London's architecture and street life: its uneven paving, the narrowness of its thoroughfares, the water spouts which discharge rain water upon passengers without any order or regularity.

Having thus characterized the city, Evelyn delineates his ambitious scheme in three parts. He begins by emphasizing the good qualities of London's air, noting both the Greek notion that air – breath – was the vehicle of the soul and the Hippocratic belief that individual peoples took on the qualities of the airs in which they dwelled. Thus 'Asiatiques', Evelyn holds, are rendered '*Imbelles & effeminate*' by the excessive heat of their air. Moreover, he continues, the air upon which we 'prey' is crucial to the prolongation or damaging of our health. Whereas men eat only two or more times in a day, we are breathing all the time. The text then gestures to the excellency of London's situation in the manner of every urban panegyric since the renaissance – its location is well drained and situated upon 'a sweet and most agreeable Eminency of ground'.¹⁰

Yet the capital's 'otherwise wholesome and excellent Aer' is corrupted by

⁷ G. L. Keynes, *John Evelyn: a study in bibliophily with a bibliography of his writings* (2nd edn, Oxford, 1968), p. 93.

⁸ J. Evelyn, *Fumifugium*, sig. A2. All quotations are taken from the facsimile edition of the first edition published by the Rota (Exeter, 1976).

⁹ *Fumifugium* sig. A2v & sig. a.

¹⁰ *Ibid.* pp. 1–5.

a 'Hellish... cloud of SEACOAL' and so its inhabitants 'breathe nothing but an impure and thick Mist accompanied with a fuliginous and filthy vapor' corrupting the lungs and provoking coughs and catarrh. This cloud is produced by the 'immoderate use' of coal by brewers, soap-boilers and lime-burners whose furnaces belch smoke from their sooty jaws so that London can be said to resemble the suburbs of Hell.¹¹ The smoke precipitates on the ground, fouling clothes, killing insects and forcing ladies to clean their complexions with ground almonds. Evelyn singles out two particularly noxious producers of such soot, a lime-burner in Northumberland Street, off the Strand, and a brewer in Bankside, on the other side of the Thames from the aristocratic West End.¹²

Evelyn was hardly the first commentator to remark upon the smokiness of London. Indeed he entered a contemporary debate about whether it really did have deleterious effects upon health and thus was obliged to advance his arguments against the pronouncements of the College of Physicians. According to his account, as soon as one entered London the smoky fumes caused one's humours to become 'exasperated and made apt to putrefie', one's 'sensories and perspiration [to be] so exceedingly stopp'd', that the symptoms never wholly disappeared. Thus London churches were plagued by continual coughing and spitting during services. For the smoke, Evelyn explains, once breathed in, violates the larynx and becomes mixed with blood in the lungs and is thus carried throughout the body. Moreover, it is not only the human frame that is subject to these attacks – Evelyn draws upon Kenelm Digby's *Discourse of sympathetick powder* to demonstrate that London smoke contains invisible but corrosive particles of the volatile salts in coal which attack everything that is beautiful or lustrous. Complementing this attack upon beauty was the solid black canopy of soot which descended upon the city, coating clothes, filling the streets and houses with dust.¹³

Having demonstrated its scientific credentials and the factual basis of its jeremiad, *Fumifugium* now turns to offering a solution. There is no suggestion that Londoners should return to burning wood, despite Evelyn's well-known arboreal interests. Rather he advocates that all trades using large quantities of sea-coal should be banished from the city, as, he claims, would happen in any other European city. Such noxious enterprises should be moved down-stream and down-wind beyond Greenwich and its palace, where even a strong east wind could carry the smoke to London. Economic arguments are advanced to convince the reader: not only would this produce the 'universal serenity' of the airs around London, but thousands of watermen would find employment plying their trade between the two centres.¹⁴ Moreover, this relocation would open up prime sites within the city for the construction of noblemen's palaces.

¹¹ This highly literary representation contains many parallels to Evelyn's description of Mount Etna, which itself followed Edward Sandys closely, *The diary of John Evelyn*, ed. E. S. de Beer (6 vols., Oxford, 1955), II, 341n. ¹² *Fumifugium*, pp. 5–8. ¹³ *Ibid.* pp. 8–15.

¹⁴ It is worth emphasizing that Evelyn was not opposed to trade, see his *Publick employment and an active life prefer'd to solitude* (London, 1667).

There was, he continued, a precedent. In 1610 a statute had been passed to forbid the burning of ling and moorland in the counties of the north. If parliament had legislated in this matter once, then the Lords and Commons assembling as he wrote could do likewise.¹⁵

However, this was not the only environmental improvement that was to be carried out. Chandlers and butchers were to be expelled from the city to avoid the 'horrid stinks, *niderous* and unwholsome smells' produced by tallow and corrupted blood. No further burials within churches or, indeed, the city walls were to be allowed as these often contaminated the capital's air and water. Such improvements, he continued, would produce a new spirit in the inhabitants of the city. For when 'the Skie is fair and the *Aer*...good', so humans who are composed of these elements would take on these qualities. It would, Evelyn continued, be an achievement far greater than merely beautifying an aqueduct or draining a fen.¹⁶

The third section of *Fumifugium* has normally been overlooked, but it represents an integral part of Evelyn's argument, for by its proposals not only would the smoke be removed, but London 'might be rendred one of the most pleasant and agreeable places in the world'. The city was to be surrounded with a band of ground 150 feet wide filled with 'such shrubs as yield the most fragrant & odiferous *Flowers*...[those] aptest to tinge the *Aer* upon every gentle emission at a great distance'. In this manner the whole city would be 'sensible of the sweet and ravishing varieties of the perfumes', not to mention the noble yet masculine prospect of the trees planted around and amongst them. What, Evelyn asked, could be conceived that was more conducive of the three transcendencies, Health, Beauty and Profit?¹⁷

Keith Thomas has written how, "'Immers'd in smoke, stunn'd with perpetual noise'", it is no wonder that town-dwellers came to pine for the imagined delights of rural life.¹⁸ London's atmosphere became increasingly polluted as the city consumed ever-growing quantities of coal with a high sulphur content.¹⁹ The smoke pall had become a required sight for tourists by the middle of the seventeenth century. When in April 1652 the Dutch diplomatic attendant Lodewijck Huygens dutifully climbed the tower of Windsor Castle he remarked in his diary that the view had been superb and that one could even see the smoke of London, smoke which had spoiled his view of the city when he had earlier clambered to the top of St Paul's.²⁰ Many commentators in the seventeenth and eighteenth centuries saw in this smoke pollution a reason for the capital's distinctive demographic regime. For Gregory King, for example, 'the unhealthfulness of the coal smoke' was one of the reasons that marriages in London produced fewer children than

¹⁵ *Fumifugium*, pp. 15-23.

¹⁶ *Ibid.* pp. 21-2.

¹⁷ *Ibid.* pp. 23-6.

¹⁸ Thomas, *Man and the natural world*, p. 245.

¹⁹ See J. Hatcher, *The history of the British coal industry. Vol. I. Before 1700* (Oxford, 1993), pp. 34-42, 498-503; J. U. Nef, *The rise of the British coal industry* (2 vols., London, 1932).

²⁰ L. Huygens, *The English journal 1651-52*, ed. and trans. A. G. H. Bachrach & R. G. Collmer (Leiden, 1982), pp. 65, 110.

elsewhere in the realm, while thirty years before John Graunt had seen the smoke as a major factor in the city's high mortality rate.²¹ There were even instances when the palace of Whitehall was annoyed by this smoke. In August 1661, for instance, the solicitor-general was ordered by the king in council to 'take care that the Brewer who hath sett up a Brew-house neare unto his Maties Palace of Whitehall to the great anoyance thereof, be Indicted for the same at the Sessions of the Peace for... Middlesex'.²² Three years later the privy council closed down a brewery in Harts-horne Lane near Northumberland House in the Strand for a similar nuisance.²³

Most historians have therefore seen the composition of *Fumifugium* as a public-spirited gentleman's unproblematic response to an environment progressively being choked by coal smoke. Evelyn's most recent biographer termed *Fumifugium* a 'sensible pamphlet', while S. R. Smith considered that it advanced 'a solution that would have accomplished some of the goals' of the 1956 Clear Air Act. Similarly Peter Brimblecombe has written of the text's espousal of 'environmental idealism'.²⁴ Indeed the pamphlet has been assimilated into debates about the historical origins of environmentalism.²⁵ Yet this kind of reading assumes that schemes for the reform of the urban or any other environment emerge, as Adrian Wilson has felicitously put it, 'by spontaneous generation from... filth and disorder'.²⁶ Previous commentators have thus ignored the intellectual and, above all, the political contexts in which *Fumifugium* should be located.

For it would be extraordinary if a text published in 1661 and dedicated to Charles II had been entirely devoid of political significance. A comparison of *Fumifugium* with Evelyn's other writings of these years and with other contemporary texts demonstrates the intensely political nature of the scheme which the pamphlet advanced and of the imagery in which it was couched. For the smoke can be seen as a metaphor of the political disorder of the Interregnum and the proposals both as a means of preventing their recurrence and a panegyric to the new regime.

This becomes instantly apparent if one compares *Fumifugium* with Evelyn's comments in his 1659 pamphlet, *A character of England*. This sets out the author's reactions to his arrival in London, returning from exile on the continent. His familiarity with continental architectural theory and practice

²¹ J. Thirsk and J. P. Cooper, eds., *Seventeenth-century economic documents* (Oxford, 1972), p. 777; J. Graunt, *Natural and political observations... upon the bills of mortality* (1662) reprinted in P. Laslett, ed., *The earliest classics* (London, 1973). ²² P[ublic] R[ecord] O[ffice], PC2/55 p. 345.

²³ PRO, PC2/57 pp. 179, 183, 188, 196, 214.

²⁴ J. Bowle, *John Evelyn and his world* (1981), p. 106; S. R. Smith, 'John Evelyn & London air', *History Today*, xxv (1975), 185; P. Brimblecombe, *The big smoke: a history of air pollution in London since medieval times* (London, 1987), p. 50.

²⁵ E.g. R. Attfield, *The ethics of environmental concern* (Oxford, 1983), p. 42; idem, 'Has the History of Philosophy ruined the environment?', *Environmental Ethics*, xiii (1991), 134; C. J. Glacken, *Traces on the Rhodian shore. Nature and culture in western thought from ancient times to the end of the eighteenth century* (Berkeley & Los Angeles, 1967), p. 489.

²⁶ A. Wilson, 'The politics of medical improvement in early Hanoverian London', in Cunningham & French, eds., *The medical enlightenment of the eighteenth century*, p. 7.

made Evelyn despair of the capital, 'a city consisting of a wooden, northern, and inartificial congestion of houses; some of its principal streets so narrow, as there is nothing more deformed and unlike the prospect of it at a distance, and its asymmetrie within the walls'. The cloud of smoke that surrounded it gave it 'a resemblance of hell upon earth'. Even St Paul's was filthy, neglected and had been turned into a 'loathsome Golgotha', while the churches were 'made jakes and stables, markets and tippling-houses'. Moreover, as he approached 'the metropolis of civility' riding in a coach with 'some persons of quality', the children and apprentices greeted them with 'favours' of 'kennel dirt, squibs, roots, and rams-hornes' without reproof from their parents or masters. Their inversion of a ceremonious entry was, for Evelyn, an example of 'the natural effects of *parity*, *libertinism*, and insuluary manners'.²⁷ A similar connection is apparent throughout the pamphlet. London's lamentable physical condition and backward architecture are analogous and, indeed, linked to the political situation, while Evelyn's anglicanism saw in the neglect of the physical fabric of the churches a clear embodiment of the republican regime's abandonment of true religion. The pamphlet thus concludes with a vitriolic attack upon both presbyterians and independents and, somewhat improbably, casts the future Charles II in the role of Christ cleansing the temple by driving out the money-lenders.

Such an image of the monarch had greater urgency in the aftermath of the Restoration, for Charles returned amidst the violently scatological and, on occasions, coprophagic execration of the previous republic regime. The broadsheet *England's directions for members elections*, for instance, urged its readers in 1659 or 1660 to 'Chuse neither Sir Arthur,/Rumper nor Farter./ No Friend o' th' sh--ars'd Bum', while in February 1660 Pepys was told 'of a picture hung up at the Exchange, of a great pair of buttocks shitting of a turd into Lawsons mouth, and over it was writ "The thanks of the House"'.²⁸ In such a context, it was doubly effective for Charles to symbolize a cleansing of the political order. In May and August 1660, for instance, proclamations were issued against 'Vicious, Debauch'd and Prophan Persons', while, more literally, the condition of London became a focus of concern as it had been in the 1630s. In April 1661, for example, Charles I's one-time art-buyer on the continent, Balthezar Gerbier, laid proposals for a scheme to cleanse the capital before the privy council.²⁹

The representation of London in both *Fumifugium* and *The character of England* thus carried a political charge. This is not surprising as London was both the normal seat of the monarchy and had been the centre of the Parliamentary cause. For the bishop of Down and Connaught in 1649 it had been 'the great City spiritually Sodome where our Lord was crucified', while

²⁷ J. Evelyn, *A character of England* (1659), p. 5, *passim*. My emphasis.

²⁸ *England's directions for members elections* (n.d. 1659/60?); *The diary of Samuel Pepys*, ed. R. Latham & W. Matthews (11 vols., London, 1970-83), I, 45.

²⁹ R. R. Steele, *A bibliography of royal proclamations... 1485-1714*, in *Bibliotheca Lindesiana*, v (Oxford, 1910), pp. 386, 389; PRO, SP29/40/132, 133. For the concerns of the 1630s, see Cook, Barnes and Slack (n. 5 above).

the poet laureate, John Denham, used St Paul's as a central emblem in his political allegory, 'Cooper's Hill'.³⁰ Moreover, this interpretation is confirmed if one examines *Fumifugium* in conjunction with Evelyn's *A panegyric to Charles II*. This was presented to the king on 24 April 1661, the day after the king's coronation and two days after his triumphal progress through the city from the Tower to Whitehall.³¹ Although Evelyn did not hand Charles a copy of *Fumifugium* until September, the preface indicates that it was completed by 1 May, when the coronation was fresh in the minds of the court. Like much contemporary panegyric, Evelyn's employed many architectural metaphors and images. He talks of the coronation day's 'glorious sceau;... the Churches in repair, the sacred Assemblies open'd, *our Cities re-edified*, the Markets full of People, our Palaces richly furnished, and the Streets proud with the burden of their Triumphal Arches...'. Such a day, he continued, ought to be celebrated with 'Monuments more lasting than Brasse', the 'Woodden and temporary Arches' ought to be replaced with 'Marbles ones, lasting as the Pyramids, and immovable as the mountains themselves'.

Fumifugium offers to Charles the opportunity to create for himself precisely such a glorious affirmation of his grandeur. Charles, by implementing Evelyn's ideas, would manifest his 'true' nature, his greater glory. As the preface 'To the reader' states, it was possible to detect 'the Dawning of a brighter day approach; We have a Prince who is Resolv'd to be a Father to his Country; and a Parliament whose Decrees and Resentiments take their Impression from his Majesties great Genius, which studies only the Publick Good. It is from them therefore, that we Augure our future happinesse; *since there is nothing which will so much perpetuate their Memories, or more justly merit it*'.³² The pamphlet thus shares with much contemporary panegyric the desire to monumentalize the new and, as yet, fragile regime by using architectural and even meteorological images.³³

However, Evelyn's scheme for Charles to disperse the smoke of the metropolis also served as an especially appropriate metaphor for the monarchy. When the king was traversing London on 22 April, he was saluted by a speech by a blue-coat boy from Christ's Hospital which opened by recalling how Demosthenes's tongue had been 'lock'd up in silence' by the 'piercing Raies [which] darted forth from King Philip's countenance' and wondering how the humble speaker would fare, 'being now before so glorious a Sun'.³⁴ The images of the monarch as the sun and the Interregnum as being an eclipse or a cloud which had temporarily obscured his lustre were repeated time and time again in the literature of the period. Evelyn was not alone in

³⁰ H. Leslie, *The martyrdome of King Charles* (The Hague, 1649), p. 25. For Denham, see B. O'Hehir, *Harmony from discords: a life of Sir John Denham* (Berkeley and Los Angeles, 1968).

³¹ J. Evelyn, *Panegyric to Charles II* (1661), facsimile edition, Augustan Reprint Society 21 (1951); *Diary of John Evelyn*, III, 276-284.

³² *Fumifugium*, Preface to the reader. My emphasis.

³³ N. Jose, *Ideas of Restoration in English Literature 1660-1671* (London, 1984), ch. 1.

³⁴ *A speech spoken by a blew-coat boy of Christs Hospital to... Charles the Second in his passage from the Tower to Whitehall. April 22. 1661* (1661), p. 1.

employing such metaphors in his *Panegyric*. Thomas Flatman hailed Charles and declared that the German Eagle 'Shall gaze upon Thy Lustre, crouch down lower,/ And bask within the Sun-shine of thy Power:', while another execrable poem on the coronation declared of the king, 'You are our light, our comfort and our hope;/ Every good subject is your Heliotrope'.³⁵ Nor were these meteorological concerns confined to the symbolic logic of the panegyric genre, for many commentators interpreted the storms on the day of Charles II's coronation as indicative of divine displeasure.³⁶

More generally, the monarch was, of course, identified with light, the light of truth, of justice and knowledge as opposed to the darkness of falsehood, injustice and ignorance, which was in turn often represented as a dark and malodorous cloud, sometimes a cloud of soot or smoke. One versifying fellow of Merton College wrote of the commonwealth in terms of a Saturnalian riot in which there was '...no distinction made, no difference/ Betwixt his [Vulcan's] Sea-coal and their Frankinsence:' and concluded 'Appear now CHARLS [*sic*] THE GREAT, and let the Sun/ Dance to behold his Rivals game thus wonne;'.³⁷ Pulpits resounded with the same images. A sermon preached in St Paul's in September 1661 described the former times 'when the firmament of our Church was sadly and totally over-cast, with Black Clouds of Novellisme and Heresie'. In May of the same year, Peter Heylin had called upon the congregation assembled in St Peter's Westminster to thank God for 'the advancement of our David to the Throne of his Fathers; and, thereby giving us such a fair and blessed Sun-shine after a long Egyptian darkness...'.³⁸ With such imagery being promulgated, it is unsatisfactory to read *Fumifugium* as a straight-forward representation of the condition of the city without emphasizing the ideological implications of the proposals and of the imagery employed. Moreover, in this context it is worth mentioning how among the proposed heraldic designs for the Royal Society which Evelyn drew up at this time was the image of a sun.³⁹

Yet we should not simply focus upon the solar images within this text, which, after all, is centrally preoccupied with the quality of air. In *Fumifugium* the airs of London served as an appropriate metaphor for the monarchy at another and more subtle level. At one point Evelyn refers to Charles as being 'the very Breath of our Nostrils' (p. 22). This is a quotation from *Lamentations* 4.20, and refers to the Lord's Anointed. If the Monarch was not only the light

³⁵ T. Flatman, *A panegyrick to his renowned [*sic*] Majestie, Charles the Second* (1660); H. Bold, 'On the Thunder happening after the Solemnity of the Coronation of Charles II. on St. George's Day, 1661', reprinted in *Somers tracts* (13 vols., London, 1809-15), vii, 514.

³⁶ J. Spurr, '"Virtue, religion and government": the Anglican uses of providence', in T. Harris, P. Seaward & M. Goldie, eds., *The politics of religion in Restoration England* (Oxford, 1990), p. 37.

³⁷ R. Whitehall, *The coronation. A poem* (1661), pp. 4-5.

³⁸ T. Wood, *A plot to disseize God of his right defeated* (1661), sig. A2; P. Heylin, *A sermon preached in the collegiate Church of St. Peter in Westminster on Wednesday May 29th 1661* (1661), p. 39. This is not to suggest that such imagery was necessarily Royalist regardless of context: in December 1658 the corporation of Great Yarmouth welcomed Richard Cromwell as a sun which had risen to dispel malignant vapours, PRO, SP 18/184/85.

³⁹ M. Hunter, *Establishing the new science* (Woodbridge, Suffolk, 1989), pp. xiv, 42.

of loyal subjects' eyes, but also the breath of their nostrils, then the sulphurous condition of the airs of the royal seat and capital city impinged even more directly upon the standing of the monarchy for these airs were themselves one of its symbols. To improve the atmosphere of the capital as Evelyn proposed would therefore have been to remove a slur upon the true nature of monarchy. Evelyn's imagery was far from idiosyncratic. Many contemporary sermons which emphasized the parallels between Charles and the Lord's Anointed of the Old Testament cited this verse from *Lamentations*. Thus, for example, Henry King, bishop of Chichester, declared of the King, 'that as He is the breath of our nostrils, so we take care that no unwholsome Vapours, no seditious Damps be raised to annoy his Peace or offend Him'.⁴⁰

Evelyn's remedies for the smoke afflicting London were similarly laden with political significance. His advocacy of a perfumed garden surrounding the whole metropolis should not be dismissed as the charming whimsy of a man with a well-known interest in gardening. John Prest has shown how the sixteenth- and seventeenth-century botanical garden was designed to echo and even to recreate the garden of Eden. Contemporary representations of paradise followed a long christian tradition of emphasizing the delicious and sweet smell of the flowers blossoming there.⁴¹ Thus when Evelyn offers to correct London's air in this manner he was not only invoking the stately and sweet-scented gardens of Europe and the mythical ones of 'Arabia... the Happy' (*Fumifugium*, Dedication to the king) but even those of Heaven.

Moreover, the scheme would have created a city in which nature would have been harnessed to make real the expansive claims of Evelyn's *Panegyric* to Charles in which:

the very fields do laugh and exalt. O happy and blessed spring! not so glorious yet with the pride and enamel of his flowers, the golden corn, and the gems of the pregnant Vine, as with those Lillies and Roses which bloom and flourish in your Chaplet this day, to which not only these but even the productions of nature seem to bend, and pay ... homage.⁴²

This attempt to harness nature and gardens in order to praise the restored monarchy was by no means unique to Evelyn. Charles II's interest in and improvements to St James's park served as a topos for Waller, among others, when he wrote of the park as a paradise inhabited by 'The choicest things that furnished Noah's ark'.⁴³ Moreover, Evelyn's emphasis upon the olfactory pleasure that would be provided by the garden around the city echoes his call

⁴⁰ H. King, *A sermon preached at White-Hall on the 29th of May, 1661* (London, 1661), p. 24. Other sermons citing this text include J. Paradise, *Hadadrimmon, sive threnodia anglicana ob regicidium* (London, 1661), p. 45; A. Bury, *The bow* (London, 1662), p. 13; S. Ward, *Against resistance of lawful powers* (London, 1661), p. 5.

⁴¹ J. Prest, *The garden of Eden* (London, 1981), p. 38. See also, A. Corbin, *The foul and the fragrant* (Leamington Spa, 1986).

⁴² J. Evelyn, *Panegyric to Charles II*, facsimile edition, Augustan Reprint Society 21 (1951), p. 4.

⁴³ E. Waller, 'On St. James's Park, as lately improved by His Majesty', *The poems of Edmund Waller*, ed. G. T. Drury (London, 1893), p. 169. For the rebuilding in St James's Park, see H. Colvin, ed., *The history of the king's works* (5 vols., London, 1963-82), v, 264-5.

in the *Panegyric* for altars to smoke perfume and for the roads to be strewn with flowers.⁴⁴

III

In arguing that *Fumifugium* is suffused with politicized symbolism and is closely related to the panegyric literature of the early 1660s, I am not suggesting that it should be interpreted purely as allegory. It draws upon the conventions of several genres and its proposals were practical in intent, not just a series of subtle coded compliments. Yet just as historians have discussed *Fumifugium* in isolation from the political symbolism of the 1660s, so they have largely treated it in an intellectual vacuum. Evelyn's use of Sir Kenelm Digby's *Discourse of sympathetic powders* has been noted, and Peter Brimblecombe has discussed parallels between the pamphlet and Graunt's work on London population.⁴⁵ Yet no study has discussed these proposals with reference to mid-seventeenth-century investigations of air or with reference to Evelyn's own scientific beliefs.

Fumifugium should not be seen as a lone voice anticipating modern legislation against smoke emissions; it should be placed alongside other examples of mid-seventeenth-century interest in airs. This was, of course, a keen focus of scientific debate at precisely this conjuncture with the publication of Boyle's *New experiments* in 1660. Boyle claimed that there were two reasons for his study of air:

... That the Ayr being so necessary to human Life, that not onely the generality of Men, but most other Creatures... cannot live many minutes without it; any considerable discovery of its Nature, seems likely to prove of moment to Mankind. And the other is, that the Ambient Ayr, being that whereto... our... Bodies... are almost perpetually contiguous; not onely its alterations have a notable... share in... obvious effects... such as the various distempers incident to humane Bodies... but likewise that the further discovery of the nature of Ayr, will probably discover... that it concurs more or less to the exhibiting of many *Phaenomena*, in which it hath hitherto scarce been suspected to have any interest.⁴⁶

Recent scholarship has used the disputes between Hobbes and Boyle about the air pump to illuminate the construction of experimental knowledge and intellectual authority in Restoration England.⁴⁷ However, it is striking that while Shapin and Schaffer emphasize the political nature of the meanings imputed to air in these experiments, their present-minded concern with the role of the laboratory leads them to ignore the more overt politicization of the atmosphere by other members of the Royal Society such as Evelyn, whose experimental proposals were less introspective and have been excluded from the canon of 'scientific classics'.

Moreover, Evelyn's recommendations were perfectly logical as throughout the early modern period it was widely agreed that noxious smells and airs

⁴⁴ *Panegyric*, pp. 15–16.

⁴⁵ Brimblecombe, *The big smoke*, pp. 52–8. See also idem, 'Interest in air pollution among early Fellows of the Royal Society', *Notes and Records of the Royal Society*, xxxii (1977–78), 123–9.

⁴⁶ R. Boyle, *New experiments physico-mechanical, touching the spring of the air* (Oxford, 1660), pp. 3–4.

⁴⁷ S. Shapin and S. Schaffer, *Leviathan and the air pump* (Princeton, 1985).

could produce disease. In 1664, for instance, his friend and fellow member of the Royal Society, Nathaniel Henshaw, published a discussion of the qualities of air, which, while cognisant of Boyle's work, concluded that

because contemplations of this kind, are, in their own Nature, very unprofitable, if not reducible to practise: I have, as well as I could, applied the same to the cure and prevention of most diseases...⁴⁸

Henshaw accordingly described how one might construct an 'air chamber' within a house, the atmosphere of which could be regulated and altered by blowing in changes of air conducive to longevity and good health.

Moreover, the use of perfume pastilles or pomanders was an integral part of medicine and the College of Physicians recommended a variety of such olfactory measures to ward off the evil miasma which might cause plague.⁴⁹ Evelyn transcribed the recipes of many such preparations in his medical commonplace books, preparations such as Lady Cotton's sweet water, 'the best that ever I smelt'.⁵⁰

However, Evelyn had more specific intellectual justifications for his proposals, for the title page reproduces two lines from Lucretius's *De rerum natura*.⁵¹ This quotation is from the section of the poem which explains the deadly Avernan Lakes of Greek mythology by reference to other natural phenomena and in particular poisonous smells such as an extinguished candle, castor and, to quote from Evelyn's own unpublished translation of the book:

The heady {geddy} fume of Coales, unlesse good store
Of water one be sure to drink before
Insenuats its steame into the braine...⁵²

Evelyn, who despite his anxieties about the subversive and atheistical implication of the work, had published a translation of Book I of Lucretius,⁵³ located his arguments in *Fumifugium* within an explicitly atomistic understanding of how the air might affect the constitution of individual human

⁴⁸ N. Henshaw, *Aero-Chalinos: or a register for the air* (Dublin, 1664), sig. a.6. For his familiarity with Boyle's work, see sig. a.3. In 1677 a second edition of this book was published under the auspices of the Royal Society.

⁴⁹ E.g. College of Physicians, *Certain directions for the plague* (1636, facsimile edn, Amsterdam, 1979), sigs. C2-3v. See also M. S. R. Jenner, 'Early modern English conceptions of "cleanliness" and "dirt" as reflected in the environmental regulation of London c. 1530-c. 1700' (unpublished D.Phil. thesis, University of Oxford, 1991), esp. ch. 3.

⁵⁰ Ch[rist] Ch[urch Library, Oxford], Evelyn MS 54(A) pp. 4-9, quotation at p. 7. These MSS are cited with kind permission of the Evelyn Trustees. See also, W. Bray, *The diary of John Evelyn*, ed. H. B. Wheatley (4 vols., London, 1879), III, 255. Since this article was accepted the Evelyn MSS have been purchased by the British Library.

⁵¹ The lines, 'Carbonumque gravis vis, atque odor insinuatur/ Quam facile in cerebrum?...?' are *De rerum natura*, VI, 802-3.

⁵² Ch.Ch., Evelyn MS 34a, fo. 8.

⁵³ J. Evelyn, *Essays on the first book of T. Lucretius Carus De Rerum Natura* (London, 1659); for Evelyn's doubts about publishing his translation, see Cambridge University Library, Add. MS 8540; Bray, *The diary of John Evelyn*, III, 212-13, 215, 218, 257. More generally, see R. H. Kargon, *Atomism in England from Harriot to Newton* (Oxford, 1966), pp. 89-92 and passim. For Evelyn's interest in chemistry, F. Sherwood Taylor, 'The chemical studies of John Evelyn', *Annals of Science*, VIII (1954), 285-92.

beings. The work can thus be directly related to the work on respiration conducted by Willis, Highmore and others in Oxford during the 1640s and 1650s, and, indeed, contains a lengthy discussion of how noxious air enters the body (pp. 10–11).⁵⁴

Yet it would be somewhat misleading and teleological to relate Evelyn's text only to the developing interest of the Royal Society and other investigators into respiration and the composition of air. For *Fumifugium* also belongs to another intellectual tradition of early modern Europe whereby air was corrected and perfected by using the perfume of flowers.

Prominent among intellectuals with such interests was the Herefordshire clergyman, John Beale, a friend of Evelyn, member of the Royal Society and an associate of Samuel Hartlib,⁵⁵ and a letter which John Beale wrote to Henry Oldenburg in 1659 contains a striking parallel to Evelyn's proposals. Beale devoted most of this epistle to describing his proposed additions to a treatise on gardening which Oldenburg had sent him. Amongst the other (at times improbable) suggestions, Beale told Oldenburg that he would 'offer such magnificent & yet unchargeable, yea lucrative designes, as shall rectify & purify the ayre of all the neighboring Country, both for health of body, & of minde; to prepare & dispose for Vertue, & for sanctity; & to procure longevity'. The letter sets out Beale's various schemes at considerable length before returning to this topic. Whereupon Beale itemizes the effects of various plants upon the surrounding airs that had been noted by Pliny – 'ye aire in Cyprus', for instance, 'by store of Cypresse trees & firres, cured ye akers of ye lungs'. He concluded, 'Tis time for London to thinke of this, & to accepte of a sweete & easy remedy agst ye corrosive Smoake of their Seacoale, yt cuts off more than halfe their dayes'.⁵⁶

This letter was not a flash in the pan. Throughout much of the 1650s Beale bombarded Hartlib with various schemes for horticultural improvement and in around 1659 Hartlib passed these manuscripts on to Evelyn to assist the latter in his proposed history of trades. It is likely, therefore, that Evelyn was able to draw directly upon Beale's ideas through Hartlib as well as through their direct acquaintance. Moreover, in a letter to Hartlib of March 1660, which Evelyn subsequently extracted, Beale discussed his own schemes for planting fruit trees on the waste ground of England with direct reference to Evelyn's ideas on gardening. He termed his design 'as a foyle or wild pastoral encounter to Mr Evelyns hortulane elegancies'. His letter advocated the planting of thousands of acres of waste with trees, as such land was 'most

⁵⁴ R. G. Frank, *Harvey and the Oxford physiologists* (Berkeley, Los Angeles & London, 1980).

⁵⁵ For Beale, see M. Stubbs, 'John Beale, philosophical gardener of Herefordshire, Parts I & II', *Annals of Science*, XL (1982), 463–82 & XLVI (1989), 323–63; M. Leslie, 'The spiritual husbandry of John Beale', in M. Leslie & T. Raylor, eds., *Culture and cultivation in early modern England* (Leicester, 1992), pp. 151–172. More generally, see T. Mowl, 'New science, old order: the gardens of the Great Rebellion', *Journal of Garden History*, xiii (1993), 16–35.

⁵⁶ *The correspondence of Henry Oldenburg*, ed. and trans. A. R. Hall & M. B. Hall (13 vols., Madison, London & Philadelphia, 1965–86), I, 315, 318–19. This parallel is noted in G. Parry, 'John Evelyn as hortulan saint', in Leslie & Raylor, eds., *Culture and cultivation*, p. 141.

agreeable for all odoriferous trees & shrubs, for Cypresses, pines, firres, bayes, mirtles, rosemary, roses sweet eglantine, lavender, tyme, hysope &c.' Furthermore it concluded with the hope that his plan was 'fit to entice Mr Evelyns garden to enlarge the boundaries. And I should not be soory if I could turn ye wilderness & waste grounds of England into a Paradyse, that by a naturall pregnancy should contend with ye fayrest of his Artificiall enfircements'.⁵⁷

Beale's advocacy of cider as superior to beer or wine is well known. However, this has largely been placed in the context of 'practical' interest in agricultural improvements current among the Hartlib group,⁵⁸ without as full an exploration of the more utopian aspects of the symbolism of such schemes and, in particular, the emphasis upon their olfactory benefits. Thus, for instance, Beale's *Herefordshire orchards* argued that apple orchards 'not only sweeten, but also purifie the ambient aire, (which I conceive to conduce very much to the constant health and long lives, for which our County hath been alwayes famous)'. While his later pamphlet, *Pomona*, which the Royal Society published in conjunction with Evelyn's *Sylva*, contained the proposal to plant apples in every hedgerow, not only to provide a crop for cider, but also to sweeten the air of the realm.⁵⁹

Hartlib's *Ephemerides* show that many mid-seventeenth-century intellectuals and projectors had similar interests. In 1650 Hartlib noted that Robert Child 'was much wishing that Sir H. Plats Inv[ention] might bee p[er]fected and introduced for the taking away of the noisome smoake from the City of Lond[on], which would make it far the healthier, and the fewel cheaper'.⁶⁰ He was referring to the scheme which Sir Hugh Plat had advanced during the first years of the century to use briquettes of coal dust as a purer and less smoky fuel suitable for the capital.⁶¹ The same year Hartlib noted that 'In Yorkshire there is of most frequent use a kind of most excellent cleare wood-fire or white coales made of purpose by a special way of theirs. This would also bee most excellent fewel about and in London, and though it were somewhat dearer bec[ause] that wood is so scant in these parts, yet for noblemen and other rich ones there could not be a better kind of fewel...'. He further noted that Cressy Dymock was to make them 'for a trial'.⁶² Such examples of interest in coking and reducing smoke emission could be multiplied.⁶³

The schemes outlined in *Fumifugium* can, therefore, be placed alongside many themes in early modern science and medicine. Moreover, like other

⁵⁷ B.L. Add. MS 15948, fos. 89v-91.

⁵⁸ E.g. J. Thirsk, *Economic policy and projects* (Oxford, 1978), p. 140; C. Webster, *The great instauration* (London, 1975), part 5. Stubbs, 'John Beale, Part 2' emphasizes millenarian aspects of Beale's work.

⁵⁹ J. Beale, *Herefordshire orchards, a pattern for all England* (1657), pp. 7-8; idem, *Pomona* (1664), passim.

⁶⁰ Sheffield University Library, Hartlib MS [hereafter HP] 28/1/73B.

⁶¹ Sir H. Plat, *A new, cheape, and delicate fire of cole-balles, wherein seacole is by mixture of other combustible bodies, both sweetened and multiplied* (1603). This pamphlet is discussed in Brimblecombe, pp. 30-1. For other examples of familiarity with Plat's ideas among those who corresponded with Hartlib, see Webster, *Great instauration*, pp. 387, 470. Cf. also, *Artificiall fire, or coale for rich and poore* (1644).

⁶² HP 28/1/7B.

⁶³ HP 29/4/5A & 29/5/53B.

projects which fascinated the Hartlib circle the indirect effects of Evelyn's proposals were more significant than their immediate practical outcome.⁶⁴ His diary records how he presented the pamphlet to the king on 14 September 1661 and that Charles was 'much pleas'd with it', instructing him to publish it by royal command. A fortnight later the two discussed the subject and the king recommended that Evelyn draft a parliamentary bill to correct the situation. The diarist did so and the following January received 'a draught of an Act, against the nuisance of the Smoke of Lond' from the queen's attorney.⁶⁵

Although no such legislation was passed or even seems to have been debated, parliament did turn its attention to the capital's environment at this time. In the spring of 1662 it debated a bill originating from the privy council to establish a commission to regulate and improve the streets and passageways of London. Charles emphasized the importance which he attached to this task in a speech to the house of commons in April 1662. He urged the M.P.s to compliment the arrival of Catherine of Braganza by ensuring 'that her Entrance into the Town may be with more Decency than the Ways will now suffer it to be: And, to that Purpose [he continued], I pray you would quickly pass such Laws as are before you, in order to the mending those ways; and that she may not find *Whitehall* surrounded with Water'.⁶⁶

Charles's plea bore fruit; in 1662 the commission for highways and sewers was established with responsibility for regulating the streets of the capital. Evelyn was made one of these commissioners and in his diary periodically noted attending their meetings from May 1662.⁶⁷ However, the diarist appears soon to have lost interest in the commission's work which consisted largely of overseeing street cleansing and widening schemes in Westminster and the West End. His signature occurs on few of the commission's surviving warrants and he was omitted from the next commission in November 1663.⁶⁸

Nevertheless, the concerns about urban hygiene and the architectural ambitions articulated in *Fumifugium* remained current at Charles II's court and crucially influenced the rebuilding of London after the fire. Within days of the conflagration Evelyn drew up a plan for the new city which like his earlier proposals emphasized the desirability of broad streets, uniformity in the frontages of buildings, the removal of noxious trades from areas of polite habitation and a degree of economic zoning.⁶⁹ Similar concerns permeated the

⁶⁴ Cf. M. Jenner, "'Another epocha'? Samuel Hartlib, John Lanyon and the cleansing of London', in M. Greengrass et al., eds., *Samuel Hartlib and Universal Reformation* (Cambridge, 1994).

⁶⁵ *The diary of John Evelyn*, III, 295-7, 310.

⁶⁶ *Commons Journals*, VIII, 378. For a more detailed account of this legislation see Jenner, 'Early modern English conceptions of "cleanliness"', pp. 303-5.

⁶⁷ Evelyn, *Diary*, III, 318-19, 328, 333, 335.

⁶⁸ PRO E101/623/3. For discussion of the commissioners' work and a full list of their surviving records, see Jenner, 'Early modern English conceptions of "cleanliness"', pp. 50-1, 304-8. I hope to publish a fuller account of their work in the near future.

⁶⁹ J. Evelyn, *London revived: considerations for its rebuilding in 1666*, ed. E. S. de Beer (Oxford, 1938).

plans put forward by Wren and others at this time;⁷⁰ Charles II's own declaration in the immediate aftermath of the fire promised that London would rise phoenix-like from the ashes. The city would, he promised, 'rather appear to the world as purged with the Fire... to a wonderful beauty and comeliness, then consumed by it'. Brewers, dyers, bakers and similar smoky trades, he continued, would be banished from the Thameside where a handsome vista would be erected in their stead.⁷¹

Economic and legal realities precluded such dramatic social engineering when London was reconstructed and smoky businesses were not officially banned from the rebuilt areas, but the act of parliament for rebuilding the city did transform its appearance. As Peter Borsay has emphasized, the act prescribed that streets should be uniform in their frontages, that houses be built out of brick and that they should be of particular types. Moreover, these regulations acted as the model for all other large-scale urban building developments in late seventeenth and eighteenth-century England.⁷² Although it is questionable whether London's air was significantly clearer or whether its streets were any cleaner in the early eighteenth century than they had been before the Fire,⁷³ it can be said that the strictly architectural recommendations of Evelyn's pamphlets of the 1660s were at least in part realized.

IV

London's air pollution did not disappear from public discourse after the 1660s. As one might expect in view of the Hippocratic and environmental strands within eighteenth-century medicine, the smoky atmosphere was regularly seen as a health hazard,⁷⁴ although few people contemplated comprehensive remedies for this state of affairs until the nineteenth century.⁷⁵ More importantly for the purposes of this paper, the condition of the urban environment continued to bear a variety of ideological meanings. As Raymond Williams emphasized, it often functioned as a potent symbol of the corruption and luxury attributed to city dwelling; the contrast between the salubrious

⁷⁰ Wren's proposals are reproduced in *The Wren Society* (20 vols., Oxford, 1924-43), xii, Plates 24, 25, xviii, 196. For a discussion of the various schemes put forward after the fire, see, T. F. Reddaway, *The rebuilding of London after the great fire* (London, 1951 edn); W. G. Bell, *The great fire of London 1666* (London, 1920), esp. ch. 12.

⁷¹ Charles II, *His majestie's declaration to his city of London upon occasion of the late calamity by the lamentable fire* (London, 1666), esp. pp. 2, 7.

⁷² P. Borsay, *The English urban renaissance* (Oxford, 1989); idem, 'The English urban renaissance: the development of provincial urban culture c. 1680-c. 1760', *Social History*, v (1977), 581-603.

⁷³ See Jenner, 'Early modern conceptions of "cleanliness"', esp. ch. 3.

⁷⁴ For anxiety about smoke, see, *Gentleman's Magazine*, xvii (1747), 63-4; A. Sutherland, *Attempts to revive antient medical doctrines* (2 vols., London, 1763), ii, 46-7; D. & R. Porter, *Patient's progress* (Cambridge, 1989), p. 112; J. Armstrong, 'The art of preserving health (i)' in R. Lonsdale, ed., *New Oxford book of eighteenth century verse* (Oxford, 1987), pp. 294-5. On Hippocratic ideas in eighteenth-century medical reform, see J. C. Riley, *The eighteenth-century campaign to avoid disease* (London and Basingstoke, 1987).

⁷⁵ R. Porter, 'Cleaning up the great wen', in W. F. Bynum & R. Porter, eds., *Living and dying in London, Medical History supplement no. 11* (London, 1991), pp. 61-75.

purity of a rural existence and the noxious filth of urban life has a long and influential history up to the present day.⁷⁶ Indeed in their sociological study of environmental concern in the mid-1970s Mary Douglas and Aaron Wildavsky concluded that, 'Generally, pollution ideas are the product of an ongoing political debate about the ideal society'.⁷⁷ By extension, therefore, one can argue that in many past times to write about pollution was (as in the case of *Fumifugium*) simultaneously to write about other social and political issues. Historians interested in all aspects of the environment – from architecture and town planning to science and public health – need therefore to attend to the various layers of meaning which coexist within the representations that they study.

⁷⁶ R. Williams, *The country and the city* (London, 1973).

⁷⁷ M. Douglas and A. Wildavsky, *Risk and culture* (Berkeley and Los Angeles, 1982), p. 36.