Introduction

The title of this book may strike some as anachronistic. After all, the drama of Jacobean England (by which I mean primarily the drama of the public and private theaters, although I shall have brief occasion to refer to masques and similar entertainments as well) derives from a twenty-two-year period at the beginning of the seventeenth century. By contrast, the phrase "environmental degradation" has entered public discourse as a term for the ecological damage wrought by twentieth- and early twenty-first-century population growth and industrial development. This apparent inconsistency will seem only more pronounced when I add that I draw my definition of environmental degradation from the lexicon of the thirty-nation Organization for Economic Co-operation and Development (OECD): "the deterioration in environmental quality from ambient concentrations of pollutants and other activities and processes such as improper land use and natural disasters."[1] Here, in short, is vocabulary designed for a specific set of recent historical circumstances; its application to a very different and earlier set of conditions may naturally arouse suspicion.

This problem receives broader formulation in a popular master-narrative of urban historians, who distinguish between "two major changes of pace" in the growth of the world's cities:

> The first, known as the agricultural revolution, occurred in the Middle East around the fifth millennium BC . . . The second, known as the industrial revolution, occurred first in Britain in the late eighteenth century, and led to the growth of the large modern metropolis. These revolutions . . . distinguish different technological environments each of which is associated with a specific settlement response.[2]

On this logic, the period between 4000 BCE and 1750 CE witnesses no really major change in the structure of urban life, and insofar as modern environmental damage correlates to the growth of the world's urban population over the past two centuries, both the modern metropolis and

the ecological crisis in which it is implicated would appear to exist in a class by themselves, with no earlier counterpart. Here quantity creates a quality all its own – or so the story goes.

In an important sense this is true. Size does matter, and although it is hard to say at just what point a large pre-industrial city translates into an industrial metropolis, when nineteenth-century London becomes the first European city with over a million residents it is hard not to feel that an important historical threshold has been crossed, and that the character of urban life has changed forever in the process. But by the same token, it is patently silly to maintain that the conditions of life in industrial London bear no relation to the city's experience during earlier stages of development. Urban historians are quick to point out that population alone does not differentiate cities from the surrounding environment; instead, modern cities are defined at least as much by the development of specialized economic, administrative, and cultural structures, and these must already be in place before a municipal environment can accommodate the massive populations of the industrial period and beyond. From the structural standpoint, "a certain very long-term process of urban network creation is a necessary preparation for entry into the modern industrial world."[3]

Likewise, it makes no sense to argue that because a city of 1,000,000 people produces and suffers a greater degree of environmental damage than does a city of 250,000, the latter damage is therefore unworthy of the name. Though the OECD's definition of environmental damage is obviously devised with current ecological crises in mind, all its exemplary terms – "concentrations of pollutants," "improper land use," "natural disasters" – find a counterpart in the history of Jacobean England, especially Jacobean London. For concentrations of pollutants, there is atmospheric coal dust, the runoff from tanneries, and so forth; for improper land use, there is deforestation, enclosure (both urban and rural), and fen drainage; for natural disasters, bubonic plague and syphilis spring quickly to mind. Each of these features of Jacobean life has its roots in human manipulation of the natural environment, and each has cast a long shadow over subsequent British history. Moreover, ecological historians have connected human behavior to "deterioration in environmental quality" within societies older than that of early modern England. Thus "in Greece the first signs of large-scale [environmental] destruction began to appear about 650 BCE . . . The hills of Attica were stripped bare of trees within a couple of generations and by 590 . . . Solon . . . was arguing that cultivation on steep slopes should be banned because of the amount of soil being lost."[4] By Roman times "the surviving evidence gives the impression of declining populations of wildlife

and the gradual extinction of certain species in one area after another."[5] Portuguese colonization of the Cape Verde Islands, the Azores, and Madeira in the 1400s "involved the massive change of tropical forests into sugar plantations."[6] And so forth.

Even from the standpoint of raw demographic figures, early modern London requires comparison with the metropolis of more recent times. Estimates vary as to the city's population in the sixteenth and seventeenth centuries, but most everyone agrees that its expansion during this period was breathtaking. As Lena Cowen Orlin remarks, "The first thing to be said about early modern London (and . . . the last thing, as well) is that it experienced an astonishing growth in population."[7] Most sources number the city's inhabitants in 1500 at between 40,000 and 50,000; in 1550 at between 70,000 and 120,000; in 1600, at the dawn of the Jacobean period, at about 200,000; and in 1650, a quarter-century after the death of James I, at between 350,000 and 400,000.[8] By the more conservative of these figures, in 1603 King James's new capital had experienced 300 percent population growth over the preceding century and would grow by another 75 percent in the coming fifty years. As a percentage of base population, this growth rate has only been exceeded in the period between 1801 and 1900, when the number of Londoners grew from roughly 1,000,000 to 6,500,000 – an increase of 550 percent.[9] In the twentieth century, by contrast, London reached its peak population of about 8,600,000 in 1939 and has posted a small net loss in the seventy-odd years since.

One should be cautious not to give these figures undue emphasis. As Peter Blayney has observed in a very different context, "a small percentage of a large number can be much bigger than a large percentage of a small number,"[10] and this is a case in point. The 300 percent increase in London's population between 1500 and 1600 amounts to 150,000 people in all; a comparable increase to the city's early nineteenth-century population base would encompass 3,000,000. The percentage comparison misleads if one takes it as a marker of scale. But it remains valuable as an index of systemic stress, and by this metric sixteenth- and seventeenth-century London may well deserve to be called the first modern western city. Without question its growth – and the strain that growth placed upon its existing resources – outstripped that of all other contemporary cities, rapidly placing London in a class by itself. To quote a recent assessment, "In 1500, ten European cities, excluding Constantinople, had more inhabitants than London and six others had roughly the same population; in 1600, only two European urban places – Naples and Paris – exceeded the English capital in size, and neither by a very large margin."[11] This sort of

development could not occur without bringing unprecedented pressures to bear on the city's infrastructure, on its surrounding natural environment, and on the mental and emotional condition of its inhabitants.

Contemporary environmentalists tend to dwell on the destructive aspects of population growth, with deep ecologists in particular arguing that earth's human population should be limited to "500 million (James Lovelock) or 100 million (Arne Naess)."[12] So it is worth noting at the outset of this study that early modern London's exorbitant population increase not only produced pollution, land mismanagement, and epidemic disease; it also led to some of the glories of western civilization. Under the Tudor and early Stuart monarchs, the city refurbished itself in ways of lasting importance for urban history, art history, architectural history, and social history. The improvements in question defy summary here, but consider some examples. The city gates at Ludgate, Aldgate, and Aldersgate were rebuilt in 1586, 1608, and 1617, respectively; Ludgate prison was rebuilt in 1585; and Bridewell workhouse was founded in 1553.[13] During the sixteenth and seventeenth centuries a whole series of cisterns and water conduits was introduced, including, in 1582, the city's first indoor plumbing system.[14] Gresham's Royal Exchange, built in Cornhill between 1566 and 1568, heralded London's coming of age as a modern commercial center. Inigo Jones's royal banqueting house, constructed at Whitehall between 1619 and 1622, brought Palladianism to London. Within a decade of King James's demise, the first of London's great city squares appeared at Lincoln's Inn Fields and Covent Garden. In this sense, the area's demographic growth communicated itself to the fabric of the city as well – so much so that subsequent developments in the humanities may in large part be understood as an extended meditation upon the achievements of Londoners during the 1500s and 1600s. Readers may consider for themselves what this fact portends about the compatibility of professional study in the humanities with the rigorous practice of environmentalism.

In any case, the present study unfolds from the premise that the early modern English drama, like other contemporary aspects of English cultural achievement, was conditioned by the environmental events within which it developed. Like syphilis, bubonic plague, and Palladianism, the theater of Shakespeare and his contemporaries was primarily an urban phenomenon, albeit one with consequences for the relation between city and country as well. My objective in these pages is to understand this phenomenon from the standpoint of ecological change, to consider how that change imprints itself upon the theater's history and practices, and to offer some account of the theater's response to ecological pressures. My thesis is that the Jacobean

theater registers awareness of such pressures through a series of conventions which in turn offer audiences a way to come to mental and emotional terms with their changing natural environment. In pursuing this argument, the core chapters of my study deal with six Jacobean playwrights of particular historical consequence. While Shakespeare's, Jonson's, Fletcher's, and Middleton's enduring prestige remains more or less self-evident, Dekker and Heywood deserve equal consideration here, given their extensive dramatic output and its confirmed popularity with a prominent segment of the Jacobean play-going public. Together, these playwrights offer a good picture of how their theater responded to England's changing relations with the natural world.

As for the character of those relations (and the change they underwent during the early 1600s), this naturally requires introductory consideration. For convenience's sake, one may approach the topic under the following headings: demographic and other causes; depletion of resources and species; land, water, and air pollution; disease and other health-related issues; and related changes in social behavior and cultural output. Since the core chapters of this study focus mostly upon the last of these five categories, the preceding four will occupy the remainder of this introduction.

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As noted, early modern London's population growth put it in a category by itself in the post-classical western world, and while this growth was not the only cause of Jacobean England's environmental problems, it was the most obvious. Basic figures for the city's population rate have already been given, but these need to be fleshed out with further data, particularly as regards the relation between London and the surrounding countryside.

First, and almost as famous as the city's overall growth, is the fact that "the crude death rate in London was substantially higher than the crude birth rate over the period as a whole."[15] Thanks to the insalubrious nature of life in the city, the miracle of London's early modern population increase was only made possible by a steady stream of immigration: a flow of people from country to city that has become paradigmatic for British writers from Middleton to Dickens and beyond. To judge by the figures given above, sixteenth-century London grew by an average of 1,500 inhabitants per year, while between 1600 and 1650 that rate doubled to 3,000. The actual net rate of immigration during the years in question can be determined by combining this figure with the city's average annual

shortfall of births, which demographers estimate conservatively at "10 per 1000."[16] Thus we may hazard that around the time of James I's coronation, a net average of 5,000 newcomers were entering the city per year for the purpose of long-term residence, and if we assume a population of 275,000 at James's death, that rate rises to 5,750 in 1625.

What can be said, in general, about these newcomers to the city? To begin with, they would have been relatively young. In early Stuart England "the expectation of life at birth . . . was only thirty-two years," and given that "in any population it is normally the young and single who migrate most readily,"[17] one may assume that the influx of new Londoners consisted largely of men and women in their twenties or late teens, many of them seeking urban work opportunities as apprentices, servants, or laborers. The majority would have come from the southern counties and the closer parts of the Midlands, with a significant minority traveling from farther afield in the British Isles. London's status as a center of trade and influence also assured a small but growing community of international immigrants, especially French and Dutch Protestants fleeing religious unrest at home. And these long-term immigrants would have been accompanied by a larger population of short-term visitors, from generally the same places of origin, whose business in the capital would further enhance the bonds of commerce that tied the city to the surrounding countryside. As for where the newcomers settled, the pattern of urban growth in Jacobean London generally consigned them to the suburbs, which thus became the fastest-growing part of the city.[18]

If London's suburbs thus became the focal point of the city's demographic expansion, the suburban liberties – and foremost the Bankside – also served as the main theater district for the metropolis. One popular explanation of this coincidence involves the equivocal legal and cultural character of the liberties, especially the extramural liberties, which functioned as "ambiguous territory . . . at once internal and external to the city, neither contained by civic authority nor fully removed from it," and therefore ideal for the performance of "marginal spectacle."[19] On this logic, an indeterminate, alienated space fosters a theater of indeterminacy and alienation in which liminal figures restage the rituals of civic and royal authority, in the process both affirming them and subjecting them to searching inquiry. But from the standpoint of ecological concerns, the ambiguity of the suburbs takes on a hard, material quality downplayed in such formulations. From this latter perspective, the suburbs might be better understood as an acquisitive processing zone, a belt of territory for the transformation of rural space into urban space, where the natural

resources of the surrounding countryside – land, water, air, people, etc. – are slowly, unevenly, but inexorably assimilated to the conditions of London life. Only through this acquisitive function can one give proper weight to the most distinctive feature of London's early modern suburbs: their relentless growth, both in population and in sheer geographical extent. Liminal they may have been, but the limen in question changed steadily throughout the sixteenth and seventeenth centuries, always at the expense of the city's rural environs. Such change might naturally be of concern to a theatrical tradition sited largely if not wholly in its midst, at the point where the city's consumption of the country was most clearly on display.

In any case, as the city's population grew, so did its footprint. The spread was most notable in the East and West Ends, which developed into areas for shipping and government, respectively. To the west of Temple Bar, the medieval hamlet of Charing succumbed to expansion from both London in the east and Westminster in the west. To the east of the Tower of London, new suburbs sprang up in Blackwell, Wapping, Ratcliffe, and Deptford to handle the city's rapidly increasing naval traffic. With the dissolution of the monasteries in the 1530s, much space around the old city walls was freed for development, much of which took the form of haphazardly subdivided tenements. In 1604, at the start of James's reign as King of England, "Westminster incorporated the manors of Ebury, Hyde, and Neyte . . . increasing its official size almost three times."[20] Growth also occurred to the north, toward Clerkenwell and Islington, and across the river in Southwark as well.

This development might be called the first great suburbanization of London, and it changed not only London's relation to the settlements at its margins but also the broad relationship between the city and rural England more generally. As Joan Thirsk has summarized with respect to the home counties:

> All the main roads and rivers converged upon the capital. Many of the villages had in their midst a good proportion of London citizens as residents and landowners who were constantly traveling to and fro. Local farmers either dealt direct with merchants and drovers frequenting the central London markets, or disposed of their produce in local towns, knowing that these were only transit camps and that the bulk of the food sold there was likewise ultimately destined for London. Romford, Brentwood, Enfield, Cheshunt, Watford, all were halfway houses, halting places and little more, for the great procession of animals, merchants, and packhorse men wending their way to the metropolis.[21]

Just as early modern London's population exploded relative to that of other European capitals and metropolitan centers, so it hugely outstripped

that of England's other major settlements as well. By one reckoning, "in 1500 . . . the population of Norwich – England's second largest city – stood at 10,000; in 1700, it was about 29,000 – less than a threefold increase . . . None of the other major towns of the realm grew by as much."[22] The result was a gradual reorientation of English cultural and economic life away from the regional population centers and toward London instead.

In sum, London's population explosion of 1500 to 1650 did not simply entail an increase in the overall number of the city's inhabitants. It also involved heightened levels of immigration; increased suburban settlement; the annexation of surrounding properties of a formerly more or less rural character; and a realignment of economic and cultural ties whereby southern England and the Midlands, in particular, came increasingly to function as suppliers of raw materials to the metropolis. These developments are of obvious consequence for any literary history of environmental degradation in the period. Yet even so, London's increasing size and cultural importance should not distract one from the additional fact that population was growing in the provinces as well, and this growth, although not nearly as robust as that of the capital, generated its own kinds of environmental stress. *The Agrarian History of England and Wales* alludes to this issue repeatedly: "a rising population in both town and countryside increased the demand for food and the demand for land"; in Yorkshire and Lincolnshire "the effects of a rising population were evident in changes in the use of both houses and land"; in the southwest "an expanding market for food and a rising population instigated a fresh movement of land colonization and land improvement"; "large populations of small farmers and an increasing number of immigrants . . . were characteristic features of most of the forests in the east Midlands"; even on the edge of the Pennines and the Welsh border "the population was rising; commons were being steadily encroached upon and improved; cottages grew like mushrooms on the waste."[23] To this extent, the alarming growth of London's suburbs, far from being unique to the capital, served as a synecdoche for broader changes occurring in more leisurely fashion throughout the realm as a whole.

While those changes manifested themselves most dramatically on the demographic level, shifts in the size and distribution of England's population were of course also keyed to economic changes. Most prominent among these was the enclosure movement, which gained momentum during the early Tudor period and had achieved broad legal acceptance, or at least toleration, by 1607, when King James's government conducted the early modern period's last major review of the practice.[24] In fact,

neither enclosure (the fencing or hedging in of commons) nor engrossing (the consolidation of two or more farms into one) was a new thing in the 1500s; both grew out of medieval precedent. But increased population pressures in the sixteenth century placed new demands on common farmland and pasturage, prompting freeholders to restrict access to formerly open property. No contemporary account of this process describes its social consequences more vividly than does Raphael Hythloday's anti-enclosure diatribe in Sir Thomas More's *Utopia* (1516):

> [S]heep, which are ordinarily so meek and require little to maintain them, now begin (so they say) to be so voracious and fierce that they devour even the people themselves; they destroy and despoil fields, houses, towns . . . [W]herever in the realm finer and therefore more expensive wool is produced, noblemen, gentlemen, and even some abbots . . . not thinking it sufficient to live idly and comfortably, contributing nothing to the common good, unless they also undermine it . . . leave nothing for cultivation; they enclose everything as pasture; they destroy homes, level towns, leaving only the church as a stable for the sheep . . . And so that one glutton, a dire and insatiable plague to his native country, may join the fields together and enclose thousands of acres within one hedge, the farmers are thrown out . . . One way or another the poor wretches depart . . . from hearth and home, all that was known and familiar to them, and they cannot find any place to go. All their household furnishings, which could not be sold for much even if they could wait for a buyer, are sold for a song now that they must be removed. They soon spend that pittance in their wanderings, and then finally what else is left but to steal and be hanged – justly, to be sure – or else to bum around and beg?[25]

Of course, More's description did not fit all cases of enclosure, which could be carried out by commoners rather than lords and gentry, did not always entail the conversion of arable land to pasturage, and did not always lead to the dispossession of tenants. Indeed, early modern advocates of enclosure tended to reverse More's argument by depicting common rather than enclosed lands as the nurse-plot of vagrancy.[26] Moreover, it is easy to overestimate the actual extent of English countryside demonstrably enclosed in the early modern period. One fairly recent estimate, for instance, asserts that "between 1500 and 1600, a maximum of 2 percent of England was enclosed" – hardly a preponderance of the realm.[27] But the same study goes on to note that "the 160 years from 1600 to 1760 were the most crucial in the whole of England's enclosure history," with "a good 28 percent of England" enclosed between those dates.[28] And in any case, More's account of enclosure has not only survived as paradigmatic; it held much influence in early modern times as well, being echoed by other writers who clearly regarded the enclosure movement as worrisomely

widespread. Thus in 1586, seventy years after the publication of *Utopia*, William Camden could quote Hythloday's comment about man-eating sheep while noting that Northamptonshire, "as other counties in England, [is] covered and as it were beset" with the animals.[29] And in 1607, Edward Topsell could cite both Camden and More approvingly in his *Historie of Foure-footed Beasts* (1607), adding, "indeed so sweet is the gaine that commeth by sheep, that in many partes of the land there is a decay of tillage and people . . . so that for Christians now you haue sheepe, and for a multitude of good house-holders, you shall haue one poore Sheapheard swaine and his Dogge lyuing vppon forty shillinges a yeare."[30]

Considered in itself, the conversion of arable land to pasturage should be of little environmental concern. Indeed, insofar as raising crops depletes the soil of nutrients which must then be artificially replaced, conversion to pasturage may represent a more sustainable ecological arrangement. But the enclosure movement's social dimension created environmental problems in at least two separate yet interlinked ways. First, of course, to the extent that enclosure displaced tenants from their established homes, it created an itinerant population of which a significant part could be expected to relocate to urban settings, particularly London, in search of new livelihoods. Second, inasmuch as enclosure increased the efficiency of agriculture, replacing "a multitude of good house-holders" with "one poore Sheapheard swaine," it could force much of the remaining rural population to seek non-agricultural employment of a sort that generated new kinds of environmental damage. Thus the early modern period witnessed an "expansion of industry in towns and countryside"; in the highlands, "there was hardly a county without a considerable mining or quarrying industry"; in Yorkshire and Lincolnshire, "lead-mining was a by-employment of long standing," while "in the course of the sixteenth century stocking-knitting developed into an export industry of some importance"; in the home counties, "the cloth-making areas . . . were said to be 'so populous that the soil is not able . . . to maintain and find the one half of the inhabitants except clothing be maintained'"; and the inhabitants of Herefordshire "blamed the poverty of their cottagers on the large-scale felling of timber to meet the demands of the iron-smelting industry."[31] As the population of London increased and the surrounding counties were progressively stripped to satisfy the city's growing demand for both raw materials and manufactured goods, provincial industries such as mining and logging expanded in the process, with worrying consequences for the ecological balance of the realm.