Chapter 2

Animal Wastes and Nuisances in Nineteenth-Century London

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Dirt, Waste and Nature

Mary Douglas famously saw dirt in modernity as 'matter out of place', or, more precisely, as what is 'disgustingly or objectionably out of place'.[1] But she was less concerned about the health-degrading potential of the micro-organisms in dirt than the implications for social pollution, because 'a polluting person is always in the wrong'.[2] For her, then, dirt makes visible the margins of the socially acceptable.[3] Implicit in this is a relational ontology that varies through time and across space – your dirt may be invisible to me – and unspoken in much of the sub-Douglas literature is the point that views about dirt or waste, and decisions about the interventions to deal with them, are at most temporary political stabilizations and inevitably contingent.[4] I will argue that one such stabilization, the mid nineteenth-century enthusiasm for sewers, was a key threshold for understandings of dirt and waste, that had implications for the degree to which animals were integrated within the core project of modern urbanism.

The greatest possible respect has been paid to Douglas's semiotic interpretation of dirt, judging at least by the number of namechecks in the literature. To put it into context, her work was in the style of a modified functional structuralism and it was aggressively culturalist.[5] For her, 'to account for preferences there is only cultural theory'.[6] Douglas focused on symbols and found them helpful in identifying order- and meaning-producing accounts of dirt, impurity and polluting behaviours at the boundaries between society and nature.[7] She was especially concerned with the danger inherent in perceptions of dirt and the otherness attaching to those associated with it. This cultural-embeddedness type

1 Culler 1985: 4.
2 Douglas 1966: 113.
3 As Campkin 2007 notes, this is at odds with Douglas's structuralist universalism.
4 Gregson and Crang 2010. I am assuming that dirt and waste have a level of synonymy, although they were separate for Douglas.
5 Lupton 1999: 36.
6 Douglas 1992: 103.
7 Lamont 2004.

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of argument has since been elaborated by many others, for instance by Vigarello and Laporte.[8]

But Douglas's analysis had its limits. According to her critics, there is more to dirt, dust, rubbish, junk, waste, debris, and detritus than social pollution and taboo.[9] It seems that Douglas herself was always alert to the ambiguities of dirt but her ideas have arguably been over-simplified by some of her followers.[10] Anyway, dirt theory has moved on to embrace Julia Kristeva's psychoanalytic ideas about the abject nature of excreta, blood and corpses.[11] Here, in the moment of horror, the very foundation of meaning is under threat, particularly primal boundaries such as the one between the human and the animal. Also prominent has been Georges Bataille, whose 'base materialism' of dirt and squalor extended previously circumscribed notions of materiality, and whose 'accursed share' explicates the excess in modern society that is ultimately destined to become waste.[12] More recently, a rapidly growing literature is developing on the themes of dirt, waste, ruination and recycling, further illuminating the material margins and their transgressions.[13] A particularly interesting departure is the discussion of dirt as contributory to the rise of a 'risk society', for instance through analyses of environmental pollution.[14]

For our purposes, it is helpful to draw upon these writings to identify a number of nineteenth-century dimensions of dirt and waste because dirt, in addition to teeming with bacteriological life of its own, is one of our traces of other aspects of nature. This is by no means straightforward because present-day notions of dirt and waste are not easy to map on to the ideas and linguistic categories of 150 years ago. Take 'dust', for instance. In the mid-century this was a word with a wide spectrum of meaning, as is clear in a reading of *Our Mutual Friend*,[15] where the 'dust' in Boffin's Bower is a mixture of cinders, fire ash, human waste, and domestic rubbish.[16] The terminology of the day has survived in British-English words such as dustbin and dustman, and there are still overtones of the humour and edginess that were personified in the popular Victorian character, Dusty Bob.[17] But dust for Noddy Boffin was not waste as redundancy; it was his source of wealth in an age when recycling was, by necessity, the norm.[18]

8 Vigarello 1988, Laporte 2000.
9 Thompson 1979, Culler 1985, Bonheim 2004, Scanlan 2005.
10 Campkin 2007: 73.
11 Kristeva's 1982, Wolkowitz 2007.
12 Bataille 1991, Noys 2000.
13 Hoy 1995, Bonheim 2004, Edensor 2005, Hawkins 2006, Gille 2007, Gregson and Crang 2010.
14 Beck 1992, Daru 2002, Zinn 2008.
15 Sucksmith 1973, Metz 1979.
16 [Horne] 1850.
17 Maidment 2007.
18 Steedman 1991.

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In what follows, four dimensions of dirt are identified with reference to nineteenth-century cities, particularly London.[19] The first uses words such as 'noisome' and 'nuisance', which at first sight appear archaic but in reality are fundamental in the genealogy of thinking about dirt and smells and how to eliminate them. Second, there is a discussion of animals as both representative and constitutive of a particular period of urbanism. Third, this point is elaborated in a discussion of what we will call 'urban farming'. Finally, the Great Separation of urban and rural, of culture and nature is traced to the sewering of cities and the banishment of food-producing animals, both happening in the second half of the nineteenth century.

Noisome Filth and Stink

Since the eighteenth century, modern urban societies have experienced a number of ontological gear changes with regard to dirt. To begin with, it was accepted as an extension of the farm life from which most migrants would have come. Later it was feared and eliminated with sanitary zeal, although that drive eventually lost its vigour, to the extent that it can be argued, for food in the first half of the twentieth century, that dirt was downgraded as an issue and no longer 'seen' as a threat in the same way as before.[20] Nowadays our views have changed again, to the extent that we recognize a category of 'good dirt' that is important for the development of our immune systems. The collective perception has therefore been subject to considerable change through time.

Norbert Elias demonstrated that changes in concepts of cleanliness closely mirrored the civilizing process. An example he drew upon was the emergence of disgust, which in late medieval Europe can be seen through the lens of table manners. The adoption of cutlery such as the fork, for instance, was due to qualms about eating from a communal dish that had possibly been contaminated by the fingers of others.[21] A second example was the shifts in practices of personal hygiene.[22] In medieval times this was hardly mentioned and, as late as the seventeenth century, bathing was not only unusual but possibly dangerous because it opened the skin to a variety of possible ills. By the mid eighteenth century the elimination of body odours had become a concern and sea-bathing was an increasingly fashionable cure for diseases. In the early nineteenth century washing with warm water was a means of protecting against cholera and eventually the installation of specialized bathroom furniture became a means of establishing status.

Views about the smellscapes of cities also altered. Late eighteenth and early nineteenth-century cities were interpreted in their own era as notoriously dirty

19 For other possible dimensions, see Cohen and Johnson 2005, Cooper 2010.
20 Atkins 2010.
21 Elias 2000: 59, Mennell 1996, Romagnoli 1999.
22 Vigarello 1988.

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and smelly.[23] This was at least in part an outcome of the relational development of romanticized visions of rural landscapes, which in comparison made the dirt and disorder of urban areas seem more visible and reprehensible.[24]

Contemporary accounts were rich in descriptions of filthy streets, cramped housing and polluted rivers, and the air quality was poor as a result of coal-burning domestic fires and industrial emissions. Alain Corbin shows that the idea of dangerous odours was nothing new but the miasmic theory of disease grew in popularity in the early phase of urbanization as a 'common-sense' correlation between illness and an increasingly dirty and disordered environment.[25] At the end of the eighteenth century, enquiries into epidemics led to some speculation about the nature of contagion, principally in terms of climate but also increasingly in relation to smells and infectious gases rising from drains, graveyards, slaughter-houses, and city streets strewn with horse manure. By the turn of the century, public health was being rethought through analyses of geographies of dirt, and there were also the first stirrings of an interventionist mentality.

For Stallybrass and White, it was, primarily, the sense of smell that engaged the would-be social reformers; this was because of its apprehension as a pervasive and invisible presence that was difficult to regulate.[26] By the 1830s, animal and human wastes were, as a result, an increasingly important focus of attention.

> Accumulated waste that earlier had been perceived as an unpleasant but unavoidable reality of life in the city now seemed evidence of a vicious, even murderous, disregard for life. Bodily wastes were seen no longer simply as by-products of the life process, but as animated and hostile filth that would, given the chance, attack the body itself.[27]

Sanitary policing in a way was a response to an existential urban anxiety of the early nineteenth century that arose from a realization that cities were at the same time both generative and fearsomely destructive.[28] Meanwhile, the increasing repugnance for manure and excreta was hardly a matter of the uncanny or the unknown. Two million London noses were already attuned to their everywhereness and dread of them was becoming an identity-forming focus for the growing middle class. The dangerous miasm, or imagined filthy and infectious gas cloud that supposedly arose from contaminated earth, was worryingly yet satisfyingly immaterial. Everyone knew it to be there, somehow hovering over the dirtier parts

23 Brown 2001, Gee 2010.
24 Gold 1984.
25 Corbin 1986.
26 Stallybrass and White 1986: 139.
27 Gilbert 2005: 79.
28 For more on anxiety, see Trotter 2005.

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of the city, but no-one had ever seen or measured it.[29] It was invisible, intangible, yet deadly.[30]

Miasmic theory provided a plausible explanatory framework in which disease could be linked to both human and animal waste, and this raised in the minds of many people a 'faecal crisis'.[31] We can get a sense of this with a couple of quotations from a key textbook of the day, Copland's *Dictionary of Practical Medicine*. The author's emphasis was upon 'animal exhalations', by which he meant any smells associated with animals and their by-products.

> Certain … causes of disease, of no mean importance, particularly marsh miasmata, and noxious animal exhalations, act directly upon the organic nerves of the lungs, and on the blood itself, through the medium of absorption.[32]

> The putrefaction of animal substances has been supposed by many to occasion disease in those who come within the sphere of the exhalations thus produced, and even to generate a malady which has become infectious, and has, partly thereby, and partly from other concurring causes, prevailed to an epidemic, or even pestilential, extent. It is not, however, merely dead animal bodies, or considerable collections of putrid matter, but also heaps of filth exposed in the streets, or animal excretions and exuviae, subjected to a warm and stagnant air, and neglect of domestic and personal cleanliness, that are thus injurious. These latter may be less energetic agents than the foregoing; but they more frequently exist, and are more common concurrent causes.[33]

In the 1840s, public awareness was raised by a flurry of official reports, such as Chadwick's *Report on the Sanatory Condition of the Labouring Population of Great Britain* (1842).[34] It is in these parliamentary blue books that we can read in most detail about excreta and other animal refuse, including the rotting carcases, body parts and blood that were said to be among the most offensive items of street rubbish. The Royal Commissioners on the State of Large Towns and Populous Districts (1843–5), for instance, found much to complain about with regard to animals. One common observation, reproduced from town to town, was about local arrangements for disposing of manure. It seems that it was the norm around the country to have a dump, or middenstead, for every neighbourhood. In the borough of Sunderland, for instance, they had 182, which were:

> generally situated in the close narrow streets and lanes inhabited by the poorer classes … [sometimes] in the basement floor of a dwelling-house, the

29 Hannaway 1993.
30 Barnes 2005: 117.
31 Hamlin 1998, Halliday 1999, Barnes 2006, Inglis 2007.
32 Copland 1834, vol. 1: 23.
33 Copland 1838, vol. 2: 771.
34 P.P. 1842 (006) xxvi.1.

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> upper stories of which are occupied as bed-rooms … The contents of these middensteads are afterwards conveyed to large depots, of which there are two in the parish, one very lately advertised as containing 1,000 tons for sale. This belonged to the borough. It is on the Town Moor, closely adjoining to the most densely populated part of the town.[35]

Likewise, the Select Committee on Buildings Regulation and Improvement of Boroughs (1842) found in Liverpool:

> A great nuisance, and most offensive stench, is caused by the cowkeepers pumping into the street the water from their middensteads, and also by their being allowed to cart away their manure at any time, as they often have to throw it into the carts across the foot-walk. Keeping pigs, either in courts or back-yards, is also a great nuisance, as the draining from the yards generally runs through the passage leading to the courts.[36]

Chadwick's *Inquiry* was pivotal, adopting environmental pollution as a discursive trope of public health and marshalling, in support, a vast collation of empirical observations from around the country.[37] In retrospect, much of this can be described as gothic detail serving Chadwick's ideologically-motivated purpose of alerting the public to a need for radical change.[38] Maintaining a state of shock was certainly a key to building a political consensus for intervention and to establishing the self-confidence to try solutions that were expensive but untested on a large scale. Some brief examples will suffice to illustrate this point, starting with evidence from Greenock about the inappropriate storage of manure.

> In one part of the street there is a dunghill, – yet it is too large to be called a dunghill. I do not mistake its size when I say it contains a hundred cubic yards of impure filth, collected from all parts of the town. It is never removed; it is the stock-in-trade of a person who deals in dung; he retails it by cartfuls. To please his customers, he always keeps a nucleus, as the older the filth is the higher is the price … This collection is fronting the public street; it is enclosed in front by a wall; the height of the wall is about 12 feet, and the dung overtops it; the malarious moisture oozes through the wall, and runs over the pavement.[39]

35 Royal Commission for Inquiring into State of Large Towns and Populous Districts: First Report, Part I, P.P. 1845 (602) xviii.46.

36 P.P. 1842 (372) x.140.

37 Flynn 1965, Hamlin 1998.

38 But Hamlin (1996) argues that the true motive was for change in management of the Poor Law.

39 Commissioners on Sanatory Condition of Labouring Population of Great Britain: Local Reports on England, P.P. 1842 (007) xxvii.79.

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One has to visualize such dung heaps in all British towns and cities, and reading Charles Dickens' *Our Mutual Friend* certainly helps with the necessary leap of imagination. The character Mr Boffin, the 'Golden Dustman', was based upon the life of Henry Dodd, a London refuse collector who made a fortune. The Harmon Mounds in Boffin's Bower at King's Cross were a fictionalized account of one source of his real-life wealth. Thornbury identifies other, similar alps of dust at the sites of what are now Liverpool, Manchester and Argyll Streets.[40] The more manure-specific laystalls and middensteads were also common in London.[41] Cockayne comments, for instance, on one in Mount Pleasant in Clerkenwell that in 1780 covered an astonishing eight and half acres,[42] and in Rotherhithe

> on a piece of land near the viaduct there stands an immense heap of house refuse, covering an acre of ground at least, and forming quite an artificial hillock, the level of the surface having been raised 12–14 feet. The bulk of the heap is composed of ashes with a due admixture of putrefying vegetable matter and fish.[43]

It seems that New York also had its own mountains of rubbish and of manure. The latter, on vacant lots, 'sometimes rose to 40 and even 60 feet'.[44]

In their descriptions of manure, Chadwick and his fellow miasmatists seemed almost to vie with each other to evoke the greatest disgust in the mind of the reader, and they set a hare running that had enough energy to live out the century. Irrespective of the true causes – and attention of course did eventually switch to germ theory and to vectors such as flies – animal dirt and smells were never again acceptable. Even the seemingly indispensable horse came under critical scrutiny towards the end of the century because of the manure it left on the street. In 1894, for instance, there was a flurry of letters to the editor of *The Times* complaining about the streets of London, started by Randolph Churchill:

> The vocabulary of adjectives of a denunciatory kind would be exhausted in endeavouring adequately to describe the uncleanliness, the filth, the pollution of most of the West-end streets … which certainly could not be approximated in their dirtiness by any streets of the same character in any European city … I may remark on the miasma, the nauseating smell, the peculiar character of the dust, coarse, polluted with bad acids, which the eyes, the nose, and the mucous

40 Thornbury 1879, vol. 2: 278. There were twenty or so laystalls in London. Guy 1848: 73.

41 A laystall was an urban storage space for manure.

42 Cockayne 2007: 190–91. This is now the site of the Royal Mail's Mount Pleasant sorting office.

43 Jephson 1907: 116, commenting on an 1858 report by the local Medical Officer of Health.

44 Morris 2007: 5.

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> membrane of those who perambulate the thoroughfares in question have to resist the ill-effect of as best they can.[45]

This nuisance was not confined only to the cities, of course. Dr Franklin Parsons, reporting to the Medical Officer of the Local Government Board in the early 1890s, found that 'the complaints [about manure] have come loudest and oftenest from places of a suburban character situated in rural sanitary districts, and from small towns dependent upon the surrounding agricultural districts'.[46] An undercurrent here was a tension between residents and the local agricultural interests for whom manure was a basis of their livelihoods. Parsons was not in favour of prevention – 'the land must have the manure and the towns must get rid of it' – but he nevertheless sympathized with householders unlucky enough to live downwind of sidings where manure was unloaded for local collection. Swanley Junction, 17 miles from the capital on the London, Chatham and Dover line, was one example. It received 40–60,000 tons of manure a year and many complaints about this were made to the Board. Public meetings and petitions were organized locally to put pressure on the sanitary authority to remove the nuisance. The Board had similar communications from Feltham, Sunbury, Paddock Wood, Marden, Cookham, Egham, Welwyn, Maidstone, Bexley, Sidcup, Dartford, Grays, Milton-next-Sittingbourne and Faversham, all of them receiving London manure by rail or by sea.

These quotations from the blue books can be supplemented by the writings of Medical Officers of Health on their individual districts, and there were also many surveys by concerned individuals and sanitary groups, both academic and charitable. Hector Gavin's book *Sanitary Ramblings* is an example of the enthusiasm of an individual doctor exploring the East End of London on his own account and revealing its scatological topography.

> On the western side of Spitalfields workhouse, and entered from a street, called Queen-street, is a nightman's yard. A heap of dung and refuse of every description, about the size of a pretty large house, lies piled to the left of the yard; to the right, is an artificial pond, into which the contents of cesspools are thrown. The contents are allowed to desiccate in the open air; and they are frequently stirred for that purpose. The odour which was given off when the contents were raked up, to give me an assurance that there was nothing so very bad in the alleged nuisance, drove me from the place with the utmost speed I was master of. On two sides of this horrid collection of excremental matter, was a patent manure manufactory. To the right in this yard, was a large accumulation of dung, &c.; but, to the left, there was an extensive layer of a compost of blood, ashes, and nitric acid, which gave out the most horrid, offensive, and disgusting concentration of putrescent odours it has ever been my lot to be the victim of.

45 *The Times* 1 June, 1894: 14g.
46 Parsons 1893–4: 97.

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> The whole place presented a most foul and filthy aspect, and an example of the enormous outrages which are perpetrated in London against society. It is a curious fact, that the parties who had charge of these two premises were each dead to the foulness of their own most pestilential nuisances. The nightman's servant accused the premises of the manure manufacturer as the source of perpetual foul smells, but thought his yard free from any particular cause of complaint; while the servant of the patent manure manufacturer diligently and earnestly asserted the perfect freedom of his master's yard from foul exhalations; but considered that the raking up of the drying night-soil, on the other side of the wall, was quite awful, and enough to kill anybody.[47]

The modern reader may be entertained by the Bakhtinian grotesque of such passages or perhaps nauseated by the detail, but Gavin's intention was somewhat different. Note his use of the word 'nuisance', which was the principal message of the piece. Gille articulated a similar sentiment in saying 'that political struggles have been more and more about the distribution not of goods but of 'bads' that is, environmental and health risks'.[48]

The idea of harm to a person or persons from environmental wrongs had been around for centuries but its legal development matured in the middle of the nineteenth century as a direct result of the problems that we have highlighted. Gradually, nuisance was elaborated into one of the major themes of the common law, to the extent that Christopher Hamlin argues for an emerging Habermasian public sphere rooted in tackling such material problems.[49] Dealing with inconvenient and potentially harmful nuisances was, he says, a breeding-ground of rights and eventually of collective rules about environmental behaviour in democratic societies. The application of public health measures was therefore a site of emergence for the modern state, and the smells and filth associated with animal waste in towns were a focus for the politics of 'us', the citizens, against 'them', the polluters. The mobilization of sentiment against productive urban animals was decisive in the period 1850–1914 and, after that, civic debate would never be quite the same again.

One way to achieve the mass persuasion towards the goal of sanitation was to find moral naturalism and spiritual satisfaction in the outcomes, often portraying dirty environments as bad and their inhabitants as dangerous.[50] One aspect of this was that association with animals – the breath of the beast – brought with it a moral stain. Driver calls this the 'conceptual topography' of environmentalism and it is clear that many of the novels and empirical surveys of the day were setting out to create a distance in the minds of their readers that would enable the identification of the Other – the city's residuum and their animals.[51]

47 Gavin 1848: 27.
48 Gille 2010: 1053.
49 McLaren 1983, Hamlin 2002, Malcolm and Pointing 2006.
50 Hamlin 1985.
51 Driver 1988, Stallybrass and White 1986: 126.

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This excremental vision of the 1840s and 1850s encouraged a language where slum inhabitants could themselves be seen as animals, similar in the conditions of their own sanitation to that of the pigs that lived in their back yards; and it was said to be their self-willed degradation that brought them to such a state of gracelessness.[52] From this moment on, animals were less likely to be thought to have legitimacy as urban dwellers and removing them and their associated nuisances was a way of guiding and disciplining the behaviour of their keepers and controlling a hazardous environment. Since waste in the second half of the nineteenth century was increasingly occupying a liminal world that was dirty, disgusting and distanced, patrols were increasingly mounted at the boundaries of these socially constructed notions of the acceptable.[53] What could be allowed in a city was becoming a matter of bodily purity and animals increasingly were identified with two of the principal sensed transgressions: smell and visible dirt, such as manure.

The concept of a nuisance, as something injurious or obnoxious to the community, had medieval origins.[54] It was usually generated by the dung heap, the privy or the 'noisome' smell produced by one of the so-called noxious or offensive industries.[55] In a sense, nuisance is therefore an early version of 'risk', but an unusual one in that it was subject to calculation and resolution in the adversarial setting of a court, usually the magistrate's court. As a matter of law, complaints about nuisances were costly and therefore restricted as a remedy to those with the time and resources for a court action and to those whose livelihoods did not depend in some way upon the ordure in question.

Hamlin and Hanley identify the 1830s, 40s and 50s as a hinge point in the transformation of nuisance into a principal tool of the public health movement.[56] The reason for this was concern about the spread of cholera, which was feared as no other disease for its rapid and devastating impact. The need to mitigate cholera's possible causes was a light that shone into the darkest corners of insanitary cities and a strongly felt urge to act energized the various types of survey that we have touched on. Epidemic disease was also invested by the common law with a significance far beyond any previous judicial imagination.

For London, the start of parliamentary interest in animal nuisance was the Act for Better Paving, Improving, and Regulating the Streets of the Metropolis (1817).[57] This insisted that any nuisances from pigs, slaughter-houses or 'horse boiling' must be either abated or removed.[58] It also forbade the breeding, feeding or keeping of 'any kind or species of swine in any house, building, yard, garden

52 Steig 1970, Stallybrass and White 1986: 132, Freeland 2002: 801–2.
53 Lougy 2002.
54 Spencer 1989.
55 For the history of industrial nuisances, see Brenner 1974, McClaren 1983.
56 Hamlin 2002, Hanley 2006.
57 57 Geo III, c.29.
58 Woolrych 1863.

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or other hereditaments, situate and being in or within 40 yards of any street or public place'.[59] In the same genre, the Metropolis Buildings Act (1844) defined offensive trades mainly with smell in mind: blood boilers, bone boilers, fellmongers, slaughterers of cattle, sheep, or horses, soap boilers, tallow melters, and tripe boilers. But the issue was fudged at this time by postponing for 30 years the provision that would have made it illegal to carry them on within 50 feet of a dwelling house or 40 feet of a public highway.[60]

In the 1840s, while parliament struggled to agree the structure of a comprehensive Public Health Act, it meanwhile passed a Removal of Nuisances and Prevention of Epidemic Diseases Act (1846) that enabled intervention when a nuisance was certified by two doctors as injurious to health.[61] The following year, the Towns Improvement Clauses Act provided provincial local authorities with scope to prevent new slaughter-houses without a licence and they were also given power to establish systems of registration and by-laws.[62] This was permissive legislation, though, as was the Town Police Clauses Act (1847), which in theory prevented the throwing on the street of 'dirt, litter, or ashes, or night-soil, or any carrion, fish, offal, or rubbish' or causing 'offensive matter to run from any manufactory, brewery, slaughter-house, butcher's shop, or dunghill, into any street'.[63] This Act also forbade keeping 'swine in or near any street, so as to be a common nuisance' but its application was sporadic around the country. Similarly, when at last the Public Health Act did reach the statute book in 1848, many of its provisions were aimed only at the districts with the highest mortality rates. These could each appoint a local Board of Health, which then had the power (Section 61) to compile a register of slaughter-houses and prevent the establishment of any new premises of offensive trades without their explicit permission (Section 114).[64] Because it was adoptive, the Act's provisions for the confiscation and removal of dung after a day's notice depended very much on local circumstances, such as the available resources and enthusiasms of individual sanitary authorities.

Another Nuisances Removal and Diseases Prevention Act followed soon after, in 1848, and this gave a fuller definition than before of the role of animals.[65] Section 1, for instance, made it clear that potential nuisances now included the keeping of swine, cattle, or other animals, upon any premises or in any dwelling-house, so as to be a nuisance to or injurious to the health of any person, and the nuisance could

59 Sec. 67–8.

60 7&8 Vict., c.84, sect. 55.

61 9&10 Vict., c.96. Once appointed, a local Medical Officer of Health alone could sign the certificate. It was emergency legislation prompted by the cholera threat. Later, the Sanitary Act (1866) made the names of ten local residents on a certificate the equivalent of a Medical Officer of Health's signature.

62 10&11 Vict., c.34.

63 10&11 Vict. c.89.

64 11&12 Vict., c.63. The definition of offensive trades was the same as the 1844 Act.

65 11&12 Vict., c.123.

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come from any accumulation of dung, manure, offal, filth or refuse.[66] There was no identification of general public nuisances, such as smells from offensive trades, however. These continued for the time being to be subject only to private redress in the common law.[67]

John Simon, appointed the first Medical Officer of Health for the City of London in 1848, very quickly established his credentials as a relentless enemy of what he called 'offensive and injurious trades'. He argued in his *First Annual Report* that 'no occupation which ordinarily leaves a putrid refuse, nor any which consists in the conversion or manufacture of putrescent material, ought, under any circumstances, to be tolerated within a town' and he gathered information that provided ammunition for change. Simon gradually persuaded the City's authorities to tighten their regulatory grip on trades such as cow-keeping and slaughter-houses.[68] The Inspectors of Nuisances policed this and gradually the offensive trades were squeezed out of his jurisdiction. Thus, in 1851 there were 135 slaughter-houses in the City, but only 31 in 1873.[69]

> With regard to such trades as are considered to be simply offensive, and where the evidence of injury to health is indirect and uncertain, I can hardly doubt that a wise legislation would exclude them … from the circle of the metropolis. Tallow-melting, whalebone-boiling, gas-making, and various other chemical proceedings, if not absolutely injurious to life, are nuisances, at least in the ordinary language of the law, or are apt to become such. It is the common right of the neighbourhood to breathe an uncontaminated atmosphere; and, with this common right, such nuisances must, in their several degrees, be considered to clash … [70]

Simon's efforts in the City of London were more significant in the history of urban sanitation than is sometimes allowed. Their practical implementation in specific relation to animal industries and their by-products was an example of the domination of nature that made a virtue of its elimination from the humanized urban realm. This was a culmination of the Enlightenment ideals of self-realization, where the separation of 'I' and 'it' became a legitimation of a planned urban landscape, and also of emancipation, which on this occasion was emancipation from the prison of filth-related diseases.[71]

The City of London initiative was taken up under the Metropolis (Local Management) Act (1855) by other London districts, which were now able to

66 Keane 1870.
67 Glen 1849: 5.
68 Simon 1854.
69 Select Committee on Noxious Businesses, Report, P.P. 1873 (284) x.434.
70 Simon 1854: 27–8.
71 Harvey 1996.

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appoint their own Medical Officers of Health and Inspectors of Nuisances.[72] In the same year, section 55 of the Metropolis Building Act used the 1844 definition of offensive trades.[73] Those involved were forbidden to put up new premises in London within 50 feet of a house or a public road. It seems that 1855 was a busy legislative year because it also saw the passing of a Nuisances Removal and Diseases Prevention Act that consolidated the Acts of 1846 and 1848. This enlarged the national definition of nuisances along similar lines, and made the enforcement of the law easier by obliging each local authority to appoint at least one Sanitary Inspector.[74]

Here we see the beginnings of the spread of the idea of nuisance regulation as an everyday practical rationality. Coupled with a legislative framework that eventually accessed the possibilities of local sanitary improvement, this amounted to one of the most powerful of the various strands of health-related governmentality in the nineteenth century. Margo Huxley argues that the problematizations of chaos, disease and immorality that dominated thinking at this time amounted to a redefinition of the social, making it an object of state pastoral care for the whole population. In consequence, various new spaces of governmentalization were generated.[75]

Such was the pace of legislation from the 1840s onwards that one might assume that any opposition would have been overwhelmed. While it is true that the moral high ground was with the sanitary reformers, nevertheless there was lobbying from vested interests employing the liberal argument of laissez faire. An example of the tensions that arose was section 48 of the Public Health Act (1858), which repealed the locational restrictions upon slaughter-houses that had been imposed only ten years earlier.[76]

The Metropolis Management Amendment Act that followed in 1862 reaffirmed the powers of magistrates to close pig sties that were 'unfit' and to prevent their keepers from opening new premises.[77] It also introduced a compulsory licensing system for cowhouses and slaughter-houses. Then, a few years later, the 1866 Sanitary Act required local authorities to undertake sanitary regulation and to set out general powers for the abatement of nuisances, along the lines of Section 27 of the 1855 Act for London.[78] Section 53 also gave powers to require the regular removal of manure from mews.

72 18&19 Vict., c.120.

73 18&19 Vict., c.122, repealed 1874.

74 18&19 Vict., c.121, section 27: 'any candle house, melting house, melting place, or soap house, or any slaughter-house, or any building or place for boiling offal or blood, or for boiling, burning, or crushing bones, or any manufactory, building or place used for any trade, business, process or manufacture causing effluvia'. Keane 1860, 73–4.

75 Huxley 2007.

76 21&22 Vict., c.98.

77 25&26 Vict., c.102.

78 29&30 Vict., c.90. See Michael 1867.

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In 1873 the Select Committee on Noxious Businesses reviewed the clause of the Metropolis Buildings Act (1844) which would have closed many of the so-called offensive trades in London the following year.[79] They argued against implementing it, preferring instead new legislation, and the Slaughter-houses Metropolis Act (1874) was the result.[80] This gave the Metropolitan Board of Works the power to make appropriate by-laws and, sure enough, 284 London slaughter-houses were closed in 1875 and 1876.[81]

Soon after, the Public Health Act of 1875 was a landmark in the history of sanitation; it was responsible for creating a fuller set of guidelines on what was deemed acceptable in towns.[82] According to Section 47, penalties were to be imposed upon those creating a nuisance by keeping pigs in a dwelling-house. Section 49 enabled Inspectors of Nuisances to require the removal of any accumulation of manure, dung, soil, or other offensive or noxious matter within twenty-four hours and Section 50 insisted upon the regular removal of manure from mews and stables. Sections 112 and 113 forbade the establishment, without the consent of the urban authority, of offensive trades such as blood boiler, bone boiler, fellmonger, soap boiler, tallow melter, tripe boiler, and gave powers to make by-laws. Section 114 then went on, with regard to these trades and slaughter-houses, to allow complaints about nuisances to be raised by the local Medical Officer of Health, or any two medical practitioners, or any ten local inhabitants. Under Section 169 the possibility of licensing of slaughter-houses and knackers' yards was at last made general and no new premises could then be set up without a licence. Conditions for the issue of a licence included satisfaction of any by-laws on cleanliness, the prevention of cruelty, the removal of manure, and the provision of a proper water supply.

Following the 1875 Act, a set of model by-laws was issued two years later by the Local Government Board with a view to encouraging and enabling local action. These by-laws prevented the location of slaughter-houses anywhere within 100 feet of a house. They also added to the Public Health Act's list of offensive trades the following: blood drier, leather dresser, tanner, fat melter or fat extractor, glue maker, size maker, and gut scraper. According to Reid, the Board's inspectors saw offensive trades as essentially those dealing with animal refuse.[83] As a result, the Metropolitan Board of Works made its own by-laws in 1876 on tripe boilers, knackers, catgut makers; in 1879 on glue and size manufacturers, and blood driers; in 1881 on fat extractors and fat melters; in 1882 on gut scrapers; and in 1888 on animal charcoal manufacturers. Finally, at the end of the nineteenth

79 Select Committee on Noxious Businesses, Report, P.P. 1873 (284) x.433.

80 37&38 Vict, c. 67.

81 Otter 2004: 52. This figure applies to the administrative area of the Metropolitan Board of Works, which was much larger than the City of London referred to earlier.

82 38&39 Vict., c.55. See Husband 1883.

83 Reid 1904: 294. This was borne out when others, such as brick making, were found in subsequent court cases not to be covered by the Act.

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century, sections 29–31 of the Public Health Acts Amendment Act (1890) made the length of licences a matter for local authorities.[84] The Public Health (London) Act of 1891 forbade the establishment of any new business of blood-boiler, bone-boiler, manure manufacturer, soap-boiler, tallow-melter or knacker under any circumstances.[85] It also made the length of slaughter-house licences variable, as in the 1890 Act. Following this, in 1893, the London County Council established new consolidated by-laws on offensive trades.

This legislative timeline of good intentions was, of course, very different from the reality of implementation on the ground. Unfortunately, as yet we do not have sufficient research on common law nuisance cases to analyse regional variations of disgust and litigiousness. Nor is it possible to identify the thresholds at which individual urban authorities began to take their regulatory duties seriously. So much of the legislation was permissive in its adoption at the local level that a complex geography of nuisance control is bound to have emerged in the second half of the nineteenth century. We certainly know that this was the case for cow-keeping, as will be shown later. Suffice to say for the time being that the concept of filth, as seen through nuisance, was completely different in 1900 from what had been the case just 70 or 80 years before. The emphasis had moved from private responsibility to action in the public sphere, and both regulation and legal action had shaped the possibilities.

Out of Place, or Constitutive of the 'Urb-an-imal'?

As Fernand Braudel once observed, 'all major bursts of growth are expressed by an urban explosion'.[86] And so it was in the late eighteenth and early nineteenth centuries, when Britain's industrial revolution and trade expansion were responsible for a period of extraordinarily rapid urbanization that was chaotic in many ways. The existing institutions of the local state were unable to cope with the profit-minded savagery of industrial capitalism and the speculative anarchy of residential and commercial land development. These shock cities were not favourably received at the time, the common perception being of a landscape in chiaroscuro, any colour being concealed by fog or washed into the drains along with so much pollution.

Dirt, waste and their synonyms *did* have a place in the eighteenth and early nineteenth centuries. They were not welcomed, still less celebrated, but they were nevertheless acknowledged and valued in the narrow sense. Almost everything in the city was packed with a use value and a re-use value. Wealth and employment were at least in part about making the most of residues,[87] and even a putrefying

84 53&54 Vict., c.59.
85 54&55 Vict., c.76.
86 Braudel 1984: 479.
87 Thompson 1979.

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corpse in the River Thames had a value to the boatman in *Our Mutual Friend*.[88] Gaffer Hexam made his living from recovering and selling floating junk but he was only one small cog in a great machine of recycling that squeezed the last drop of worth from redundancy. The most entertaining account of this world is Henry Mayhew's extensive reporting on the characters in the army of sewermen, nightmen, toshers and mud-larks who populated the system in 1851.[89] He made them a knowable community in the sense understood by Raymond Williams – brought to life through literature from the frayed margins of society.[90]

Objects broken beyond repair were eventually allowed to drop out of the city's cycle of re-usage but organic waste could circulate forever in the form of nutrients. Even the street names in London were coined in recognition of this: Laystall Street in Clerkenwell, Maiden (Midden) Lane (there was one of this name between the Strand and Covent Garden and another in Southwark), and Sherborne (Shiteburn) Lane in City of London.[91] There are some similarities between this type of city – populated with animals and seeking to profit from a wide range of organic wastes – and the typical present-day urban experience of the Global South.[92] As Fiona Nunan shows, Indian cities compost much of their waste and use it in urban and peri-urban agriculture.[93]

The animal inhabitants of the new and rapidly changing urban worlds of the eighteenth and nineteenth centuries had a shadowy, liminal existence. Like mythical ogres, these cities were nourished by the sweat of their horses and by the flesh and blood of other livestock. It was as if the manure of these creatures soaked into the streets and fertilized urban growth, and their pain was part of the neural energy of town life. One paradoxical result of the centrality of animals was that the 'country' lived on in the 'city', for it was not until the regulative imposition of ideas of what made a 'good city' that the Great Separation of urban from rural came about in the mind and then on the ground.

> Although the Victorians often lamented the loss of rusticity, the Victorian town would strike us as an incongruous mixture of urbanity and barnyard setting, with town-houses interspersed with stables, pigsties, and slaughter-houses, and where sheep and cows jostled with horse-traffic, and pigs and chickens dwelt in close proximity to human habitations. Thus the town, as artifact, symbolized a rural society in rapid and uncontrolled transition.[94]

88 Dickens 1865.

89 Mayhew 1851, vol. 2. Curiously, Pike (2005b: 57) sees these waste workers as a deviant challenge to mainstream society, so out of kilter were they with the rapidly rationalizing, modern city'. See also Scanlan 2007.

90 Williams 1973: 165.

91 Ackroyd 2001: 339.

92 Prain et al. 2010.

93 Nunan 2000a, 2000b, 2000c.

94 Wohl 1983: 82.

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To adapt David Harvey's much quoted comment, not only was there nothing unnatural about London in 1840, but we may say that this was a high point of the working and food-producing urb-an-imal and therefore of a certain type of urbanized nature.[95]

The presence of animals was not, then, an accidental oversight of citizens who at some point would come to their senses and discover the true essence of urbanism. Rather, it is possible to argue that animals were constitutive of a certain stage of the urban. They facilitated growth, they fuelled it, and they provided an essential continuing link with the parallel rural economy. The facilitation was that the vast growth of cities in the nineteenth century, and the transition from walking cities, was predicated on horse-drawn transport: buses and trams, hansom cabs and private horses. The electric trams in the 1890s and motor vehicles from the middle of the following decade together wrought a transition to a new kind of city, without animal sweat and smells as the taken-for-granted lubricants of daily lives; but the transition was gradual – it took several decades.

Back in 1840 it had been clear to all concerned that the vast quantities of animal dung and human sewage produced by rapidly growing cities either had to be used up or disposed of. Allowing accumulations in residential neighbourhoods was no longer acceptable. It so happens that this was the year that Justus von Liebig introduced his mineral theory, which argued that soil fertility in Western Europe was gradually declining as a result of the extraction, without replacement, of nutrients in intensive farming systems.[96] Marx called it the 'metabolic rift' in the relations between humans and their environment.[97] Liebig then went on to suggest that both animal manure and human sewage should be used to redress the imbalances in soil chemistry where they were appearing.[98] Following his lead, within a few years, books began appearing on the subject of 'muck' in Britain, America, Sweden, France and Germany, popularizing Liebig's message that it was important for the future health of the land and the productivity of agriculture.[99]

Along with Liebig and the visionary and artist, John Martin, Edwin Chadwick was a principal advocate, from the 1840s onwards, of solutions to create wealth from sewage. He envisaged a holistic, utilitarian system that would transport both solid and liquid sewage to conveniently located farms, where crop fertility could be enhanced.[100] The net cost to society of building sewers would therefore be minimized by cross-subsidy. But the peak period of the idea of sewage irrigation coincided with a national railway bubble in Britain, and investment

95 Harvey 1996: 186.

96 Liebig 1840.

97 Foster 1999: 380.

98 Mårald 2002, 2006.

99 Dana 1842, Falkner 1843, Müller 1860.

100 John Martin was a visionary artist and engraver of apocalyptic Old Testament scenes such as *The Great Day of His Wrath* (1853). In 1842 he proposed a sewage system for London.

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enthusiasm was never strong.[101] There were some trial schemes but never any proof that an infrastructure of pipes to carry the sewage into the countryside would be worthwhile.[102] An alternative, pioneered in several continental cities, was to take sewage to conveniently located factories for drying and concentration into a product such as the 'poudrette' that supported a small industry in Paris.[103] Although the experimental drying technology was tried in several countries, the promised profits did not materialize. This was, after all, a bulky, low-value product that farmers found to be a disappointing fertilizer and certainly one inferior in every way to fresh animal dung.[104] The manufacture of cheap chemical fertilizers and the importation of cheap grain from North America were other reasons why the organic recycling of human sewage failed to catch on but it is interesting that Liebig himself was still supporting this lost cause in the 1860s in letters to the Lord Mayor of London. Through these, he opposed Bazalgette's elaborate scheme to gather the city's waste through a complex system of interception sewers and pump it into the Thames downstream of the urban area.[105] For Liebig,

> if it were practicable to collect, without the least loss, all the solid and fluid excrements of all the inhabitants of towns, and to return to each farmer the portion arising from the produce originally supplied by him to the town, the productiveness of his land might be maintained almost unimpaired for ages to come, and the existing store of mineral elements in every fertile field would be amply sufficient for the wants of the increasing populations.[106]

In *Les Miserables*, published shortly after, in 1862, Victor Hugo expressed a similar sentiment about Paris, in prose that was rather more lyrical than Liebig's:

> A great city is the most mighty of dung-makers … All the human and animal manure which the world wastes, restored to the land instead of being cast into the water, would suffice to nourish the world. Those heaps of filth at the gate-posts, those tumbrils of mud which jolt through the streets by night, those terrible casks of the street department, those fetid drippings of subterranean mire, which the pavements hide from you, – do you know what they are? They are the meadow

101 For accounts of the irrigation of pastures in Edinburgh, see Smith 1975 and Hamlin 1994. Note here that sewage irrigation around Paris accounted for 12,600 acres as late as 1900 and was generally thought to be a model of intensive agriculture. There were also large schemes around Berlin (17,000 acres) and Milan (22,000 acres). Kropotkin 1892, Brooks 1905, Reid 1991, Barles 2005b.

102 Sheail 1996, Goddard 1996.

103 Reid 1991, Barles 2005.

104 Sheail 1996: 194–6, Mårald 2006. There were also concerns in the new era of bacteriology that human sewage might recycle waterborne diseases through crops, especially vegetables.

105 Brock 1997.

106 Liebig 1863: 274.

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> in flower, the green grass, wild thyme, thyme and sage, they are game, they are cattle, they are the satisfied bellows of great oxen in the evening, they are perfumed hay, they are golden wheat, they are the bread on your table, they are the warm blood in your veins, they are health, they are joy, they are life. This is the will of that mysterious creation which is transformation on earth and transfiguration in heaven. Restore this to the great crucible; your abundance will flow forth from it. The nutrition of the plains furnishes the nourishment of men. You have it in your power to lose this wealth, and to consider me ridiculous to boot. This will form the masterpiece of your ignorance.[107]

Right through to the 1860s and later, then, we can find the idea of life fertilized, revived, reborn from waste.[108] According to Davison, this became an organic metaphor for the wholeness of life and the discourse of recycling on these lines is, of course, also one familiar to us in the early twenty-first century.[109] It rejects the negative connotations of ordure and celebrates the opportunity of creating circuits of resource sustainability. With regard to the food supply, it was easy to understand the possibilities of re-using waste materials, such as animal manure and body parts, since the energy and potency of animals would surely translate somehow into soil fertility. This was a key link with the rural: the recycling of materials from cities such as London and Paris to market gardens and farms within the range of horse-drawn cartage.

What ultimately undermined this phase of animal-constituted urbanism, which we might say lasted from the mid eighteenth century to the end of the nineteenth, was dirt and smell. Inevitably these were associated with the living animals in cities: both the draught horses and the food-producers, such as milch cows and pigs. They were also consequent upon the urban location of many noisome factories processing animal by-products: blood, fat, bones. Together these presented a challenge to the sanitary movement, particularly from the 1840s onwards. As Allen has pointed out, it was

> the specific and, at the same time, capacious definition of filth in the period [that] gave rise to an equally specific and capacious definition of purity. Victorian filth, we might say, created sanitary reform; that is, the particular way in which the Victorians imagined filth lent itself to a way of imagining purity that took shape as Sanitary reform … Sanitary reform was thus uniquely suited both to conditions on the ground and to the metaphoric meanings that had accrued to filth in the nineteenth century.[110]

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107 Hugo 1887: 84.

108 Cohen 2005. According to Simmons 2006: 75, 'excrement emerged in this period as the centre point of a brand of French anticapitalism'.

109 Davison 1983.

110 Allen 2008: 15.

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Urban Farming

When I visited India for the first time in 1987 I was surprised to find compounds of dairy buffaloes close to the centre of Madras (now Chennai) being kept in conditions resembling those in the villages of the deepest countryside. Urban planning and food regulation have made strides in India since then but there are other countries in Africa and Asia where fresh animal food production in urban settings is not only tolerated but actively encouraged. The urban farming movement is a strand of thinking about development that argues for greater food self-sufficiency among city dwellers, and there is now abundant research suggesting that cultivating roadside verges and keeping livestock on unoccupied lots can make a substantial contribution to tackling poverty and also eliminating transport costs on food that has to be brought from distance. At present about 800 million people worldwide are involved with urban and peri-urban food production, of whom 200 million produce for the market.[111] In Cuba, 80 per cent of horticultural output is urban-based.

I am not trying here to claim that there are strong parallels between British Victorian cities and the Third World today. But the mismatch of 'urban' and 'agriculture' in modernity came to be thought of as so strong that it is important to remind ourselves that alternative urbanisms *are* possible, where animal keeping is not outlawed. In particular, there is a range of hybridities of nature and society demonstrated that is worthy of deeper investigation than there is time for in this chapter.[112]

At the peak of urban animal food production in Britain, in the mid nineteenth century, there was a mixture of outrage and amusement expressed by contemporary commentators about this phenomenon. The anger is represented by Thomas Beames' account of cowsheds in Whitechapel, in London's inner East End. He suggested that 'few nuisances are greater than these' and that

> animals, fed upon improper food, give milk scarcely fit for use, their sheds reek with an abominable odour; and not long since the public mind was disgusted with an account of cows kept … in Whitechapel, in underground sheds, where, for a long time, they never saw the light of day. This was scarcely so bad as the nuisance pointed out in … the Berwick Street district, where a cow-house, surrounded on all sides by buildings, harbours not only on the ground, but even first floor, a large number of cows and pigs. Such intramural dairies should surely be removed.[113]

In a more satirical register, George Sims recalled a court case in London, where

> some time ago a man was charged with assaulting his wife, and at the magisterial hearing it was elicited that the matrimonial quarrel was all on account of a

111 Waters-Bayer 2000, Santandreu et al. 2000, FAO 2010.
112 For further development of this topic, see Atkins 1977, 1978, 2003.
113 Beames 1852: 213.

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Table 2.1 Cow Numbers in London 1718–1914

Source	Cows	Source	Cows
Bates 1718: 84–5	4,000–6,650	AR 1867	9,753
Anon. 1793: 532	8,750	AR 1869	11,850
Foot 1794: 84	8,500	AR 1870	11,992
Middleton 1798: 301, and 1807: 417	8,000	AR 1874	14,702
		AR 1877	12,624
Hunter 1811: vol. 2, 3	8,500	AR 1877	12,624
Loudon 1826: 1083–4	9,119	AR 1878	13,650
Youatt 1834: 255	12,000	AR 1879	13,863
Anon. 1834	9,600	AR, MBW 1880	13,000
Milburn 1851: 70	12,000	AR, MBW 1885	10,701
Poole 1852: 227	24,000	AR, LCC 1890	8,416
Timbs 1855	13,000	AR, LCC 1895	5,666
Anon. 1856: 674	17,000	AR, LCC 1900	5,050
Anon. 1858: 91	11,818	AR, LCC 1905	4,262
MOH Repts 1862	19,231	AR, LCC 1910	3,055
Morton 1865: 74	18,355	AR, LCC 1914	2,697

Notes: AR: Agricultural Returns and Statistics; MBW Metropolitan Board of Works, Annual Reports; LCC: Annual Reports of the London County Council

> donkey which slept under the bed. The magistrate was naturally astonished. He didn't believe such a state of things possible. Doubtless his wonder was shared by the public. The presence of a donkey in the apartment of a costermonger and his family is, however, by no means rare, and quite recently a zealous sanitary inspector has discovered a cellar inhabited by a man, his wife, three children, *and four pigs*.[114]

In a sense, it did not really matter whether such stories were true or apocryphal. By the time Sims was writing, the public had long since made up its mind that live food animals and cities did not mix. But economic historians have shown us that the scale of urban production continued to be quite remarkable. Table 2.1 indicates that in London the number of town cows peaked at over 20,000 in the 1850s, before the cattle plague of 1866 devastated their numbers.

The economic justifications for this urban activity were, first, that milk was highly perishable and therefore often in poor condition when brought by rail from distant farms, and, second, that the problem of adulteration of milk with added water was so rife that consumers had more trust in their neighbourhood suppliers than in anonymous rural producers. A third point is that many cowkeepers were themselves rural migrants for whom the milk trade was both a continuation of

114 Sims 1883: 42.

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rural skills and a way into the otherwise alien metropolitan economy. In the case of London many were Welsh, particularly from counties such as Cardiganshire. For them, it seems that urban animal keeping was just one strand of an urban way of life and cultural context that was based upon mutual support, Sunday chapel, and in many cases, the Welsh language.[115]

The cows producing milk in London were high-value, high-yielding animals that were profitable enough to justify the expense of the fodder and the overheads of a city location. Generally they were not kept for long and, as soon as their milk began to dry off, they were fattened and sold to the butcher. In order to minimize the cost of inputs, some cowkeepers bought spent grains from breweries and distilleries.[116] These 'slop' or 'swill dairies' were also common in America, but there they attracted a great deal more adverse comment than in Britain.[117] John Mullaly gave a description of such a swill dairy on Sixteenth Street, New York City, between the Tenth Avenue and the North River, that disgusted many of his readers. Following the publicity he generated, swill dairies were banned from New York in 1873.

> The buildings and ground are owned by Mr. Johnson, the proprietor of the distillery adjoining, from which the cattle are supplied with the swill or slop. There are, properly speaking, three stables running parallel with each other, from the avenue to the river … Their length is from five hundred to seven hundred feet, and each one is made to contain between six and seven hundred cows. Their appearance outside is anything but inviting, and the stench can sometimes be perceived at a distance of a mile; but the exterior, disgusting as it is, conveys no adequate conception of the interior. The cows are ranged in consecutive rows, of fourteen or fifteen to a row, and are separated by wooden partitions which do not extend further than the animals' shoulders. At the head of each row is the trough which contains the swill, and to one of the boards which forms the framework immediately above this, the cows are secured by a rope fastened round their necks. The unfortunate animals are so placed as to be almost constantly over this trough, except when lying down; and even that position, instead of affording them rest, only subjects them to a new torture, for the ground floor of these stables is saturated usually with animal filth. It is almost needless to state that stables kept in this condition cannot be wholesome, and that the atmosphere which pervades them would, of itself, be sufficient to taint the milk, and render it unfit for use … The swill is a strong stimulant, and its effect upon the constitution and health of the animal, is something similar to alcoholic drinks upon the human system. Of this swill, each cow drinks about twenty five or thirty gallons per day, so that the total consumption in the stables is about fifty or sixty thousand gallons. The quantity of milk given upon this

115 Francis-Jones 1984, Jones 2001.
116 Youatt 1834: 255, Ballard 1878: 134–5, Mathias 1952.
117 Hartley 1842, Buckland 1867.

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> food, varies from five to twenty-five quarts daily, that is, in every twenty four hours. The cows are milked twice, once at three o'clock in the morning, and once at two or three in the afternoon.[118]

Paris was another city that was home to many milk producers. There were 305 laitiers-nourrisseurs in 1879 and by 1892 this number had grown to 490,[119] with a further 1500 in the surrounding peri-urban area. Many were migrants from the Auvergne, often living in families well established in the city, for instance in the fifteenth and eighteenth arrondisements.[120] Table 2.2 shows a growth in Parisian cowkeeping, in apparent contradiction of the trend in London, but the expansion of the former by boundary adjustments in 1860 meant the inclusion of some existing milk producers. As a result, the proportion of the supply coming from the city itself increased to 16.6 per cent. This compares with London's 80 per cent own production in 1850, falling to 28 per cent in 1880 and three per cent in 1910.

Table 2.2 The Milk Supply of Paris, 1843–69

	1843		1854		1869	
	Litres (mn)	%	Litres (mn)	%	Litres (mn)	%
Rail	0	0	59.1	54.1	81.2	72.7
Road	63.1	88.3	41.8	38.2	12.0	10.8
City	8.4	11.7	8.4	7.7	18.5	16.6
Total	71.5	100.0	109.3	100.0	111.8	100.0

Source: Husson 1876.

Two examples of knowledge-framing are important here. First, in the mid nineteenth century, milk producers in London believed that milk yield could be maximized in warm cowsheds. As a result, their buildings were often poorly ventilated. With this tended to go bad lighting, poor cleansing and drainage, and the lack of a clean water supply. The dilapidated cowsheds that were everywhere to be seen in 1850 were the perfect environment for the circulation of airborne cattle diseases and the accumulations of manure became a stand-out target for the sanitary conscience.

The Victorian interest in air quality and air circulation that had started with worries about miasmas and malaria later saw physical outcomes in the regulation of the air space available to town cattle. This was partly about the diseases

118 Mullaly 1853: 43–6.

119 There were 2,300 city cows in 1843, rising to 5,065 in 1873 and 6,850 in 1892. Husson 1876, Phlipponneau 1956.

120 Phlipponneau 1956.

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Figure 2.1 Urban Cowshed

Source: Savage 1912, 245

that were rife among these confined animals, such as tuberculosis and pleuro-pneumonia, although there was no understanding until the last decades of the century of the true mechanisms of infection. The criterion used was the cubic space in the cowshed available per cow and 400 cubic feet was a rule of thumb in the 1870s for many local authority inspectors. This was considered inadequate by others and figures such as 600, 800 and even 1,000 cubic feet were bandied about. Later, the Milk and Dairies Order (1926) shifted the emphasis away from cubic space and over to the cowshed conditions necessary for the production of clean milk.[121] By that date urban milk producers had been forced by the implementation of the Dairies, Cowsheds and Milkshops Orders to provide better structures and suitable ventilation. Figure 2.1 is a photograph taken in Colchester that proves that primitive urban facilities still remained just before the First World War.

The second knowledge departure was entomological. This was the better understanding of the ecology of the house fly and its relationship, in particular, to horse manure. Dawn Day Biehler's work on American cities indicates that entomology began to have an impact upon the imaginary of sanitation there in the last year or two of the nineteenth century.[122] This followed an outbreak of typhoid in Washington, DC in 1895, when a link was made with outdoor privies where flies were breeding. The first decade of the new century saw an emerging

121 McVicar 1935: 58.

122 Biehler 2010.

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perception of a 'fly menace', particularly through a connexion made between flies as a disease vector and the infantile diarrhoea that was thought to be the result of babies consuming infected milk. This emotive link sparked research in Britain and a number of official and academic publications identified flies as a hazard.[123]

Given the increase in city horse populations on both sides of the Atlantic in the second half of the nineteenth century, it seems likely that their manure did indeed contribute to a growing house fly population, and to an intensification of bacteriological flows.[124] We know from other work that this was a period when many middle class women were giving up breast feeding and switching their infants over to cow's milk fed from bottles. Given their design, which often included a long rubber tube, these feeding bottles were easily contaminated by flies or dirt and difficult to sterilize. Flies will therefore have been one risk factor among the many faced by these babies.[125]

The development of these two ideas in the context of popular understandings about urban farming exemplifies the importance of established belief systems and their collision with the new sciences that were finding their feet at this time. By the 1880s and 1890s the germ theory of disease, and the bacteriological work of Koch, Pasteur and others, ushered in startling new understandings of the dangers of dirt and the nature of disease vectors, but these were widely derided or ignored at first. In the case of cowsheds, what mattered most was the view of the local Medical Officers of Health about bacteria in the milk, and their willingness to demand action by their local authorities. No doubt local lobbying was a factor, although evidence for this is sparse. The Metropolis Management Amendment Act (1862) provided a framework in London for sanitary authorities to begin a system of licensing, and then individual premises could be closed or stringent conditions applied to the renewal of a licence at the annual petty sessions.[126] The reality, though, was that only the wealthy districts in the West End had the political will to carry out the spirit of these provisions and the smells and other associated nuisances continued for decades in other parts of London. The rest of the country had to wait until the Contagious Diseases (Animals) Act of 1878, which made provision for national regulation.[127] This unfolded in a series of Dairies, Cowsheds and Milkshop Orders (1879, 1885, 1886, 1899), which gradually tightened the noose around the neck of urban milk production.[128] Inspections of premises increased and there were more objections at licensing sessions, so that cowkeepers were forced to make expensive changes to their buildings and their methods. Since margins in the milk trade were already tight, eventually many producers were forced out of town or out of business.

123 Hamer 1910, Niven 1910, Hewitt 1914.
124 Morgan 2002.
125 Dwork 1987: 45–9, Atkins 1992.
126 Atkins 1977.
127 41&42 Vict., c.74.
128 Dumsday 1923.

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In London, it was the authorities in the East End who seem to have been the most tolerant of cows and pigs. Food production was a significant activity in districts such as Whitechapel and Bethnal Green, both poor areas, where sustainable livelihoods could not be taken for granted. Also, here the inhabitants of the slums were much less vocal about environmental hazards than their more comfortable and articulate counterparts in Belgravia and Mayfair, and the low rateable value of property in the East End meant that the Sanitary Authorities had less income to invest in inspectors and prosecutions. In other parts of the country there were also variations of practice. In most cities, cowkeepers continued longer than in London. In Liverpool, for instance, there were still 1,000 'urban' cows as late as 1956, and this was undoubtedly because of the Corporation's conviction that the cattle under their control were less likely to be diseased than those based rurally.[129]

We mentioned above the use of spent grains from breweries and distilleries in the feeding of town cows. These waste products were also fed to pigs and in the 1730s there were said to be 50,000 fattened in London principally using this input. Farmers in the Home Counties were concerned at what they regarded as this unfair competition because they were unable to compete with such intensive feeding.[130] Middleton found soon after, in 1807, that the 50,000 pigs were adding a value of £4 each, which represented about 20 per cent of the distillers' annual net profits. The main market for pigs fed this way was victualling contracts for the Royal Navy but they also made a contribution to the amount of pork and bacon sold nationwide. By 1798 neat cattle were also being fattened at distilleries and the system had become a very profitable sideline for the distillers and brewers, more so for the former, whose spent grains were nutritionally richer.[131]

Pigs were also common in early nineteenth-century cities.[132] They were relatively easy to manage and did not need a specialized diet. In fact, they were ideal as a seasonal protein supplement for urban working class diets. Hector Gavin found that they 'abound everywhere' in Bethnal Green in the East End of London; and Hendrick Hartog similarly observed that they 'wandered the streets of early New York City, just as they have wandered the streets of many pre-industrial cities, prowling in grunting ferocity'.[133] In 1816 the first ordinance was made in New York that pigs found in the streets could be taken to a public pound, but it was not until the scare which went with the 1849 cholera epidemic that pig-keeping came under serious threat there.

Back in the United Kingdom, in 1843 in Birmingham, Aston and Edgbaston there were said to be 2,359 separate pig sties, housing 3,375 pigs and indicating

129 Hill 1956, Lambertsen 1989.
130 Mathias 1952.
131 Middleton 1798: 327, 375, Middleton 1807: 579, Stevenson 1809: 522.
132 Tremante 2000, Malcolmson and Mastoris 2001: 74.
133 Gavin 1848: 87, Hartog 1985: 901–2.

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Figure 2.2 A London Sheep-fold

Source: Godwin 1859: 15

a profitable domestic pass-time.[134] Accurate figures would have been difficult to come by, however, short of the kind of house-by-house survey that was beyond the resources of the sanitary authorities. Householders themselves would certainly not have voluntarily declared such livestock for fear of intrusive inspections and fines.[135] This is why we should not place too much credence in the list of 412 piggeries, probably an underestimate, compiled for the Borough of Sunderland at the same date. But there is a ring of truth about the statement that 'the piggeries are chiefly in the most confined and ill-ventilated localities'. This was the case in many other cities too.[136] Stewart and Jenkins noted that the presence of hundreds of piggeries was selected as a battle ground by a new Medical Officer of Health in Leeds in the 1860s.[137] He was not wholly successful, though, because a 'Pig Protection Society' was formed and support for it came from local politicians and

134 Second Report of the Commissioners for Inquiring into the State of Large Towns and Populous Districts, P.P. 1845 (602) xviii.132.

135 Archer 1865: 14.

136 Ibid: 554.

137 Stewart and Jenkins 1867: 41.

even a judge, who ruled that the pigs could remain but their manure had to be removed on a daily basis.

As late as 1876, after much nuisance legislation, Edward Ballard of the Local Government Board commented in that pig-keeping was still reported as a frequent nuisance in the Medical Officers Health annual reports from all over the country: 'it is a nuisance notorious in every town, and nearly every village in the kingdom'.[138] This was because pigs were fed on waste scraps and their sties were allowed to become filthy.

In theory the problem had been soluble in London since 1817, when an Act forbade the breeding, feeding or keeping of pigs within 40 yards of a street.[139] Soon after that, in the 1820s, though, 'The Potteries', a district in North Kensington, developed as a shanty town occupied by a marginalized community.[140] Amongst the many means of scraping a living there was pig-keeping and at one point there were about 3,000 animals on just nine acres. This was to the great consternation of the people moving into the new middle class housing estates nearby.[141] The area, nowadays known as Notting Dale, was poorly drained clay soil, part of which had been dug for brick-making. It was one of London's 'shy neighbourhoods', to some extent a no-go area, that nevertheless served a purpose.[142] Apart from fresh meat, it provided the scullery maids, night-soil men, chimney sweeps, wet-nurses, laundry women, and other services required by the surrounding villas.[143] In return, the pig keepers took the slops from their kitchens as a cheap, readily-available feed.[144] It was not until the 1870s, with the appointment of an energetic and determined Medical Officer of Health, Dr Thomas Orme Dudfield, that the pig numbers began to fall and finally they disappeared from Kensington altogether in 1878.

The Great Separation

Part of the gloom surrounding the 'bacteriological city' of the mid nineteenth century was that no-one thought easy solutions were at hand.[145] Edwin Chadwick, the unofficial talisman of the sanitary movement, discovered this when in 1854 his career foundered on political resistance and personal antipathy from several quarters; and later in the same decade it took the Great Stink of 1858 to unlock the possibility of a comprehensive system of sewers for London. But maybe the

138 Ballard 1878, Part I: 134–6.

139 An Act for Better Paving, Improving and Regulating the Streets the Metropolis, 57 Geo III, c. 29, sec. 68.

140 Sheppard 1973.

141 [Wills] 1850: 463, Ritchie 1858: 14.

142 Dickens 1860.

143 Malcolmson 1975, Dyos and Reeder 1973: 372.

144 Hollingshead 1861: 157.

145 The term 'bacteriological city' is from Gandy 2004, 2006a.

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greatest challenge of all was in the minds of ordinary people: the need to convince them that the environmental version of public health being sold to them was worth the cost. To make that feasible was a matter of, in Schoenwald's telling phrase, the 'training of urban man'.[146] In other words, it would be necessary for society to make the major psychic leap of personal discipline needed to live in modern cities. Gallagher gives this threshold a degree of metaphysical weight that 'is difficult for us to recapture'.[147]

One way of demonstrating the progress of cultural shifts of this sort is through art. In the 1830s and 1840s the urban environment was seen as so foul that it became a supporting plot line in novels such as *Oliver Twist* and *Bleak House*.[148] Here was the paradoxical 'attraction of repulsion' that Dickens himself later talked about.[149] Literary analysts have suggested that authors were reflecting a general environmental wariness that lasted for several decades, from the 1830s to the 1850s. But Janice Carlisle confirms that the literary social conscience did eventually move on.[150] The suffocating stink of the Davenports' cellar in Elizabeth Gaskell's *Mary Barton* or the smells in Charles Kingsley's *Yeast*, both published in 1848, had disappeared in the novels of the 1860s.[151] By then ordure was coming under control and could even be seen plausibly as a source of wealth, as in *Our Mutual Friend*.[152] Interestingly, Trotter has observed that artists also began removing any hint of dirt, rubbish or waste from their paintings, reflecting society's view of the proper subject for modernity.[153]

In addition to this cultural context, John Pickstone has argued that the sanitary idea itself was the product of an intellectual revolution in London.[154] Counterfactually, the dominance of Whig medicine in 1800 and its attitudes to fevers could have continued but instead it was overtaken by a dissectionist, physicalist paradigm, into which Chadwick's utilitarian theories fitted neatly. This was an empiricist critique of Enlightenment medicine and it sought a radical break with assumed correlations between poverty and disease. In Pickstone's view, then, the sensory environment provided the evidence that fuelled this intellectual shift, although it was not in itself a *sufficient* cause of the changes in public health thinking.

Once the sanitary idea had taken root, the move from what John Simon called the 'cesspit city' to a sewered city was gradual.[155] It had begun, in effect, with

146 Schoenwald 1973.
147 Gallagher 1989: 359.
148 Dickens 1838, 1853.
149 Forster 1872, Collins 1973: 537.
150 Carlisle 2004: 15.
151 Gaskell 1848, Kingsley 1848.
152 Dickens 1865.
153 Trotter 2000: 324–5.
154 Pickstone 1992.
155 Wohl 1983: 89.

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the establishment in 1847 of a Metropolitan Sewers Commission, and progressed through many controversies. Three of the most important of these debates were whether pipes were better than brick-built sewers; what the optimum diameter of a pipe was; and whether sewers should be flushed with water.[156] In 1848 there were only 104 miles of piped sewers in the whole country but this had increased to 2,600 miles by 1854.[157] Despite the end of Chadwick's official career in the latter year, this was an idea that took off.[158] Ironically, in London it was one of Chadwick's critics, Joseph Bazalgette who was ultimately responsible for the victory of integrated sewer systems, in the shape of his colossal dendritic scheme of subterranean engineering, completed in 1875.[159] This created a new type of networked urbanism that was organizationally complex and expensive to maintain.[160] This was a re-formed 'metropolitan nature' that replaced earlier, organic understandings.[161] The sewers were the first of the technological networks that ultimately have become 'constitutive parts of the urban' and 'mediators through which the perpetual process of transformation of Nature into City takes place'.[162] The establishment of the sewered city amounted to 'an aggressive modernization of underground space' that required a greater centralized control and a biopolitical gaze.[163] The intellectual commitment to this path among the several alternatives was a utilitarian calculation embedded in a great leap of faith: 'Chadwick and company rejected work, wages, and food to focus on water and filth, arguably the greatest "technical fix" in history'.[164]

Here, potentially, then, was the materialized expression of the metabolic circulatory processes that previously had only informally been articulated.[165] It was made possible by improved pipe technology, by a continuous flow of water under pressure, and by the sheer willpower of sanitarians to shed public light on what had hitherto been the private matter of excretion. There were many consequences for the emergence of a new way of knowing the city. As Gilbert has shown, gravity-fed sewers were dependent for their planning upon detailed and accurate topographical surveys and so the mapping and discovery of urban space was at least partly achieved through this concern with dirt.[166] In London the chosen

156 Hamlin 1992, 1998.

157 There were 40 miles of sewers in Paris in 1830, 130 miles in 1850, and 348 miles by 1870. Williams 2008.

158 Finer 1952: 451.

159 Green 1956, Halliday 1999. See also Knaebel 1988, Tarr 1988.

160 Graham and Marvin 2001.

161 Gandy 2004.

162 Kaika and Swyngedouw 2000: 1.

163 Allen 2008: 42.

164 Hamlin 1998: 13. Chadwick's certainty that destitution was not responsible for disease came from his administration of the new Poor Law. He was converted to the new creed of sanitarianism in 1838.

165 Swyngedouw 2006a: 114.

166 Gilbert 2005: 79.

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cartographic scale of five feet to the mile was the largest used up to that point and 250 military surveyors were required to complete the job.[167]

Matthew Gandy rightly sees sewers as 'one of the most intricate and multi-layered symbols and structures underlying the modern metropolis'.[168] Their retreat underground to a location in the 'urban uncanny' was associated with the anxieties of displacement and disorientation. This was at one of the sharpest boundaries between environment and society. It was a space of debasement and, for the general public, one that enabled a collective amnesia about bodily wastes.[169] Sewers are therefore dialectical to mainstream society on the surface.[170]

> The underground fascinates not merely because it contains all that is forbidden, but because it contains it as unimaginably rich, albeit inchoate and intoxicating, brew of other times, places and modes of being in the world, and because that brew intimates the fragility of the unity claimed by the world above.[171]

The sewered city fixed in the landscape an ideology of managing a disordered natural.[172] But this was by no means a straightforward social construction of ideas, representations and spaces. As we have seen, the materiality of dirt had been difficult to conceptualize and its hazardous presence had been slippery in its complexity. Above all, the technologies and performances of sewering were bitterly contested, so much so that physical outcomes varied from city to city. In being tamed and brought under control, many new natures and sub-natures were created, flaking away from modernity's points of impact. These were slivers and fragments of a subjected nature, but nature nevertheless. Victorian society's attempts to cleanse and purify were always short of their intended mark and its cities continued to swarm with non-human life, including nature re-introduced under controlled conditions, such as urban parks, roadside trees, zoos and companion animals.[173] This was a 'permanent and irreducible pluralism' of natures in the sense set out by Bauman.[174]

Raymond Williams saw the process of urbanization as a key site of the transformation of nature through social relations and David Harvey took this further by showing that it was through ecological transformations in the city that social relations are consolidated and reproduced.[175] The meanings of nature are, of course, multi-layered, but sewers, it seems, were a nodal site of re-imagining and

167 Dobraszczyk 2007.
168 Gandy 1999: 24.
169 Hawkins 2003.
170 Donald 1999, Williams 2008.
171 Pike 2005a: 197.
172 Oliver 2000.
173 Green 1990, Gandy 2006b.
174 Bauman 1988: 225.
175 Harvey 1996: 94.

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re-forming the meanings that became our modern understandings of what a city is, or what it should be. Cities without sewers came increasingly to be thought of as inferior, and maybe not real cities at all.

The division of nature and culture did not begin here, of course, but the mid and late nineteenth century was a crucial hinge point.[176] Noel Castree talks about the hybrid that is socio-nature.[177] His point is partly philosophical since it has become possible, he argues, to work towards relational understandings that have elements of both environment and society, fused in networks of actors. Fashionable jargon such as Actor Networks or assemblages aside, there is impressive momentum in such posthuman approaches. But Castree's other point here is that hybrids of culture and nature have become increasingly popular with academics and the general public as the realization has dawned that the impact of modernity has been so negative, through pollution, carbon emissions, and reductions in biodiversity, that the future of the planet is under threat. Rediscoveries of society-nature linkages and the recreation of new versions of lost or degraded natures have therefore become foci for green enthusiasms.

Our version of this history has been to push it back to the nineteenth century. If postmodernity has empowered us to rethink and encourage difference and hybridity in recent years, then what of the early decades of 'modern' ways of thinking about environmental bads? There were polluted and degraded environments in and around Victorian cities but the response at the time was very different. It was to separate out thinking about nature and to produce and reproduce it in ways that could be made over within the hegemonic ideological models of the day. In this sense, the Great Separation initiated in the 1830s and 1840s was the mirror image of the ecocity movement of today.

Some care is required in carrying this argument forward. We may be returning some channelled rivers to their 'natural' state and removing coastal defences in order to revive that natural balance of erosion and deposition, but no-one is calling for city streets to be covered once more in horse dung or for slaughter-houses to be re-established in city centres. Some of the erasures of organic pre-modernism are permanent and much of the current urban greening is as controlled and controlling in its ideology and practice as was Victorian sanitarianism.

The Great Separation was not an overnight revolution but a slow process, varying in pace and completeness from city to city. In the case of London, the rupture represented by the building of sewers took several decades from the 1840s to become established in the mind and in the landscape. Animal manure began to lose value in the second half of the nineteenth century, but this was as much about increasing horse numbers as it was about falling demand. Then, at last, in the first decade of the twentieth century the dominance of horse-powered transport in cities

176 James Winter points out that nineteenth century rural areas were becoming more countrified as they lost industry and population, falling back increasingly on agriculture. Winter 1999.

177 Castree 2003, 2005. See also Whatmore 2002, Hinchliffe 2007.

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was decisively challenged by the internal combustion engine. Animal industries also came under severe pressure, with either direct or indirect sanitary motivation, and we can say that by the First World War both food-producing animals and the various by-product industries were no longer thought of as 'urban' in location.

The Great Separation was the materialization of an ontological split that had been building during the eighteenth century but which was conjured from its chrysalis in the early nineteenth century by one of modernity's most powerful tunes: the song of sanitation. Such was its astonishing force that the nation was persuaded to invest vast capital sums in a medico-environmental theory that frankly did not have a strong epidemiological basis but which was responsible both for the physical transformation of urban space and the generation of a tsunami of intellectual enthusiasm with few parallels in history. Thus were born new ways of seeing the environment, and the division of animals from urbanized culture was almost incidental to the wider project of bringing nature under control.

The following two chapters build on our story. Chapter Three shows that the influence of urban animals was felt in the peri-urban hinterland of large British cities. The point here is to investigate the 'manured region' as an example of the recycling of animal wastes that have been discussed in the present chapter. Then in Chapter Four the animal by-products industries will be discussed for their role in the urban blood and guts economy.

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