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Mapping and Social Space in Nineteenth-Century England

> For a perfect system of hygiene we must combine the knowledge of the physician, the schoolmaster and the priest, and must train the body, the intellect and the moral soul in a perfect and balanced order.
> —Edmund Parkes, *Practical Hygiene*

NINETEENTH-CENTURY ENGLAND saw a growing concern with what came to be defined as social problems—poverty, crime, and what would finally be termed "public health" issues. Much of this has been correctly attributed to urbanization and industrialization, and the urban is certainly central in conceptions of the social body in this period, particularly London. More recently, however, we are coming to understand the role of modern liberalism and the state in recreating problems seen at the beginning of the century as endemic to capitalist—or indeed any—society as problems in the development of the citizen. These problems then could be understood not only as susceptible to treatment but demanding it for the health of the social body.

In the Victorian period, medicine evolved fairly rapidly from a loose assortment of ill-defined practices and practitioners identified with the private sphere into an elite profession with increasing status in the public arena. Further, science itself became an important part of national identity, as Britain saw itself as a scientific nation, and the Empire consciously styled itself as a ruler through archival knowledge.[1] As Foucault has argued, the move toward modern liberal government is marked by "governmentality"—the development of bodies of knowledge which are also practices, particularly in regard to biopolitics (the management of populations) through public health, the census, and

the like. These knowledges, which were also practices, enabled governments both to know about the movements and living habits of their subjects and to mobilize consent among those subjects to governmental aims, rather than relying on brute power. The professionals who designed, managed, and were the instruments of this process of what Foucault would call "governmentality" authorized themselves with claims to be speakers for the nation, and therapeutic managers of the nation's social body. Medics and sanitarians became central to that process as social ills were displaced from the political sphere, medicalized, and reinscribed within the purview of public medicine. Public health—especially in relationship to epidemic disease and sanitary issues—has a privileged role in the discourses of the social body.

Public health emerged in this period as part of the tendency toward governmentalization; the opportunity arose in response to (particularly urban) epidemics, and cholera has generally been accorded the role of prime actor in this drama. It is important to remember that the cholera itself did not cause the public health movement—had the conditions not been right for acceptance, however grudging, of public health as the business of government, and had the beginnings of statistical knowledge not made public health as a knowledge project feasible, cholera alone would have done little. But the conditions were right, and the dramatic eruption of an alien and frightening epidemic during conditions of reform agitation provided unique practical and narrative opportunities, despite the fact that cholera was hardly as important a threat as the routine depredations of diseases already endemic to the Isles. Medics used the public attention elicited by these events to create a public platform for the profession; they mobilized discourses of nation and the social to add force to their position, and in so doing, contributed to the formation of those discourses themselves. For these reasons, public health and the cholera epidemics provide an especially fruitful source of stories about the social body. The body becomes both the sign and the metaphor of the nation. Individual bodies and their ills, as representatives of classes and populations, become indices of the condition of that less tangible entity, the social body. The social itself, in both its physical and moral manifestations, comes to be understood as a medicalized physical entity which can be fixed, observed, and dissected both through the individual bodies of its subjects and in toto (or en masse) in the form of statistics. Over time, the social body comes to be read geographically, as identical with its geographic location and built environment; public intervention in the one is both effected by and reduced to a physical, environmental intervention.

The social body was a concept increasingly associated with spatial forms of knowledge, especially geographic distributions—of mortality rates, educational level, population concentration, and so forth. This knowledge was gathered as information, but used in turn to form policy. Public health advocates

saw their role not merely as improving the physical health of individuals, but as forming the moral character—closely tied to physical health and cleanliness—which in turn would produce the ideal modern citizen. Nikolas Rose, among others, has argued that the nineteenth-century understanding of the social is fundamentally both spatial and politicized (104–105). Spaces were identified with their own protocols and good citizenship was aligned with a form of self-governance which involved adhering to those protocols. For example, "Recreation was also to be spatially organized—no longer in the rowdy and transgressive hurly-burly of the market, the fair, and the baiting of bears—but in new moral habitats—public parks, municipal swimming pools. . . . [T]he space of the town became intelligible in new ways, in the spatial imagination produced by all those who thought that in order to govern relations between people more effectively one had first to inscribe them" (Rose 105). Certainly this point has been made by others as well (Poovey, *Making a Social Body,* Procacci, and so on).

Rose, unlike Procacci, chooses to emphasize the new freedoms which liberal government and its ideologies held as goals for the modern individual, whereas other theorists have tended to emphasize the restrictions posed by the panoptic penetration of subjectivity which such freedom demanded. Both of these positions have merit, of course. But both agree that such use of space as the medium of social surveillance and discipline required a reorganization of space which most scholars, following the marxian thread of Harvey and Lefebvre, have termed "abstraction." This argument holds that capitalism demanded an increasing abstraction so that unique spaces (and, implicitly, subjectivities) could be refigured in terms of structural equality and interchangeablility. Such representations, as Foucauldians have pointed out, stressed transparency and visibility. These ideal abstract spaces confronted the reality of the nineteenth-century city—opaque, heterogenous, illegible. A practice that depended on the structural equality of individuals and the natural similarity of their desires faced a heterogenous population whose natural desires seemed to have been deformed by circumstances. A vision which stressed light, openness, and circulation faced a built environment of crowded courts and cul-de-sacs.

Thomas Osborne and Nikolas Rose have provocatively defined the nineteenth-century liberal ideal of the urban space as that of "virtuous immanence"—that is to say, the city was to provide a space in which citizens exercised their freedom to govern themselves, a crucible in which competing ideals and desires would lead, naturally, to a kind of ideal state emerging from the urban fabric itself. However, they also stress, the freedom provided by the city also led to another, less socially desirable form of immanence—the "vice, rebellion, insubordination" of those whose "sociability" was imperfect (*Governing Cities* 3). Although I suspect Osborne and Rose ascribe too much sense

of the city's initial legibility or rationality to nineteenth-century urbanists whose own views seem to be more along the lines that London, like Topsy, just grew (and not in any rational or even particularly viable manner), it is certainly true that early social and medical mapping of the city was aligned with efforts to understand the relationship of undesirable "forms of freedom" and the urban environment. I would argue, however, that it is not until the midcentury that Victorian urbanists began working with a fully developed sense of the city as a whole, even as an organism with its own rhythms and cycles. Mapping had a large part in that process of understanding, as it did in its next step: planning, the creation of ideal maps used to remake the city into a structure more consonant with the planner's goals. As Rose and Osborne suggest, these "diagrams" tried to make "urban existence both more like and less like a city—more in that the immanent virtues of the civic are intensified, less because the immanent dangers of the city are pacified" (*Governing Cities* 3). Their emphasis on the utopian elements of this vision are an important intervention in the predominant scholarly tendency to see such work as purely designed to suppress the freedom of the underclasses.

However, it is also important to remember that such limitations were often the undeniable result of these projects. Most of the major redevelopment projects of the nineteenth century—the Oxford Street extension known as the New Cut and abolition of the Rookery in St. Giles, for example, which drove thousands of slum dwellers out of their homes (and into even worse slums nearby)—were motivated by and argued for in terms of the social body and its health. Moral and physical problems were closely aligned and increasingly conceived in terms of interventions in the built and natural environments. Key to these developments was a naturalistic vision of the role of the social. It was largely believed that what were defined as appropriate (bourgeois) social values were innate, natural. However, the bad urban environment could deform these natural traits just as the urban environment could foster them; dirty slums gave children an acquired and unnatural taste for dirt and darkness which led inevitably to vice and disease. Rose and Osborne suggest that the nineteenth-century city was seen as an ideal laboratory of government, and that the "government of this space had to be concerned above all with the security of these natural processes of society" developing in this specifically urban environment (*Governing Cities* 7).

This understanding of Victorians' views, though, should be tempered with an appreciation for the nineteenth-century distrust of the city: its nostalgia for the rural, the upper-middle-class flight to villas outside of London, and the still-strong belief that its ruling classes should be based in large landholdings outside the city. In London, at least, the sense of the city's "immanence"—its organic ability to foster a life defined by freedom and access to goods and services which fostered a liberal notion of (self-)government—was

insistently counterpoised against its long-standing image as degenerate and leading to poor self-fashioning practices. As Rose and Osborne themselves point out, the extensive literature of medical topography which emerges in the 1830s and after implies a relation between the urban and illness, and the task of urban government becomes in large part to promote health and to govern "the spatial relation between citizen and habitat" (*Governing Cities* 9). Still, Rose and Osborne tend to see the pathologizing of the urban as something that takes place principally at the end of the century with degeneration theory and "the novel question of overcrowding" in homes, which they believed emerged in the 1880s (*Governing Cities* 13). In fact, it emerges quite a bit earlier and is in full flower in the 1850s. In short, in tracing the origin of the nineteenth-century city to the city-states of ancient Greece, Rose and Osborne have perhaps somewhat oversimplified the relationship between urban and rural, metropole and nation in nineteenth-century England. However, this makes no difference to the core implication of their very fine analysis, which is that the freedom and concentration of population of the city were both perceived as the quintessential characteristics of the utopian urban impulse—the city's modernity and the multiplication of what Rose and Osborne call possibilities for sociability—and of its destructive and unhealthful nature.

Early to midcentury urban planning sought to meliorate or fine-tune what was already extant in the city, at first in despair of any larger possibilities, and later with more sense of the utopian possibility of an inclusively planned space. The urban was inextricably identified with a massed and dangerous, yet necessary social body which must be observed and medically optimized; this medicalized urban population became the sign and goal of modernity and progress on which the British sense of imperial entitlement depended. Sanitary surveys and mapping, later to become more formally medical mapping (that is, a mapping dependent upon specifically professional forms of expertise) became an important part of this envisioning and disciplining of the urban (and national) social body. Mapmaking sought to make visible what was invisible, to simplify spatial information by subjecting it to the abstracting process of mapmaking. This process eliminated extraneous information and reduced complex, obscure spaces to clearly understandable lines and symbols subject to a consistent series of measurements. Initially, much of such mapmaking simply illustrated a set of data and, sometimes, an explicit argument about its meaning. Over the course of the period, it came to be used both diagnostically—to show what was lacking—and more and more unequivocally in planning—to gesture toward a utopian realization of the liberal narrative of progress. In doing so, it gestured towards two levels of social space simultaneously, what Henri Lefebvre, in *The Production of Space,* has called "perceived" and "conceived" space.

Most theorists of space posit two types of space superimposed on or coexisting with each other: physical space and social space (what Neil Smith, in *Uneven Development,* calls relative space). Physical space encompasses both the natural or "given" and the built environment, and of course, as Smith points out, nature is itself produced, both ideologically and physically, through human interaction with the land, and through various scientific practices which seek to measure it.[2] In social space, Lefebvre identifies a threefold split: perceived, conceived and lived social space, among which there is a complex interaction. Perceived space is space as we practically understand it and act on it; conceived space is space as we represent it, through various scientific and other knowledges; and lived space is that which we actually experience from moment to moment, mediated through culture, psychology, and so forth (*Production* 36–42). In this layered space, notes Lefebvre, exist multiple contradictions generated by the dialectic practices of space by human beings operating simultaneously in all of these levels.

In this book, I shall be principally concerned with the conceived space of medical mapping but, as Lefebvre suggests, it is impossible to deal with this level of social space without the intrusion of lived and perceived space. Thus, although our primary concerns are with the ideologies of knowledge production, we shall also see how the lived experiences and perceptions of those who inhabited these various spaces interacted with the conceptions of mappers (especially in chapter 4, treating the relationship of St. Giles and St. James's parishes). Conceived space in this period, was, according to Lefebvre, increasingly abstract, and is characterized by Euclidean rationality (which dictates that all heterogenous spaces are reducible to certain absolute and homogenous terms), a privileging of visual ways of knowing which deemphasizes other sensoria, and what he calls the "phallic formant," a use of altitude and the "god's eye view" to enforce a sterilizing abstraction which, he believes, is itself a form of brutality (*Production* 285–91). The focus on abstraction, however, brings us back to Rose and Osborne's view that to some degree, this abstraction is also the basis for liberalism, with its apparent cherishing of the ideals of freedom and autonomy. A certain amount of homogeneity in the desires and practices of individuals are, as we have said, theorized as necessary for the personal freedom that underpins liberalism. Perhaps the difference between the modern liberal state and less desirable forms of modern government (fascism, for example) depends in part on the fine balance between the mobilization of consent and direct coercion—perhaps, Rose and Osborne's work suggests, there is even a relation between the more perfect realization of a certain "abstraction," a consequent lack of need for coercion, and the perceived accrual of increased freedom.

An important—perhaps the most important—project for envisioning the social body emerged through what would later be called public health.

Spurred by cholera epidemics, and building on the evaluation of individuals' productive capacity in terms of health and longevity that political economy had naturalized, sanitarians and medics began to conceive the population as an entity subject to certain common influences on mortality and morbidity. As physical and moral well-being were interwoven, these arguments encompassed the causes of not only physical illness, but of vice. Nineteenth-century sanitary and medical mapping concerned themselves with identifying and eliminating pockets of disorder, overpopulation, and working-class behaviors coded as vice and as disease in order to bring the city under a grid of manageability. To do that, mappers first had to conceive an ideal mental map of any given space, a map based on attributes conceived as universally desirable. In this way, the specificity of some spaces came to be seen as pathological; what would be desirable would be conformity to universal standards of cleanliness, drainage, population concentration, and so forth which were common to and interchangeable within all spaces.

The ability to represent any lived environment two dimensionally, with reference to the presence or lack of these universal desiderata—that is, in a sanitary map—was basic to the insertion of that space into a narrative of social progress and urban wholeness which would in turn be based on the conversion of that space into one matching the ideal. Every step toward totalizing that vision was, in the eyes of both sanitarians and medics, a step toward the "virtuous immanence" Rose and Osborne cite—or, if one prefers, toward the totalizing abstraction decried by Lefebvre. For the conversion of spaces did not only imply a physical change to the built environment, but a moral and social change to the population mapped onto and held by it. Part of that process was bringing the general population's *perception* of space into closer alignment with medics' *conception* of space—that is, sanitary education sought to make the general population view as desirable the light, dryness, cleanliness, and openness of circulation that sanitary mappers viewed as desirable.

Yet as such mapping, and particularly mapping of disease, became more complex and more clearly based on specialized medical knowledge in the 1850s, it also came to stand in for the inability of the general public to see that which only a trained professional could make clear. In other words, mapping's increasingly specialized concerns stood as an argument for the yielding of public authority over urban improvement to medics and engineers. Increasingly, such mapping came to be seen not simply as either illustrative or persuasive, but as diagnostic, a way of seeing which, though objective, would itself yield knowledge, rather than simply representing it. Over the course of the century, as attention shifted from sick populations to sick geographies which came to symbolize both the environment and the population mapped onto it, these geographies—especially urban ones—were conceived increasingly as large bodies themselves. By midcentury, circulation, particularly of water and

sewage, was perceived as systems unifying dispersed areas and populations into one organic whole which could be anatomized, mapped, and treated "surgically"—through engineering intervention and public works projects which would alter those hidden circulatory mechanisms—to become healthy, modern, rational, and transparent.

MAPPING IN ENGLAND

In order to situate the present study, I would like to pause here for a background discussion of mapmaking in the period, how it progressed, and why it became particularly prominent in the public imaginary at this time. (Those readers not particularly interested in the history of mapping and its techniques may want to skip ahead to the next chapter.) After all, the concept of population as an aggregate had been around for some decades; why do certain kinds of spatial representations emerge at this time? Britain, like other European powers, had long been a mapmaking culture. During the Enlightenment, maps came to embody the power of the objective, scientific gaze to construct—or reflect—an accurate description of the geographic environment. Imperialism gave new force to mapmaking as a science, as exactness of measurement and topographic descriptions came to have new importance both for military actions and public works. The development of techniques of triangulation in the eighteenth century enabled cartographers to construct measurements with impressive precision. Matthew Edney, speaking of the survey maps of India, remarks that triangulation "implicitly created a natural cartographic space to be filled with natural symbols: consistency of representation would derive automatically from consistency in observation and measurement . . . the perfect geographic panopticon . . . because its geography would be the same as the world's. . . . [I]t promised such an improvement that the archive became definitive" (337).

Both within and outside Britain, mapmaking flourished with an enthusiasm that at one point led the Ordnance Survey to attempt mapping of urban areas in Britain at a scale of ten foot to the mile! (This ambition was later significantly reduced to forty inches to the mile.) Meanwhile, new developments in lithography enabled maps to be created and disseminated more cheaply than ever before. By the early to mid-nineteenth century, maps were everywhere—in schoolrooms, as frontispieces to books, in journals and so forth. By the time railways were in common use for business and personal travel, thus shrinking the world, maps were a type of spatial representation to which many Britons had some recourse in envisioning their environment.

Human beings use many cognitive strategies for representing and practicing (acting in) space. The most important ones for our daily lives seem to

be experiental, having to do with the way we interact with objects, spaces, and places (spaces invested with and constructed by meanings)[3] on a regular basis in what social geographers call space/time—that is, since our interactions with space have a chronological element, our perceptions of space differ according to time—of day, of year, of the lifecourse. Golledge notes that individuals' "place recognition may often be *descriptively rich* but *spatially inaccurate*," (his emphases, 412). Supplementary to these mental representations, and becoming increasingly important in proportion to our lack of direct personal experience and to the size of the area in question, are shared external representations—maps of various kinds—which individuals internalize in differing ways.[4]

Widely shared maps of this type, then, perform an important function in defining communities—not only spatial communities, but interpretive and identity-based communities. Although the role of maps in promoting nationalism has been rather extensively discussed, it is good to bear in mind that simple access to urban maps construct—and situate—the map user as an urban dweller in ways very different than experiental cognitive mapping might dictate. For example, a person whose work and home life were based in Islington in 1830 and who had either no resources or no compelling reasons to do much travel might have a very clear, detailed, spatially and chronologically accurate sense of Islington and surrounding areas, but only a hazy sense of the geography of Westminster and very little sense of the relative proportions and locations of various localities in East London. Awareness of a formal map of London might provide such a reader with a quite different sense of location vis-à-vis the city as a whole than the reader had previously entertained. To what extent this would have any cognitive impact on spatial understanding would depend on personal factors as well as on any experiential reason for internalizing the information. Individuals who had no interest in say, Whitechapel, might quickly forget its position relative to their own; others, perhaps having a relative who had lived there, might retain it to the exclusion of any information about surrounding areas. The thematic maps of the nineteenth century constructed space—and place, as defined by particular labels (St. James's, London, and so forth)—in ways that were meaningful to those who constructed the maps.[5] Often, this meant defining place by parish boundary. We should remember, though, in reading these maps, that such constructions often had little to do with the place definitions of those who lived in those spaces. In fact, such maps may well have served to redefine place for readers whose previous sense of boundaries may have been fluid and hazy (as Golledge shows such boundaries often are) until an authoritative representation served to fix them.

Such maps provided to those who did use them a way in which to cognitively organize their world, enabling viewers to situate themselves within

various totalities—the world, Britain, a city, a parish, perhaps a neighbor-hood. Maps were widely available by the mid-nineteenth century, spreading quickly throughout European culture, even turning up in ladies' needlework patterns. A standard subject in girls' and boys' schools, sampler maps, along with multiplication tables and alphabets, were popular assignments as early as the 1790s (Tyner 3). Adult women worked decorative needlework maps as wall hangings and fireplace screens, and embroidered globes enjoyed a vogue (Tyner 6).[6]

Additionally, mapmaking was widely taught; manuals for both children and teachers sold well in the late 1840s and 1850s onward, and several were published for the use of professionals as well. Alfonzo Gardiner's *How to Draw a Map* (1879) sold for 1 shilling and was directed at pupil-teachers. William Hughes's *A Manual of Mathematical Geography Comprehending an Inquiry into the Construction of Maps with Rules for the Formation of Map-projections* (1852) sold for 3s 6d, and was used by students in schools and colleges. Inset adver-tisements in the second edition of this book offer a number of books and maps for primary school children, often to be drawn on or colored in; the maps are offered at 1–2d each. Hughes observes to his teenaged audience,

> The use of maps in illustration of different subjects is almost infinitely var-ied . . . and the frequency with which they are employed in the present day for *special* (instead of merely general) purposes . . . [is] evidence of a more extended appreciation of their true utility. . . . [M]aps . . . exhibit the . . . *localised* details of almost every phenomenon in social life. (133)

Interestingly, despite the emphasis on objectivity, students were as often taught, at least initially, to think of the maps as aesthetic objects rather than exact reproductions of the terrain, suggesting that the Victorian understand-ing of realism in cartography may have been different from ours. Gardiner's manual for map drawing for teachers urged accuracy in the broad issues but emphasized aesthetics too: under "coast Line" he suggests, "[D]o not make it too *fine,* nor too *stiff,* but rather 'wavy,' so as to indicate small indentations" and again under "Rivers and Lakes," "Always begin the source of a river with a *fine line,* making it wavy, and, as it reaches the coast, increasing in thickness. Take especial care that the rivers do not look like 'wires,'" indicating that often fine detailing on a map may be more suggestive of the genre than the actual feature it represents (4). Detailed land use maps and geological maps of Britain became available from 1800 to 1815 (Thrower, *Maps and Man* 84–85). Additionally, several geographic societies founded in the nineteenth century published many maps; new printing techniques allowed them to print them in their journals and proceedings (Thrower, *Maps and Civilization* 154).[7] By the 1850s and 1860s, Britons saw the very wide and cheap dissemination of maps in educational material, travel guides, and other such literature.[8]

London, as a world center of economic and shipping activity, as the metro-pole of a growing empire and capital of Britain, naturally drew much attention from cartographers, and perhaps no community provided more of a consumer-ship for such representations than Londoners themselves. Since the beginnings of its accelerated expansion in the late eighteenth century, London had become increasingly large and various, and Londoners themselves were fascinated with the "Mysteries" of their own city. Not only did maps and guidebooks strive to give an overview of the city, but narrative mappings attempted to create an understanding of not only its physical geography, but its social structure as well, along with its various languages and other signifying practices. To this end, Londoners attended theatre productions staged in elaborate re-creations of specific London neighborhoods and landmarks, consumed dictionaries of slang and "flash" patter designed to initiate them into the mysteries of lower- and underclass communities, enthusiastically read ethnographies like Mayhew's *London Labour and the London Poor,* and entertained themselves with publica-tions ranging from *Tom and Jerry* to the younger Charles Dickens's *Dictionary of London.*[9] London became the clearest spatial representation of Englishness, and medical mapping of London became a proportionately important mode of representing the health of the social body more generally.

The increasing visibility of maps, along with cheaper modes of production and dissemination, encouraged broader and more experimental uses of maps for specific purposes. The period from 1830 to 1855 has been termed the "golden age" of thematic mapping (Robinson, "The 1834 Maps" 440)—the use of maps to illustrate a specific dataset or argument, usually having to do with human action in space.[10] Lithography, especially the autographic technique, made print-ing maps cheaper and easier.[11] Most symbols and techniques in thematic cartog-raphy were in use by the 1830s and practically all in use today were in use by the 1860s (Robinson, *Early Thematic Mapping* 186). The first two were in use before the century began. Dots of variable value were used as early as 1830. Choropleth mapping, that is, dividing a terrain into blocks which are flatly shaded according to the statistical value of the region defined by the boundaries (for example, a given parish might be given a particular shade according to how far above the average the birth rate was for that parish) was first used in France in 1826. The more sophisticated isopleth method—a way of using isolines like those found on contour maps to represent statistical data—appears to have been first used in Denmark around 1854. Robinson identifies five main techniques: writing statis-tics on the map, dots of uniform value, dots of variable value, choropleth, and iso-pleth (Robinson, *Early Thematic Mapping* 110–11). The first four techniques, then, were already in common use for medical mapping by the 1830s.[12]

The most typical use of thematic mapping before this period was for mil-itary/colonial purposes, although some population, linguistic, and even med-ical maps were created before this time. But most cartographic historians

agree that thematic cartography generally, and especially medical cartography, began in the early nineteenth century, getting a boost from outbreaks of yellow fever in the United States and becoming fully established during the cholera pandemic of the early 1830s. Cholera is generally seen as the epidemic which established medical mapping as a standard technique in Europe and the Americas and certainly in Britain (E. W. Gilbert 173; Jarcho, "Contributions" 133; Stevenson 228), and these will be the maps with which this book will be principally concerned.

Thematic mapping of this sort is essentially a statistical argument presented visually, and so was a result of the development of statistics as an important area of knowledge. However, it also came into being as a result of the spatialized understanding of social problems in this period. Before the significant use of such maps (which mapped not only disease, but also poverty, crime, religious practice, and educational access as the most common measures), written accounts already tended to describe the conditions of populations spatially, street by street and sometimes house by house.[13] In other words, social problems were already understood with reference to location, to the built and natural environment, and to proximity to areas already deemed problematic. As Stevenson observes, such detailed spatial descriptions cried out for visual representation (240). Thematic maps were created and displayed at the Great Exhibition of 1851, and by the late 1850s, if not earlier, cholera mortality maps were printed to be displayed in the registration districts.[14] These descriptions are clearly ancestors of the both comprehensive and highly localized Booth maps of the 1890s. Thematic maps allowed readers to simultaneously situate themselves in a totality of human activity or experience and a spatial totality which was connected to, and helped define, that human community. Medical maps located human beings in a community of bodies linked by common vulnerability to disease.

Medical maps, presumably, would not have been as widely consumed as, say, the Society for the Diffusion of Useful Knowledge (SDUK) maps; however, the epigraph to this chapter, taken from a sermon published in pamphlet form, implies that this minister's audience (largely middle to upper class), at least, was expected by the orator to be familiar with sanitary maps:

> Cleanliness . . . and an early application of medicine and medical skill . . . were supposed to be specifics against the contagion. . . . But pushing that truth too far, men began to map out the geographical boundaries of the malady. . . . Then the selfishness of our nature, leaving the poor in their disease or in their danger to pay the penalty of their localities, was heard to congratulate itself on the comparative safety of its better situations. (Rev. Henry Venn Elliott 9–11)

Clearly the minister speaks of both the mapping and readers' reactions as topics of common knowledge by 1855, well outside of medical circles. He also

recognizes—and calls upon his auditors to recognize—the classed nature of such mapping, its social and policy investments, and deleterious effects upon the disenfranchised. This sermon implies that both familiarity with such maps and rather sophisticated mapreading practices—such as use of maps to predict one's own vulnerability to disease—were fairly widespread.

READING SANITARY MAPS

Although, clearly, overall map use was quite widespread in the middle- to upper-class population, I have found no evidence that sanitary maps were very widely perused specifically by the literate working classes. Although there was much didactic literature for the poor on sanitary living, and much educational literature with maps, the two strands seem not to have combined. Didactic literature like *Through Tumult and Pestilence,* a novel about cholera in a village, written by Emily Lawson and published by the SDUK, expects a certain familiarity among its audience with medical topography narratives. It describes the village in terms of fever-producing, low-lying areas near stagnant ditches, salubrious areas that are high and airy, and so forth, but that does not necessarily mean such readers were thought to have seen cartographic representations. And such maps were not widely reproduced in the middle-class quarterlies, even once the technology existed to do so.

Who, then, did read them? Those within the medical community who either worked with sanitary agencies or were interested in epidemiology certainly both constructed and perused these maps. Journal articles only occasionally mention maps, but when they do, they assume familiarity or at least access. In an 1849 issue of the *London Medical Gazette,* there was reprinted the first of Dr. W. F. Chambers's 1832 *Three Lectures to Students at St. George's Hospital,* which seems to have been conducted originally with the aid of maps from government reports on the cholera in India. The text assumes that Dr. Chambers's listeners have access to these maps, as he offhandedly concludes a discussion of the directions of spread of the disease with the comment, "A reference to any of the maps will show the distribution of those routes" (Chambers 293). The maps produced by the General Registrar's Office were certainly seen by law and policy makers and those social activists interested in such questions, and at least some were directed to be displayed in the registration districts. Local sanitary maps of the type used in the parish level reports on the cholera epidemics to the central authorities were very likely usually seen by the parish boards and anyone who came to their meetings. This means that a substantial minority of the elite rate-paying male population would have seen such maps—if not a disease map specifically, at least a "sanitary condition" map. These maps were also used and referred to by other report makers

and by researchers like Snow. As we shall see below, popular interest in the position of the Lord Craven pest field during the St. James epidemic suggest that at least in this parish, quite a few people chose to view the map. Still, sanitary and medical maps were probably far more familiar to middle-class readers than to workers.

For those who did read sanitary maps, and who agreed with the basic assumptions which they were created to illustrate, to read such a map involved a comparison of the perceived space the map displayed (and perhaps one's own lived experience of it) to the conceived space on which the map was implicitly based. In turn, to read the map sympathetically involved the absorption of an ideal of space that was transparent to representation (such transparency itself standing in perhaps for dryness, or a certain threshold of population density past which the map would begin to darken, or what was defined as a sufficient supply of sewerage). To read a sanitary map was to measure the distance between the mapped space and the ideal, and as sanitary maps were drafted with attention to remediation of urban problems, it was also to envision a method and a narrative of progress: so many months of resewering, so many slums cleared, so many streets drained.

MAPS AS INFORMATION

All maps are rhetorical. That is, all maps organize information according to systems of priority and thus, in effect, operate as arguments, presenting only partial views, which construct rather than simply describe an object of knowledge. Most maps flatten the terrain, offering a view of space as homogenous and equivalent. Maps rarely account for many aspects of time, differences between day and night or the seasons. Human activity, in all its many forms, organizes the terrain in other ways often difficult to represent with conventional cartographic symbols (although in the twentieth century great strides have been made). In any case, these constraints don't make for bad maps, only, inevitably, ones limited by the purposes for which they are intended and the uses to which they are put. Thematic maps, as a subset of maps generally and especially as statistical arguments, are inevitably persuasive in intent.

However, maps, much like anatomy, have generally been accorded a disproportionate truth value by their readers, and often even by their makers, who should know better. Like the body, the earth seems the very stuff of materiality, the privileged referent of truth and experience. Maps, of all documents, are often read uncritically as representations of an external reality, not subject to a platonic distrust of language. As Edney observes,

> The scientific gaze claims to be a naturalistic gaze which . . . creates "topographical drawings." The ability to make [these] . . . , to portray physical fea-

tures in a precise and correct manner . . . was an ability expected of any well-educated individual of the upper classes [in the mid-nineteenth century]. . . . The first superintendent of the British Royal Military College (founded in 1799) held that "everything which is put down in writing of necessity takes on some colour from the opinion of the writer. *A sketch map allows of no opinion.*" (55, original emphasis)

The faith of the average man in maps was sufficiently widespread for Dickens to lampoon it; as we saw in the preface, young Martin Chuzzlewit is so impressed by a plan of the North American city of Eden that, despite the fact that he knows it is not all built, he believes it to be "really a most important place!" (355).

Social problems, including epidemic disease, crime, and prostitution, were seen as especially attendant on urbanization. London and Paris drew particular attention from cartographers and those interested in social work who set about to determine the spatial relations of such problems. Maps of "moral statistics," which began to be popular in France beginning with the first choropleth map in 1826, were well known in England and began to be produced there by the 1830s (Robinson, *Early Thematic Mapping*). Social maps of crime and moral turpitude of various sorts were quite popular, and poverty maps led to the well-known verbal and cartographic mappings of London by Mayhew (maps published in 1862) and Booth (1889). Sanitary reports, of course, included many detailed maps to show the location of nuisances; most of these were pragmatic (at such and such a place, a drain is wanted), but many were intended to be persuasive. Some were used for persuasive purposes in publications addressed to a larger audience, such as Chadwick's report maps of 1842, drawn by Baker. The availability of general-purpose maps made thematic and medical mapping much easier for the medic or sanitarian without expertise in cartography. In the 1890s the Booth maps, for example, were created by researchers in the field who added seven colors showing degrees of poverty to existing Ordinance Survey maps. They then sent them to the publisher, Stanford, who overprinted the colors on his six-inch map of London, "Stanford's library map of London and its suburbs" (J. Elliot 78).

Jarcho argues that early disease maps (before 1840) developed mapping techniques as follows: identification of places, then places with dates and lines of spread, then affected regions in solid colors ("Yellow Fever" 137)—he forgets spot maps in this summary—which he argues shows a "trend toward complexity" (137). This is a questionable conclusion. The definition of complexity is unclear. What is clear from looking at all the maps that Jarcho, E. W. Gilbert, and Stevenson examine, plus some that none discuss in detail (such as the world cholera maps), is that the trajectory of mapping in medical writing, at least as regards cholera, generally moved away from models which

showed lines of spread to models that highlighted locality, especially, in medical analyses, spot maps, and from larger views (India, Asia, the world) to smaller views (Oxford, London, Broad St., and Golden Square). However, even this is not a direct line of development, since very localized spot maps were used (for example, Seaman's in 1796—see Stevenson) in the United States for yellow fever, and world and continental maps continued to show up in the 1860s and 1870s. Although historians of cartography, especially in the 1960s and 1970s, repeatedly attempt to show a teleology from simple to complex, the facts rarely bear this out. In fact, all the significant techniques of thematic mapping used well into the twentieth century evolved very rapidly, and were in use by the early to mid-nineteenth century—and with sufficient publicity to ensure that they were widely known.

So we must look elsewhere to explain the choices made by medical mappers. Stevenson is the only historian I have found who sustains a reading of medical maps as arguments. In his study of early yellow fever spot maps, he finds that they tended to be used to make anticontagionist arguments. The history of contagionism and anticontagionism is complex as each of these positions actually embraced many medical theories. However, in broad terms, we can define these here as the positions supporting direct human spread of the cholera versus those who believed epidemics spread by some other means, perhaps climatic. Sanitarians, as believing that disease was caused by filth rather than contact with the sick, fell largely, if problematically, into the anticontagionist camp. Anticontagionism, a stance that, not incidentally, supported commercial interests that would have been damaged by quarantines, was arguably the dominant medical paradigm in the 1830s. Yet, it required constant defense against a popular common sense that "the Fever" (a large category of disease under which cholera was often subsumed by medics and laypeople alike) was contagious.[15] Stevenson discusses several spot maps, which often map incidences of fever against nuisances, which show anticontagionist arguments (for example, the 1920 map by Middleton that shows cases of illness ashore in the harbor, but doesn't include cases on shipboard because of their foreign origin! [244]). Stevenson argued that the spot map was best used for statistical arguments of extreme localism, most often by anticontagionists "of strong sanitarian proclivities" (248), though later contagionists also took them up, perhaps in part because their earlier use in texts that the contagionists wished to refute set the terms of the genre.

Of course the most famous medical map of the period, Snow's Broad Street map, is precisely both antisanitarian and a spot map. (It argued for human spread of cholera, not through direct contact, but through the fecal oral route via contaminated water.) Still, contagionist uses, according to Stevenson, are rare. Stevenson also notes, as few other historians of medical maps do, that these maps were ancillary materials used to prove a thesis, not

research tools in themselves. (Stevenson also remarks that medical maps were not used by those interested in atmospheric abnormalities because they "had no way to use it." Although true of local maps, this is in no way self-evident in the case of large-scale maps, such as the world maps showing lines of spread. In fact, as we shall see, Robert Lawson used a world map for a similar purpose. Such maps were much more useful in contagionist arguments.) A great deal of attention was paid to atmospheric and meteorological conditions, and we are now finding that the Victorian interest in such things may not have been so daft. Recent work shows that temperature changes in the sea may have a great impact on cholera epidemics and that the human gut is not the only reservoir of cholera vibrios, as previously believed, but that the vibrios may remain in an inactive state in water for some time before being activated by environmental conditions.

In short, we cannot simply look to a natural progression of increasingly complex means of representation becoming available, and therefore, being used. Medical mappers chose their techniques based on a wide variety of reasons, ranging from a self-conscious decision to choose the mode which favored their argument to simple imitation of existing maps to which they were responsive. As this would suggest, mapmakers did not design these maps in a vacuum, but often related to existing maps and narratives intertextually. Whether they were simply responding to the requirements of a governing body demanding certain kinds of information and protocols for representing them, or responding to the assertions of a rival theorist, mapmakers' choices were more influenced by policy and argumentative aims than technical innovations. But as we shall see, maps did change over time, not to reflect more sophisticated techniques in mapmaking, but to intertextually acknowledge an existing map literature and to reflect political and historical trends which were not, in themselves, cartographic. Increasing reliance on an existing series of mapping documents did enable an increasingly complex and layered historical account of space—for example, showing the changing patterns of disease distribution over time—which encouraged the incorporation of geographic change into narratives of progress.

Biostatistics, putatively objective numbers about corporeal bodies, and maps, objective representations of terra firma, were a perfect match—scientific, based in mathematics and material reality, unanswerable. As Mary Poovey points out, "[N]umbers have come to epitomize the modern fact, because they have come to seem preinterpretive or even somehow noninterpretive even as they have become the bedrock of modern systematic knowledge" *(History of the Modern Fact,* xii), a definition of the notion of the fact which she demonstrates was largely in place by the early nineteenth century, though certainly still not uncontested.[16] Cartography also seemed to inhabit this realm of the absolute and atheoretical. Nor has this trusting attitude significantly altered. As late as

1989, J. B. Harley famously called for an interpretive study of cartography rooted in social theory: against cartographers' claims that maps are mirrors of nature, Harley argued that cartographic vocabulary "embodies a systematic social inequality. The distinctions of class and power are engineered, reified and legitimated in the map by means of cartographic signs" (7) and naturalized by a discursive mindset in which "science itself becomes the metaphor . . . for a utilitarian philosophy and its will to power" (10). Writing specifically of medical maps in 1980, distinguished expert in medical geography G. M. Howe warns:

> [S]ince maps may be read, used, and acted upon by other professions [than cartography], it is of the utmost importance that their limitations and total dependence on the quality of the data be realized. Otherwise an impression of totally spurious reliability may be conveyed. . . . [T]here is no single epidemiological index which completely characterizes the impact of a disease in a community. . . . Maps or cartograms explain nothing but they all pose the question "Why?" This inevitably leads to a search for explanations of the spatial patterns revealed [which must take into account many complex factors]. (284–85)

Howe, whose work is largely of the type medical geographers today would call "positivist," still emphasizes the contingent and partial nature of the knowledge produced by medical mapping, as well as underscoring most readers' naïveté regarding the status of this knowledge.

But many other late-twentieth-century medical cartographers and historians are less cautious. For example, in a passage which has been widely and uncritically reproduced, Thrower enthuses that Snow's 1855 maps "illustrate the highest use of cartography: to find out by mapping that which cannot be discovered by other means" (*Maps and Civilization* 152)—despite the fact that Snow created the Broad Street map after he had already reached his conclusions, in order to illustrate them persuasively. (The maps were not even published until the second edition of his paper on the Golden Square outbreak.) As we will see, there is nothing natural about the way Snow chose to construct his maps, not to test a hypothesis, but to argue a thesis. Additionally, modern cartography is historically complicit with and driven by imperialist and capitalist expansion. Between some sense of map as ideal and territory as real, which many critics of maps assume, there is Geoff King's articulation of the Marxist position that materiality and ideal are not separable. Mapping creates a territory, and certainly participates in the creation of place, in the sense that mapping often determines or alters the human practices within the territory it defines: "Capitalism can be seen as an amalgam of map and territory, a complex and multifaceted series of mutually reinforcing structures that maintain its now almost global hegemony" (King 168).

This is especially obvious in the case of plans, which map future environments and partially create their conditions of possibility. Yet it is true of existing maps as well, which act to limit future interactions with an existing environment, as well as fixing it politically and legally, for example, through zoning laws, constituency definitions, and so forth. Although some historical maps have begun to receive this kind of scrutiny (most notably Renaissance maps of the New World), nineteenth-century sanitary and medical maps have been accorded no such attention. Yet these maps played a significant part in establishing the spatial discourse of the social body and in shaping the Victorian sense of how cities work, a set of beliefs which still resonate in urbanism today.

In human geography, which focuses on human practices of space and of which medical geography is a part, there have been, over recent years, increasingly insistent calls for attention to place over space. If space is the Euclidean description of a site's physical properties and relation to other sites, place takes into account the ways in which human beings use space to construct meaningful referents and sites for human activity—again, what Lefebvre and other theorists have called "social space." Place includes the practical, emotional, and economic qualities of human interactions with space, among other aspects. Humanist, feminist, and postmodern geographers have been loudest in their calls for mapping place, which includes chronological elements of human interaction as well, and pays attention to identity, including gender, class, and race/ethnicity, as well as agency as issues in the practice of space. The WHO's challenging definition of health as "a state of complete physical, mental, and social well-being and not merely the absence of disease" (1) has pushed medical geographers to move to more holistic, complex measures of health than earlier foci simply on disease incidence or mortality.

However, even as recently as 1994, Robin Kearns's call for an integration of social and medical geography was met with incomprehension from environmental determinists Mayer and Meade. It is not surprising, then, that when medical geography was in its Enlightenment era infancy, it should have concerned itself with what we might consider a positivist approach. Although historians of medical geography trace its lineage back to Hippocrates' *De Aere, Aquis et Locis,* as Howe has noted, until germ theory, emphasis was on the internal balance of the body rather than external causes (282). However, epidemic disease in the age of world transportation was able to draw attention to environmental factors even in the early nineteenth century, long before germ theory gained currency. Although some very early maps of plague and the like sporadically appeared very early, serious attention to medical topography with cartography seems to have begun around 1810 (E. W. Gilbert). By 1840, the number of cholera maps extant has been described as "intractably large" to address in any one study (Jarcho, "Yellow Fever" 131).

   Medical topography became an important part of place definition, with policy and economic ramifications. E. W. Gilbert notes that when, "in his book on climate, Dr. Clark praised the then unknown Ventnor in the Isle of Wight as a health-giving winter resort; his commendations sent up the price of building land [. . .] from £100 per acre to £800 or £1000 in a very few years" (173). Mapping also became an important part of professionalism. In the United States, maps were considered so important that the first law for copyright protection was created in 1790, "for the Encouragement of Learning, by securing the Copies of Maps, Charts and Books to the Authors and Proprietors" (qtd. in Stevenson 237). (Plagiarism was still sufficiently lucrative worldwide for Berghaus to complain about it in the preface to his Atlas in the late 1840s.)

   Robinson demonstrates that maps were in widespread use among the educated classes by midcentury; to ignore the mapping trend was to be out of step with the times. Joseph Fletcher, a moral statistician, published his 1847 paper on educational and moral statistics with "one simple reference map," observing that the tables were as expressive as "an expensive series of shaded maps" (qtd. in Robinson, *Early Thematic Mapping* 162). Robinson observes, however, "His anticartographic attitude soon did an about-face. Only two years later, in 1849, he published another study . . . accompanied by twelve relatively elaborate maps." He explained, "A set of shaded maps accompanies these tables . . . I have endeavored to supply the deficiency which H.R.H. Prince Albert was pleased to point out, of the want of more illustrations of this kind" (qtd. in Robinson, *Early Thematic Mapping* 162). As Robinson mentions, it is significant that when Petermann (later "Physical Geographer and Engraver on Stone to the Queen," E. W. Gilbert 178) first sought to establish himself in England, he began with medical maps, specifically of cholera in the British Isles. This shows the importance such maps had in the period (Robinson, *Early Thematic Mapping* 177).

   It would be overstating the case to assert that medical maps were the primary thematic concern of cartographers in this period. But they were a type of map most interesting to those in the medical profession, who not only constructed but also perused them, to sanitarians, to local boards, and to some extent to the general public, at least during and immediately after an epidemic. Medical maps, then, created an interest and a public disproportionate to their merits as aesthetic or technical artifacts. In recalling attention to these maps and attempting to read them, not simply as positivist representations of the land which are more or less flawed by the scientific resources which mapmakers had, but as cultural documents in dialogue with other narratives, beliefs, and ideological investments, I am gesturing toward the social space—perceived and conceived—that these maps both encode and attempt to change.

Restoration of a sense of lived space to these maps is extremely difficult. However, it is possible to view these maps critically, examining what they chose to do and not to do and what investments they may have represented. It is also possible to reconstruct some circumstances of their reception, as we shall see in chapter 4. Although this is only a first step toward understanding the role these maps might have played in constructing perceptions of space, it is a necessary one—and long overdue. After a flurry of attention in the 1960s and 1970s, which consisted mostly of simply noting the existence of such maps and forming a chronology of their production, little has been done with these representations. Outside of Lloyd Stevenson's 1965 article on early yellow fever spot maps, there has been no sustained attention to the rhetorical nature and context of their production. Additionally, map historians tend to be most fascinated with maps which display technical innovation, whereas our purpose here is better met by examining maps which chart the thematic interests of the medical profession and were fairly widely disseminated.

In light of these facts, I shall discuss here a number of maps that have not been examined before, as well as some that have. These maps, of course, were not published or consumed in a vacuum; they were accompanied by textual reports. I shall read them in that context, sampling also other narratives of perceived space that affected both their construction and reception. In chapter 5, we will examine an exemplary novel, Dickens's *Bleak House,* which both responds to these maps and attempts the same act of representation: that is, to show a difference between perceived and conceived space and relate the bridging of that difference to narratives of liberal development. But whereas the texts have received considerable attention from political, literary, and medical historians over the years, the maps, which were a significant part of the production of both knowledge and visual culture in this period, have not, and it is to that end that I emphasize them proportionately here. The principal contribution of this volume is intended to be not a comprehensive reading of these documents, which would be beyond the scope of any one study, but to gesture toward how important such documents were in producing some of the spatialized discourse of the social body in the period and to contextualize and interpret documents which have too long been either ignored or, worse, left unchallenged as transparent records of "fact"—and because "factual," ahistorical.